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IN TEN VOLUMES

VOL. X—TRIBUNE—ZYMOTIC

BIOGRAPHICAL SUPPLEMENT

THE SAALFIELD PUBLISHING COMPANY

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## BIOGRAPHIES.

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### VOLUME X.

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#### TRI

**TRIBUNES** (*tribuni*) was a name assigned to officers of several different descriptions in the constitution of ancient Rome. The connection of the word with *tribus*, "tribe," is obvious. The original tribunes were no doubt the commanders of the several contingents of cavalry and infantry which were supplied to the Roman army by the early gentilician tribes—the Ramnes, the Tities, and the Luceres. In the historical period the infantry in each legion were commanded by six tribunes, and the number six is probably to be traced to the doubling of the three tribes by the incorporation of the new elements which received the names of *Ramnes secundi*, *Tities secundi*, *Luceres secundi*. The *tribuni celerum* or commanders of the cavalry no longer existed in the later times of the republic, having died out with the decay of the genuine Roman cavalry. So long as the monarchy lasted these tribunes were doubtless nominated by the commander-in-chief, the king; and the nomination passed over on the establishment of the republic to his successors, the consuls. But, as the army increased, the popular assembly insisted on having a voice in the appointments, and from 362 B.C. six tribunes were annually nominated by popular vote, while in 311 the number was raised to sixteen, and in 207 to twenty-four, at which figure it remained. The tribunes thus elected ranked as magistrates of the Roman people, and were designated *tribuni militum a populo*, while those who owed their office to the consuls bore the curious title of *tribuni rufuli*. The rights of the assembly passed on to the emperors, and "the military tribunes of Augustus" were still contrasted with those nominated in the camp by the actual commanders. The obscure designation *tribunus ærarius*, "tribune of the treasury," had also, in all probability, a connection with the early organization of the army. The officer thus designated was at any rate the paymaster of the troops, and the soldier who was defrauded of his pay was allowed to exact it from this tribune by a very summary process.

But by far the most important tribunes who ever existed in the Roman community were the tribunes of the commons (*tribuni plebis*). These were the most

characteristic outcome of the long struggle between the two orders, the patrician and the plebeian. When in 494 B.C. the plebeian legionaries met on the Sacred Mount and bound themselves to stand by each other to the end, it was determined that the plebeians should by themselves annually appoint executive officers to stand over against the patrician officers—two tribunes to confront the two consuls, and two helpers called *ædiles* to balance the two patrician helpers, the *quæstors*. The revolution must have ended in something which was deemed by both the contending bodies to be a binding compact, although the lapse of time has blotted out its terms. Yet there must have been a formal acceptance by the patricians of the plebeian conditions; and most probably the oath which was first sworn by the insurgents was afterward taken by the whole community, and the "sacrosanctity" of the plebeian officials became a part of the constitution. There must also have been some constitutional definition of the powers of the tribunes. These rested at first on an extension of the power of veto which the republic had introduced. Just as one consul could annul an act or order of his colleague, so a tribune could annul an act or order of a consul, or of any officer inferior to him. There was no doubt a vague understanding that only acts or orders which sinned against the just and established practice of the constitution should be annulled, and then only in cases affecting definite individuals. The tribune was to give his help against illegality in concrete instances. The cases which arose most commonly concerned the administration of justice and the levying of troops.

The tribunes continued to exist till a late period, with gradually vanishing dignity and rights; but it is not necessary here to trace their decay in detail.

The name "tribune" was once again illuminated by a passing glory when assumed by Cola di Rienzi. The movement which he headed was in many respects extremely like the early movements of the plebeians against the patricians. (See RIENZII.)

**TRICHINA, TRICHINOSIS.** See NEMATODEA and PARASITISM. *Trichinæ* are parasites inhabiting the structural tissues of animals.

**TRICHINOPOLI**, a district of British India, in the Madras presidency, lying between  $10^{\circ} 37'$  and  $11^{\circ} 30'$  N. latitude and  $78^{\circ} 12'$  and  $79^{\circ} 30'$  E. longitude. Its area is 3,561 square miles. It is bounded on the north and northwest by Salem, on the north and northeast by South Arcot; on the east and southeast by Tanjore, on the south by Pudukottai state and Madura, and on the west by Coimbatore.

In 1901 the population of the district was 1,215,033 (males 586,434, females 628,599), of whom Hindus numbered 1,119,434, Mohammedans 34,104, and Christians 58,809. The only town with a population exceeding 10,000 is Trichinopoly, the capital with 104,690 inhabitants. This city is chiefly noticeable for its strong fort, perched on a granite peak 500 feet high, and the group of temples and temple buildings situated on and around it. The town next in importance is **SKIRANGAM**, (*q.v.*) The chief crops of the district are rice, cotton, tobacco, indigo, sugar-cane, cocoa-nut, plantain, areca-nut, and chillies; and the most important local industries are weaving and the manufacture of cigars. The principal exports are grain of all kinds, especially rice; the imports, tobacco and salt.

**TRICOLOR**, means literally a flag in three colors, but is generally applied to flags of three colors in equal masses. The French tricolor, now the accepted national flag, is blue, white, and red, divided vertically; that of the German Empire is black, white, and red, divided horizontally. Italy's flag is green, white, and red, divided vertically; the flag of Belgium is black, yellow, and red, divided vertically. Holland has a red, white, and blue flag, divided horizontally. The tricolor of the United States is blue, white, and red, divided horizontally.

**TRIC TRAC**. See **BACKGAMMON**.

**TRICYCLE**. Though velocipedes were made and used more than 100 years ago, none were practically successful until the brothers Starley constructed in 1876 the Coventry tricycle. One of the earliest descriptions of a cycle occurs in the *Journal de Paris* July 17, 1779. Somewhat later M. Richard invented a machine driven by mechanism almost identical with that of the modern omnicycle, but without the expanding segments. Early in the nineteenth century the cranked axle worked by treadles and levers came into fashion; then the heavy four-wheelers were preferred. All these machines, however, labored under three fatal defects—it was almost impossible to drive them up-hill, to check them in going down-hill, and to prevent their overturning in rounding a corner.

It was the success of the early bicycle (see **BICYCLE**) which suggested the belief that a serviceable tricycle could be made. One of these bicycles was specially constructed for ladies, the hind wheel being placed well on one side; but, though it could be ridden, it was not a commercial success. The brothers Starley, by putting a second small wheel in front of the large driving wheel and on the same side as the small hind wheel, gave stability to the machine; it was steered by turning the small wheels opposite ways, and driven by the large wheel by means of cranks and connecting rods. The same machine with chain driving—the Coventry rotary—is still very largely used. In 1877 James Starley, it is believed without any knowledge of the gear used by Fowler for traction engines, reinvented the same differential gear for tricycles. By this the same force is, under all circumstances, applied to each of two equal driving wheels, and the evil effects of driving a single wheel are done away with. This gear was used in the original Salvo tricycle, which is the type of the surest machine at the present day. In the early days of the modern tricycle other designs were carried out, which

have now become practically obsolete. In one form the hind wheel of a bicycle was replaced by a pair of equal wheels, one on each side, but the instability of such a construction was fatal. In another, the Challenge, the two wheels were placed in front of the large driver and turned together to steer the machine; stability was obtained by putting the rider in front of the large wheel and lower down, the power being communicated by cranks and connecting rods. But the weight of this machine and the small proportion of the load on the driving wheel were serious defects.

Single-driving rear-steerers were at this time very common, and, though highly objectionable, are still to be seen. Rear-steerers were improved by making both front wheels drivers and allowing for the overrunning of one or the other by clutch, as in the Cheylesmore, or by ratchet driving; but steering by the hind wheel is essentially wrong, and these machines are avoided by experienced riders. Rear-steerers have, however, lately been made with a through axle and differential gear (Rover), the rider being placed further back so as to increase the load on the steering wheel; but the evil of rear-steering is only reduced, not removed. The clutch is also employed on some front-steerers; and, though in certain respects it has an advantage over the differential gear, for general use it is not so suitable. The differential gear is an essential feature of the modern tricycle. In the manufacture of improved tricycles America is far ahead of any other country, large manufactures having sprung up in late years.

Machines in which the arms instead of the legs supply the power are made, and are of immense service to those who have lost the use of their legs.

Owing to the inconvenience caused by doorways being often too narrow to allow a tricycle to pass through, many machines are made to fold up into a narrower space or to shut up like a telescope.

It is important that the rider should be so placed that he can, without leaning forward, put most of his weight on the treadles, and this is more than ever needed as the steepness of an ascent increases, because the slope of the machine has a contrary effect. Sliding seats were arranged for this purpose; but Mr. Warner Jones has made use of a swinging frame which the rider can lock in any position he pleases. It is this same swinging frame which gives such comfort to the rider of the Otto bicycle; placing him at all times in the position most suitable for the occasion.

Carrier tricycles, in which due provision is made for the proper distribution of the load, are largely used by the post office and by tradesmen in their business. The "Coventry chair" is a kind of bath chair driven as a tricycle by a rider behind. When invalids have overcome a certain prejudice as to the danger of this kind of vehicle, it will no doubt be more generally used.

In machines for two riders the riders sit side by side (*sociables*) or one is placed before the other (*tandems*). Sociable machines are both front-steering and rear-steering. Rear-steerers with each rider driving the wheel on his side only are nearly as objectionable as the single-driving rear-steerer. Front-steering sociables with differential gear are safe and comfortable; but all sociables are slow machines. For nearly every make of single tricycle there is a corresponding tandem.

**TRIESTE** (Germ. *Triest*, Slav. *Trst*, Lat. *Tergeste*). The principal seaport of the Austrian-Hungarian empire, is picturesquely situated at the northeast angle of the Adriatic Sea, in the Gulf of Trieste, and at the foot of the barren Karst Hills. The capacious harbor, consisting of two parts, the old and the new, is protected by extensive moles and breakwaters, and has been greatly improved within the last ten or fifteen years.



From the harbor the Canal Grande extends into the town, allowing large vessels to unload at the warehouses. At the end of the Mole Sta Teresa is a lighthouse upward of 100 feet high. The population of the town (6,424 in 1758) and district of Trieste in 1901 was 144,844, of whom 94,544 belonged to the town proper, and 134,143 to the town and suburbs. The town population is very heterogeneous, but the Italian element far exceeds all the rest. There are about 5,000 Germans, and also numerous Greeks, English, and French.

TRIGGER-FISH. See FILE-FISH.

TRIGONOMETRY is primarily the science which is concerned with the measurement of plane and spherical triangles, that is, with the determination of three of the parts of such triangles when the numerical values of the other three parts are given. Since any plane triangle can be divided into right-angled triangles, the solution of all plane triangles can be reduced to that of right-angled triangles; moreover, according to the theory of similar triangles, the ratios between pairs of sides of a right-angled triangle depend only upon the magnitude of the acute angles of the triangle, and may, therefore, be regarded as functions of either of these angles. The primary object of trigonometry, therefore, requires a classification and numerical tabulation of these functions of an angular magnitude; the science is, however, now understood to include the complete investigation not only of such of the properties of these functions as are necessary for the theoretical and practical solution of triangles but also of all their analytical properties. It appears that the solution of spherical triangles is effected by means of the same functions as are required in the case of plane triangles. The trigonometrical functions are employed in many branches of mathematical and physical science not directly concerned with the measurement of angles, and hence arises the importance of analytical trigonometry. The solution of triangles of which the sides are geodesic lines on a spheroidal surface requires the introduction of other functions than those required for the solution of triangles on a plane or spherical surface, and therefore gives rise to a new branch of science, which is from analogy frequently called spheroidal trigonometry. Every new class of surfaces which may be considered would have in this extended sense a trigonometry of its own, which would consist of an investigation of the nature and properties of the functions necessary for the measurement of the sides and angles of triangles bounded by geodesics drawn on such surfaces.

The Indians, who were much more apt calculators than the Greeks, availed themselves of the Greek geometry which came from Alexandria, and made it the basis of trigonometrical calculations. The principal improvement which they introduced consists in the formation of tables of half-chords or sines instead of chords. Like the Greeks, they divided the circumference of the circle into 360 degrees or 21,600 minutes, and they found the length in minutes of the arc which can be straightened out into the radius to be 3,438'. The value of the ratio of the circumference of the circle to the diameter used to make this determination is 62,832:20,000, or  $\pi = 3.1416$ , which value was given by the astronomer, Aryabhata (476-550), in a work called *Āryabhaṭīya*, written in verse, which was republished in Sanskrit by Doctor Kern at Leyden in 1874. The Indians did not apply their trigonometrical knowledge to the solution of triangles; for astronomical purposes they solved right-angled plane and spherical triangles by geometry.

The Arabs were acquainted with Ptolemy's *Almagest*, and they probably learned from the Indians the use of the sine. The celebrated astronomer of Batnæ, Abū Abdallah Mohammed b. Jābir al-Battānī (Bategnius),

who died in 929/930 A. D., and whose *Tables* were translated in the twelfth century by Plato of Tivoli into Latin, under the title *De scientia stellarum*, employed the sine regularly, and was fully conscious of the advantage of the sine over the chord; indeed, he remarks that the continual doubling is saved by the use of the former. Abū 'l-Wafā of Bagdad was the first to introduce the tangent as an independent function; his "umbra" is the half of the tangent of the double arc, and the secant he defines as the "diameter umbræ." He employed the umbra to find the angle from a table and not merely as an abbreviation for  $\sin/\cos$ ; this improvement was, however, afterward forgotten, and the tangent was reinvented in the fifteenth century. Ibn Yūnus of Cairo, who died in 1008, showed even more skill than Al-Battānī in the solution of problems in spherical trigonometry and gave improved approximate formulæ for the calculation of sines. Among the West Arabs, Abū Mohammed Jābir b. Aflah, known as Geber b. Aflah, who lived at Seville in the eleventh century, wrote an astronomy in nine books, which was translated into Latin in the twelfth century by Gerard of Cremona, and was published 1534. The first book contains a trigonometry which is a considerable improvement on that in the *Almagest*. Arrachel, a Spanish Arab, who lived in the twelfth century, wrote a work of which we have an analysis by Purbach, in which, like the Indians, he made the sine and the arc for the value  $3^\circ 45'$  coincide.

Purbach (1423-1461), professor of mathematics at Vienna, wrote a work entitled *Tractatus super propositiones Ptolemæ de sinibus et chordis* (Nuremberg, 1541). This treatise consists of a development of Arrachel's method of interpolation for the calculation of tables of sines, and was published by Regiomontanus at the end of one of his works. Johannes Müller (1436-1476), known as REGIOMONTANUS (q.v.), was a pupil of Purbach and taught astronomy at Padua; he wrote an exposition of the *Almagest* and a more important work, *De triangulis planis et sphericis cum tabulis sinuum*, which was published in 1533, a later edition appearing in 1561. He reinvented the tangent and calculated a table of tangents for each degree, but did not make any practical applications of this table, and did not use formulæ involving the tangent. His work was the first complete European treatise on trigonometry, and contains a number of interesting problems; but his methods were in some respects behind those of the Arabs. Copernicus (1473-1543) gave the first simple demonstration of the fundamental formula of spherical trigonometry; the *Trigonometria Copernici* was published by Rheticus in 1542. George Joachim (1514-1576), known as RHETICUS (q.v.), wrote *Opus Palatinum de triangulis*, which contains tables of sines, tangents, and secants of arcs at intervals of  $10''$  from  $0^\circ$  to  $90^\circ$ .

A new stage in the development of the science was commenced after Napier's invention of logarithms in 1614. Napier also simplified the solution of spherical triangles by his well-known analogies and by his rules for the solution of right-angled triangles. The first tables of logarithmic sines and tangents were constructed by Edmund Gunter (1581-1626), professor of astronomy at Gresham College, London; he was also the first to employ the expressions cosine, cotangent, and cosecant for the sine, tangent, and secant of the complement of an arc. A treatise by Albert Girard (1590-1634), published at The Hague in 1626, contains the theorems which give areas of spherical triangles and polygons, and applications of the properties of the supplementary triangles to the reduction of the number of different cases in the solution of spherical triangles. He used the notation  $\sin$ ,  $\tan$ ,  $\sec$  for the sine, tangent

and secant of an arc. In the second half of the seventeenth century the theory of infinite series was developed by Wallis, Gregory, Mercator, and afterward by Newton and Leibnitz. In the *Analysis per aequationes numero terminorum infinitas*, which was written before 1669, Newton gave the series for the arc in powers of its sine; from this he obtained the series for the sine and cosine in powers of the arc; but these series were given in such a form that the law of the formation of the coefficients was hidden. James Gregory discovered in 1670 the series for the arc in powers of the tangent and for the tangent and secant in powers of the arc. The first of these series was also discovered independently by Leibnitz in 1673, and published without proof in the *Acta eruditorum* for 1682. The series for the sine in powers of the arc he published in 1693; this he obtained by differentiation of a series with undetermined coefficients.

In the eighteenth century the science began to take a more analytical form; evidence of this is given in the works of Kresa in 1720 and Mayer in 1727. Oppel's *Analysis triangularum* (1746) was the first complete work on analytical trigonometry. None of these mathematicians used the notation sin, cos, tan, which is the more surprising in the case of Oppel, since Euler had in 1744 employed it in a memoir in the *Acta eruditorum*. The greatest advance was, however, made by Euler, who brought the science in all essential respects into the state in which it is at present. He introduced the present notation into general use, whereas until his time the trigonometrical functions had been, except by Girard, indicated by special letters, and had been regarded as certain straight lines the absolute lengths of which depended on the radius of the circle in which they were drawn. Euler's great improvement consisted in his regarding the sine, cosine, etc., as functions of the angle only, thereby giving to equations connecting these functions a purely analytical interpretation, instead of a geometrical one as heretofore. The exponential values of the sine and cosine, De Moivre's theorem, and a great number of other analytical properties of the trigonometrical functions are due to Euler, most of whose writings are to be found in the *Memoirs* of the St. Petersburg Academy. For the various formulæ and operations connected with the science the reader is referred to any standard work on the subject.

**TRILOBITES.** See CRUSTACEA.

**TRILOGY**, the name given by the Greeks to a group of three tragedies, either connected by a common subject or each representing a distinct story. Of the classic trilogy the most perfect specimen is the *Oresteia* of Æschylus. The three comedies of Beaumarchais form a comic trilogy, Schiller's *Wallenstein* is a trilogy, and of the modern the most famous is that of Swinburne, made up of *Chastelard*, *Bothwell*, and *Mary Stuart*.

**TRINCOMALEE**, a town and naval station in the island of Ceylon, is situated on the northeast coast—which is bold, rocky, and picturesquely wooded—by road 113 miles north-northeast of Kandy, in  $8^{\circ} 33' 30''$  N. latitude and  $81^{\circ} 13' 10''$  E. longitude. There is an admiralty dockyard, and the town is the principal naval station in the Indian seas. The breadth of the streets and esplanades somewhat atones for the mean appearance of the houses, but the town generally has a gloomy and impoverished aspect. Pearl oysters are found in the lagoon of Tambalagam to the west of the bay. The government buildings include the barracks, the public offices and residences of the civil and naval authorities, and the official house of the officer commanding-in-chief in the Indian seas. There is a hospital and outdoor dispensary, and also a friend-in-need

society. The population of Trincomalee in 1901 was 13,180.

**TRINIDAD**, a West Indian island, lying northeast of Venezuela, between  $10^{\circ} 3'$  and  $10^{\circ} 50'$  N. latitude and  $61^{\circ} 39'$  and  $62^{\circ}$  W. longitude, being the most southern of the chain of islands separating the Atlantic from the Caribbean Sea. Its area is 1,754 square miles, or nearly 1,123,000 acres. In shape the island is almost rectangular, but from its northwest and southwest corners project two long horns toward Venezuela, inclosing the Gulf of Paria. The northwest horn terminates in several islands, in one of the channels between which (the Boca Grande) lies the small British island of Patos. The general aspect of Trinidad is level. Three parallel ranges, varying from 600 to 3,100 feet in height and clothed with forests, run from east to west. The plains are watered by numerous streams, and the mountains are deeply furrowed by innumerable ravines. The rivers falling into the gulf are somewhat obstructed by shallows, especially the Caroni and the Couva. The soil, which is fertile, consists of clay, loam, and alluvial deposits. The Moriche palm and mountain cabbage, as well as the cedar and the balata, are prominent objects. Poisonous and medicinal plants grow everywhere, and the woods contain an inexhaustible supply of timber. There are two mineral springs. The most curious natural feature of the island is the pitch lake in La Brea, ninety acres in extent, which furnishes an important export. The climate is healthy, the mean temperature being in January  $76^{\circ}$  Fahr. and in September  $79^{\circ}$ ; it occasionally reaches  $90^{\circ}$ .

The population, which numbered 109,638 in 1871, was returned in 1881 at 153,128 (83,716 males and 69,412 females), and in 1901 at 253,250. Of the total area about 300,000 acres are cultivated. The principal productions of the island are sugar and cocoa; coffee is also becoming important. Trinidad has suffered much from the effect of foreign state bounties, especially the export premiums of Germany and France. The principal towns are connected by railway lines.

Trinidad was discovered by Columbus on July 31, 1496. It remained in Spanish possession (although its principal town, San José de Oruña, was burned by Sir Walter Raleigh in 1595) until 1797, when a British expedition from Martinique caused its capitulation, and it was finally ceded to Great Britain in 1802 by the treaty of Amiens. Its real starting-point as a productive country was in 1871, when the Madrid Government began to attract foreign immigrants. Trinidad is still strictly a crown colony of Great Britain. The legislative council includes the governor as president, and six official and eight unofficial members, all appointed by the crown. During the labor crisis caused by emancipation and the subsequent equalization of the British duties on free and slave-grown sugar, the colony was greatly assisted by the skillful administration of Lord Harris, governor from 1846 to 1851.

**TRINIDAD**, the capital of Las Animas county, Colo., situated on the Las Animas or Purgatory river almost at the base of the Raton Mountains, is the center of rich farming and grazing country, and in the immediate vicinity of extensive coal mines from the products of which a superior quality of coke is manufactured. Trinidad is connected with Denver, 210 miles to the north, by the Denver and Rio Grande railroad and with Kansas City and the east by way of the southern extension of the Atchison, Topeka and Santa Fé road. It is a growing and prosperous city, fully up to the requirements of the times, and rapidly growing in prominence and influence. The city is supplied with the latest improved electric light and street railway systems, thoroughly equipped and managed, also with



me savings and two national banks, three daily and two weekly papers in addition to one monthly publication, five churches, an academy, an institute, several graded schools, hotels, etc., also machine shops, foundries, iron works, smelting and reduction works, lumber and planing mills, broom and cigar factories, breweries, etc. The population, which was 2,226 in 1880, was in 1900 estimated at 5,345.

**TRINITARIANS** (*Ordo Sancte Trinitatis et Captorum*), a religious order instituted about the year 1197 by Innocent III., at the instance of John de Matha (1160-1213) and Felix de Valois (*ob.* 1212), for the ransom of captives among the Moors and Saracens. The rule was the Augustinian, the dress white with a red and blue cross. De Matha was the first general and De Valois the first abbot of the mother house at Cerfroid, near Meaux, where the idea of the institution had originated in a miraculous apparition. In the eighteenth century they had in all about 300 houses; but the order is now almost extinct.

**TRINITY, THE DOCTRINE OF THE**, is the highest and most mysterious doctrine of the Christian religion. It declares that there are three persons in the Godhead, the Father, the Son, and the Holy Ghost, and that these three are the same in substance, equal in power and in glory; one Eternal God. The Athanasian Creed asserts the Catholic faith to be that we worship one God as Trinity, and Trinity as in Unity, neither confounding the persons nor dividing the substance, for there is one person of the Father, another of the Son, and another of the Holy Ghost, but the Godhead of the Father, and of the Son, and of the Holy Ghost is all one, the glory equal, and the majesty co-eternal. It is admitted that the doctrine is not given in its fully developed form in the Scriptures, and no doctrine has given rise to so much discussion within the Christian Church. It was not until the third century that any attempt at formulating the doctrine was made, but in the Nicene Creed the Church defined the relation of the Son to the Father, and later in the Niceno-Constantinopolitan Creed, the relation of the Spirit to the Father. A further clause, "*filioque*," was added afterward to determine the procession of the Spirit from the Son as well as the Father, but this was never accepted by the Eastern Church. The doctrine of the Trinity, in its entirety, is accepted not only by the Roman Catholic Church, but also by the great Protestant communions, the only exception being the Unitarians and some of the so-called liberal faiths.

**TRINITY**, a river of Texas, which flows into Galveston bay about forty miles north of the city of Galveston. It is navigable for small boats for more than 300 miles.

**TRINITY**, a river of California, which rises in the Coast range and flows into the Klamath river.

**TRINITY COLLEGE**, Cambridge, England, was founded by King Henry VIII. in 1546 and is one of the most important colleges of the University. Among the noted men, who have been students and tutors at Trinity, must be reckoned General Whitgift, Doctor Barrows, Doctor Bentley, William Whewell, Francis, Lord Verulam, Sir Edward Coke, Cowley, the poet, and Lord Byron.

**TRINITY COLLEGE**, Oxford, was founded by Henry VIII., and fills an important place in the list of Oxford institutions of learning.

**TRINITY HOUSE, CORPORATION OF**. An association of English mariners, which originally had its headquarters at Deptford in Kent. In its first charter, received from Henry VIII. in 1514, it was described as the "guild or fraternity of the most glorious and undividable Trinity of St. Clement," the court being

made to consist of master, wardens, and assistants, numbering thirteen in all and elected annually by the brethren. Deptford having been made a royal dock yard by Henry VIII., and being the station where outgoing ships were supplied with pilots, the corporation rapidly developed its influence and usefulness. By Henry VIII. it was intrusted with the direction of the new naval dockyard. From Elizabeth, who conferred on it a grant of arms in 1573, it received authority to erect beacons and other marks for the guidance of navigators along the coasts of England. It was also recognized as the authority in the construction of vessels for the royal navy. By an Act of 1836 they received powers to purchase from the crown, as well as from private proprietors, all interests in coast lights. For the maintenance of lights, buoys, etc., they had power to raise money by tolls, the surplus being devoted to the relief of old and indigent mariners or their near relatives. In 1853 the control of the funds collected by the corporation was transferred to the Board of Trade, and the money over which the brethren were allowed independent control was ultimately reduced to the private income derived from funded and trust property. Their practical duties in the erection of lighthouses, buoys, and beacons remain as important as ever, the number of persons employed in their service being over 800. They also examine navigating lieutenants in the royal navy, and act as nautical advisers in the high Court of Admiralty.

**TRINITY SUNDAY**, which immediately follows Whitsunday, was in the older liturgies regarded merely as the "Octave" of Pentecost. The habit of keeping it as a distinct festival seems to have sprung up about the eleventh century. According to Gervase of Canterbury, it was Thomas Becket who introduced it into England in 1162. The universal observance of it was established by Pope John XXII. in 1334.

**TRIO**, in music, is a piece for three voices.

**TRIPLE ALLIANCE**, a name given to two different treaties well known in history. The first was concluded in 1688 between England and Holland and Sweden, its object being the protection of the Netherlands. The second was made between Great Britain, France and Holland against Spain, and guaranteed the Protestant succession in England, and that of the Duke of Orleans in France.

**TRIPLET**, in music, is when a note is divided into three parts instead of two, as when a minim is divided into three crotchets, or a crotchet into three quavers, the group is called a triplet.

**TRIPOD**, from the Latin *tripos*, threefooted. Any table or article of furniture supported by three feet.

**TRIPOLI**, a North African state, bounded by the Mediterranean on the north, by the desert of Barca (or Libyan Desert), which separates it from Egypt, on the east, by the Sahara and Fezzan on the southeast, south, and southwest, and by Tunis on the northwest. The country is made up of a strip of fertile soil adjacent to the sea, with vast sandy plains and parallel chains of rocky mountains, which finally join the Atlas range near Kairwán, in Tunis. It is naturally divided into five parts, viz.—Tripoli proper, to the northeast of which is the plateau of Barca and Jebel al-Akhdar, to the south the oasis of Fezzan, to the southeast that of Anjala, and to the southwest that of Ghadames. It is very badly watered; the rivers are small, and the desert wells and watering places are often dry. As regards the coast, it is extremely difficult to fix the exact border between Egypt and Tripoli. The seaboard of the Libyan Desert is so little known to Europeans that the spacious harbors of Tebruk (Tabraca and Tabarka) and Bomba (Bombæa) have almost escaped notice. The land bordering the sea to the west of Cape Rás al-Tif



does not partake of the sterile character of the wastes of Barca. The district of Jebel al-Akhdar ("the Green Mountain"), which intervenes between Rás al-Tin and Benghazi, abounds in wood, water and other resources; but its ports are scarcely worthy of the name, except Derna (Darnis), where vessels from Alexandria call to embark honey, wool, and wax. From Mersá Suza (Apollonia, later Sozusa), now a mere boat cove, but once a powerful city of Cyrenaica, to Benghazi, the coast abounds in extensive ruins. Benghazi itself, on the Bay of Sidra (Syrtis Major), is an insignificant fortified town trading in cattle and other produce. The principal products of the country are corn, barley, olives, saffron, figs, and dates—these last being perhaps the finest in the whole of North Africa. Fruit also is abundant in certain parts, and so are many kinds of vegetables. The horses and mules, though small, are capable of much hard work. The native tissues and pottery are almost as good as those of Tunis. Great quantities of castor oil come from Tadjura. In consequence of recent events in Tunis, Tripoli has become the last surviving center of the caravan trade to Northern Africa. It is at least 250 miles nearer the great marts of the interior than either Tunis or Algiers. A large proportion of the commerce of Tripoli is in the hands of British merchants or dealers in British goods, who send cloth, cutlery, and cotton fabrics southward, and receive in return esparto-grass, ivory, and ostrich feathers. The population of the country consists of Moors, Arabs, Kabyles, Kuluglis (descendants of Turkish fathers and Moorish mothers), Turks, Jews, Europeans, and Negroes. Nothing like a census has ever been attempted, and the number of inhabitants is purely a matter of conjecture. In the interior the population is very scattered, and it is not probable that the total exceeds from 800,000 to 1,000,000. The Europeans (2,500 or 3,000) on the coast are nearly all Maltese. There is a Jewish colony of about 4,000 in the capital, and the trade is almost entirely in their hands and in those of the Maltese.

Since 1835 Tripoli has lost the semi-independent character of a regency which it formerly enjoyed in common with Tunis, and has become a vilayet or outlying province of the Turkish empire. For administrative purposes it is divided into five districts, which are again subdivided into twenty-five cantons, the former being governed by motasarrifs and the latter by caimacams. Each village has its sheikh, who is assisted by a sort of municipal council. Since the invasion of Tunis by the French, the Turkish garrison of Tripoli has been considerably reinforced, and many new fortifications are partially erected on the coast. The chief judge or *cadi* is nominated by the Porte; the *muftis* are subject to his authority. There are also a criminal court and a commercial tribunal. The taxes are collected by a receiver-general, also nominated from Constantinople, and they press very heavily on all classes of the inhabitants. The principal sources of revenue are the usual Mohammedan taxes. The constant succession of Turkish governors, each of whom invariably follows a different policy from that of his predecessor, has been fatal to the material progress of the country. There are few elementary schools in the capital, and instruction in the interior is entirely limited to the Koran.

TRIPOLI, the capital of the above country, is situated in  $32^{\circ} 53' 40''$  N. latitude and  $13^{\circ} 11' 32''$  E. longitude, on a promontory stretching out into the Mediterranean and forming a small bay. The streets are narrow, dirty, and unpaved; there is no European quarter properly so called; Tripoli is still a typical Moorish city. Its population numbers about 20,000.

TRIPOLI (*Tarbulus*), a town of Syria, capital of

Liwā, on the river Kadisha or Abī 'Alī, in  $34^{\circ} 26'$  N. latitude and  $35^{\circ} 50'$  E. longitude, is situated in a fertile maritime plain covered with orchards and dominated by a castle overhanging a gorge of the river, some parts of which are, perhaps, the work of the crusaders. The port (Al-Minā) is about two miles distant, on a small peninsula. The population is estimated at 17,000, with the port at 24,000 or a little more.

TRIPOLITZA, officially TRIPOLIS, a town of Greece, capital of the nomarchy of Arcadia, is situated in a plain 3,000 feet above sea-level, twenty-two miles southwest of Argos. The name has reference to the three ancient cities of Mantinea, Pallantium, and Tegea, of which Tripolitza is the modern representative. Before the war of independence it was the capital of the Morea and the seat of a pasha, with about 20,000 inhabitants; but in 1821 it was taken and sacked by the insurgents, and in 1825 its ruin was completed by Ibrahim Pasha. The town has since been rebuilt, and in 1900 contained about 12,000 inhabitants.

TRISMEGISTUS. See HERMES TRISMEGISTUS.

TRISTAN. A hero of Arthurian romance.

TRISTAN DA CUNHA, a group of three small volcanic islands, situated in the South Atlantic nearly midway between the Cape of Good Hope and the coast of South America, the summit of the largest being in  $37^{\circ} 5' 50''$  S. latitude and  $12^{\circ} 16' 40''$  W. longitude. They rise from the low submarine elevation which runs down the center of the Atlantic and on which are likewise situated Ascension, St. Paul's Rocks, and the Azores. The prevailing winds are westerly. December to March is the fine season. The climate is mild and on the whole healthy, the temperature averaging  $68^{\circ}$  Fahr. in summer,  $55^{\circ}$  in winter—sometimes falling to  $40^{\circ}$ . Rain is frequent; hail and snow fall occasionally on the lower grounds. The sky is usually cloudy. The islands have a cold and barren appearance. The tide rises and falls about four feet.

The islands were discovered and named by the Portuguese in 1506. The Dutch described them in 1643. D'Etcheverri landed on them in the year 1767, when he gave Nightingale and Inaccessible Islands their names. Their exact geographical position was determined by Captain Denham in 1852, and the *Challenger* completed the exploration of the group in 1873. When first discovered the islands were uninhabited. Toward the end of the eighteenth and in the beginning of the nineteenth century several sealers resided on them for longer or shorter periods. In 1816 the islands were taken possession of by Great Britain. In 1817 the garrison was withdrawn, but Corporal William Glass, his wife and family, and two men were allowed to remain. This small colony received additions from time to time from shipwrecks, from whalers, and from the Cape of Good Hope. In 1826 there were seven men and two women besides children. In 1873 there were eighty-four inhabitants, in 1886 ninety-seven. They possess cattle, sheep, and geese. There are usually good potato crops. The settlement has always been on the flat stretch of land on the northwest of Tristan, and is called Edinburgh. Two Germans lived for several years on Inaccessible Island, but with this exception there have been no settlements either on this or on Nightingale Island.

TRITON. The genus *Triton* was constituted by Laurenti, in his *Synopsis Reptilium*, and the name was adopted by nearly all writers on *Amphibia*. In *Brit. Mus. Cat. Batrachia Gradientia*, by G. A. Boulenger, the genus is expanded and called by the name *Molge*, which was used by Merrem in his *Tentamen Syst. Amphibia*, 1820. The genus belongs to the division *Mecodonta* of the family *Salamandrida* in Strauch's



classification (see AMPHIBIA). The definition of *Molge* given by Boulenger, which closely agrees with that of Triton adopted by Strauch, is as follows: Tongue free along the sides, adherent or somewhat free posteriorly. Palatine teeth in two straight or slightly curved series. Fronto-squamosal arch present (except in *M. cristatus*), ligamentous or bony. Toes five. Tail compressed. In Bell's *British Reptiles*, four species were described as occurring in Britain. According to Boulenger, there are only three British species, *Molge cristata*, Boul. (Laurenti), *M. vulgaris*, Boul. (Linn.), and *M. palmata*, Boul. (Schneider).

Boulenger recognizes nineteen species of *Molge*, of which thirteen are European. Only two species occur in America. Strauch gives twenty species.

TRIUMPH, an honor awarded to generals in ancient Rome for decisive victories over foreign enemies; for victories in civil war or over rebels a triumph was not allowed. The triumph consisted of a solemn procession, which, starting from the Campus Martius outside the city walls, passed through the city to the Capitol. Rome was *en fête*, the streets gay with garlands, the temples open. The procession was headed by the magistrates and senate, who were followed by trumpeters and then by the spoils, which included not only arms, standards, statues, etc., but also representations of battles, and of the towns, rivers, and mountains of the conquered country, models of fortresses, etc. Next came the victims destined for sacrifice, especially white oxen with gilded horns. They were followed by the prisoners who had not been sold as slaves but kept to grace the triumph; they were put to death when the procession reached the Capitol. The chariot which carried the victorious general (*triumphator*) was crowned with laurel and drawn by four horses. The general was attired like the Capitoline Jupiter in robes of purple and gold borrowed from the treasury of the god; in his right hand he held a laurel branch, in his left an ivory scepter with an eagle at the point. Above his head the golden crown of Jupiter was held by a slave who reminded him in the midst of his glory that he was a mortal man. Last came the soldiers shouting *Io triumphe* and singing songs both of a laudatory and scurrilous kind. On reaching the temple of Jupiter on the Capitol, the general placed the laurel branch (in later times a palm branch) on the lap of the image of the god, and then offered the thank offerings. A feast of the magistrates and senate, and sometimes of the soldiers and people, concluded the ceremony.

TRIVIRATE, in Latin, "composed of three," the name given in Roman history to the private league entered into between Pompey, Crassus and Caesar. It is applied with greater accuracy to the division of the Roman Government between Augustus, Mark Antony, and Lepidus in the civil wars that followed the murder of Caesar.

TRIVANDRUM, a town of India, capital of the native state of TRAVANCORE (*q.v.*), is situated in 8° 29' 3" N. latitude and 76° 59' 9" E. longitude, near the coast, not far from Cape Comorin. It is the residence of the maharajah, and contains an observatory and a museum, besides several other fine buildings. Commercially it is inferior in importance to Allepi, the trade center of the state. In 1901 it had a population of 49,652.

TROAD AND TROY. The Troad (*ἡ Τρωάς*), or land of Troy, is the northwestern promontory of Asia Minor. The name "Troad" is never used by Homer—who calls the land, like the city, *Τροίη*—but is known to Herodotus. The Troad is bounded on the north by the Hellespont and the westernmost part of the Propontis, on the west by the Ægean Sea, and on

the south by the Gulf of Adramyttium. The eastern limit was variously defined by ancient writers. In the widest acceptance, the Troad was identified with the whole of western and southwestern Mysia, from the Æsepus, which flows into the Propontis a little west of Cyzicus, to the Caicus, which flows into the Ægean south of Atarneus. But the true eastern boundary is undoubtedly the range of Ida, which, starting from near the southeast angle of the Adramyttian Gulf, sends its northwestern spurs nearly to the coast of the Propontis, in the region west of the Æsepus and east of the Granicus. Taking Ida for the eastern limit, we have the definition which, as Strabo says, best corresponds with the actual usage of the name Troad. Ida is the key to the physical geography of the whole region; and it is the peculiar character which this mountain-system imparts to the land west of it that constitutes the real distinctness of the Troad from the rest of Mysia.

In the Homeric legend, with which the story of the Troad begins, the people called the Troes are ruled by a king Priam, whose realm includes all that is bounded by "Lesbos, Phrygia, and the Hellespont" (*Il.*, xxiv. 544), *i.e.*, the whole "Troad," with some extension of it, beyond Ida, on the northwest. According to Homer, the Achæans under Agamemnon utterly and finally destroyed Troy, the capital of Priam, and overthrew his dynasty.

A new period in the history of the Troad begins with the foundation of the Greek settlements. The earliest and most important of these were Æolic. Lesbos and Cyme in Æolis seem to have been the chief points from which the first Æolic colonists worked their way into the Troad.

Among the Greek towns in the Troad, three stand out with especial prominence—Ilium in the north, Assus in the south, and Alexandria Troas in the west. The site of the Greek Ilium is marked by the low mound of Hissarlik ("place of fortresses") in the Trojan plain, about three miles from the Hellespont. The early Greek settlers in the Troad naturally loved to take Homeric names for their towns. The fact that Homer places the town of Dardania far inland on the slopes of Ida, did not hinder the founders of the Æolic Dardanus from giving that name to their town on the shores of the Hellespont. The site of the historical Thymbra, again, cannot be reconciled with that of the Homeric Thymbra. Similarly, the choice of the name Ilium in no way justifies the assumption that the Greek settlers found that spot identified by tradition with the site of the town which Homer calls Ilios. It does not even warrant the hypothesis that they found a shrine of Athene Ilias existing there. For them, it would be enough that the sounding name could be safely appropriated—the true site of Homeric Ilias being forgotten or disputed—and that their town was at least in the neighborhood of the Homeric battlefields. The Greek Ilium may have been founded about 700 B.C. At the beginning of the second century B.C. Ilium was in a state of decay. As Demetrius of Scepsis tells us, the houses "had not even roofs of tiles," but merely of thatch. Such a loss of prosperity is sufficiently explained by the incursions of the Gauls and the insecure state of the Troad during the latter part of the third century. The temple of the Ilian Athene, however, retained its prestige. A disaster befell the place in 85 B.C., when Fimbria took it, and left it in ruins; but Sulla caused it to be rebuilt. Augustus, while confirming its ancient privileges, gave it new territory. Caracalla (211–217 A.D.) visited Ilium, and like Alexander paid honors to the tomb of Achilles. The latest coins found on the site are those of Constantius II. (337–361). In the fourth century, as some rhetorical "Letters" of that age show, the Ilians still



did a profitable trade in attracting tourists by their pseudo-Trojan memorials. After the fourth century the place is lost to view. But we find from Constantine Porphyrogenitus (911-959) that in his day it was one of the places in the Troad which gave names to bishoprics.

While the Greek Ilium at Hissarlik owed its importance to a sham pretension, which amused sight-seers and occasionally served politicians, Assus, on the south coast, has an interest of a more genuine kind, and is, indeed, a better type of ancient town life in the Troad. Assus affords the only harbor on the fifty miles of coast between Cape Lectum and the east end of the Adramyttian Gulf; hence it must always have been the chief shipping place for the exports of the southern Troad. Too much off the highways to become a center of import trade, it was thus destined to be a commercial town, content with a modest provincial prosperity. The great natural strength of the site protected it against petty assailants; but, like other towns in that region, it has known many masters—Lydians, Persians, the kings of Pergamum, Romans, and Ottoman Turks. From the Persian wars to about 350 B.C. Assus enjoyed at least partial independence. Under its Turkish name of Beihram, Assus is still the commercial port of the southern Troad, being the place to which loads of valonia (acorn-cups for tanning) are conveyed by camels from all parts of the country. The recent excavations at Assus, conducted by explorers representing the Archaeological Institute of America, have yielded results far more valuable for the history of Greek art and architecture than any excavations yet undertaken in the Troad. The sculptures form one of the most important links yet discovered between Oriental and early Greek art, especially in respect of the types of animals. Alexandria Troas stood on the west coast at nearly its middle point, a little south of Tenedos. It was built by Antigonus, perhaps about 310 B.C., and was called by him Antigonía Troas. Early in the next century the name was changed by Lysimachus to Alexandria Troas, in honor of Alexander's memory. As the chief port of northwest Asia Minor, the place prospered greatly in Roman times, and the existing remains sufficiently attest its former importance. The site is now called Eski Stambub.

The modern discussion as to the site of Homeric Troy may be considered as dating from Lechevalier's visits to the Troad in 1785-86. Homer describes Troy as "a great town," "with broad streets," and with a high acropolis, or "Pergamus," rising above it, from which precipitous rocks descend abruptly to the plain beneath. These are the precipices over which the Trojans proposed to hurl the wooden horse, "when they had dragged it to the summit." Homer marks the character of the acropolis by the epithets "lofty," "windy," and more forcibly still by "beetling." One site in the Trojan plain, and one only satisfies this most essential condition. It is the hill at its southern edge called the Bali Dagħ, above the village of Bunárbashi. It has a height of about 400 feet, with sheer precipices descending on the south and southwest to the valley of the Scamander (Mendere). Remains found upon it—though it has never yet been thoroughly explored—show it to have been the site of an ancient city.

The result of the excavations conducted by Doctor Schliemann on the mound of Hissarlik has been to lay bare the remains of the Greek Ilium, and also, below these, some prehistoric remains of a rude and poor kind. In *Troy*, his first book on the subject, the explorer held that the remains of the Greek Ilium ceased at a depth of six feet below the surface, and that all the other remains, down to fifty-two and one-half feet, were prehistoric. He distinguished the latter into five groups, represent-

ing five prehistoric "cities" which had succeeded each other on the site; and in his second work, *Ilios*, he added to these a sixth prehistoric city, on the strength of some scanty vestiges of supposed Lydian workmanship, found at a depth of six and one-half feet. In both books, Homeric Troy was identified with the third prehistoric city from the bottom, which was supposed to have been destroyed, though not totally, by fire. In Doctor Schliemann's third volume, *Troja*, Troy was identified, no longer with the third city, but with the second, of which the supposed area was now enlarged.

We can no longer either prove or disprove that these prehistoric remains are those of a town which was once taken after a siege, and which originally gave rise to the legend of Troy. But most certainly it is not the "lofty" Troy of which the Homeric poet was thinking when he embodied the legend in the *Iliad*. The conception of Troy which dominates the *Iliad* is based on the site at Bunárbashi, and suits no other. The *Iliad* makes it clear that the general description of the Trojan plain was founded on accurate knowledge. At this day all the essential Homeric features can be recognized. And it is probable that the poet who created the Troy of the *Iliad* knew, personally or by description, a strong town on the Bali Dagħ above Bunárbashi. The legend of the siege may or may not have arisen from an older town at Hissarlik, which had then disappeared. The poet might naturally place his Troy in a position like that of the existing strong city on the Bali Dagħ, giving it a "beetling" acropolis and handsome buildings, while he also reproduced the general course of the rivers and that striking feature—an indelible mark of the locality—the natural springs at the foot of the hill, just beyond the city gates on the northwest. But, while he thus imagined his Troy in the general likeness of the town on the Bali Dagħ, he would retain the privilege of a poet who was adorning an ancient legend, and whose theme was a city that had long ago vanished. Instead of feeling bound to observe a rigorous accuracy of local detail, he would rather feel impelled to avoid it; he would use his liberty to introduce some traits borrowed from other scenes known to him, or even from imagination.

TROGLODYTES (τρογλοδυται) a Greek word meaning "cave-dwellers." Caves have been widely used as human habitations both in prehistoric and in historic times (see CAVE), and ancient writers speak of Troglodytes in various parts of the world, as in Moesia near the lower Danube (Strabo, vii. 5, p. 318), in the Caucasus (Id., xi. 5, p. 506), but especially in various parts of Africa from Libya (Id., xvii. 3, p. 828) to the Red Sea. Herodotus (iv. 183) tells of a race of Troglodyte Ethiopians in inner Africa, very swift of foot, living on lizards and creeping things, and with a speech like the screech of an owl. The Garamantes hunted them for slaves. It has been supposed that these Troglodytes may be Tibbus, who still in part are cave-dwellers. Aristotle also (*Hist. An.*, vii. 12) speaks of a dwarfish race of Troglodytes on the upper course of the Nile, who possessed horses and were in his opinion the Pygmies of fable. But the best known of these African cave-dwellers were the inhabitants of the "Troglodyte country" on the coast of the Red Sea, who reached as far north as the Greek port of Berenice.

TROGON, a word apparently first used as English by Shaw (*Mus. Leverianum*, p. 177) in 1792, and now for many years accepted as the general name of certain birds forming the Family Trogonidae of modern ornithology, the species *Trogon curucui* of Linnaeus being its type.

The Trogons are birds of moderate size: the smallest is hardly bigger than a Thrush and the largest less



**dolky than a Crow.** In most of them the bill is very wide at the gape, which is invariably beset by recurved bristles. They seize most of their food, whether caterpillars or fruits, on the wing, though their alar power is not exceptionally great, their flight being described as short, rapid, and spasmodic. Their feet are weak and of a unique structure, the second toe, which in most birds is the inner anterior one, being reverted, and thus the Trogons stand alone, since in all other birds that have two toes before and two behind it is the outer toe that is turned backward. The plumage is very remarkable and characteristic. There is not a species which has not beauty beyond most birds, and the glory of the group culminates in the QUEZAL, (*q.v.*) But in others golden green and steely blue, rich crimson and tender pink, yellow varying from primrose to amber, vie with one another in vivid coloration, or contrasted, as happens in many species, with a warm tawny or a somber slaty gray—to say nothing of the delicate freckling of black and white, as minute as the markings of a moth's wing—the whole set off by bands of white, producing an effect hardly equaled in any group. It is impossible within brief space to describe its glowing tints; but the plumage is further remarkable for the large size of its contour feathers, which are extremely soft and so loosely seated as to come off in scores at a touch, and there is no down. The tail is generally a very characteristic feature, the rectrices, though in some cases pointed, being often curiously squared at the tip, and when this is the case they are usually barred ladder-like with white and black.

The Trogons form a very well-marked Family, belonging to the multifarious group treated in the present series of articles as *Picaria*. While they chiefly abound, and have developed their climax of magnificence, in the tropical parts of the New World, they yet occur in the tropical parts of the Old. About sixty species of Trogons are recognized, which Gould in the second edition of his *Monograph of the Family* (1875) divides into seven genera; but their characters are hardly laid down. *Pharomacrus*, *Euptilotis*, and *Trogon* inhabit the mainland of tropical America, no species passing to the northward of the Rio Grande nor southward of the forest district of Brazil, while none occur on the west coast of Peru or Chili. *Prionotelus* and *Tmetotropogon*, each with one species, are peculiar respectively to Cuba and Hispaniola. The African form *Hapaloderma* has two species, one found only on the west coast, the other of more general range. The Asiatic Trogons, *Harporhynchus* (with eleven species according to the same authority), occur from Nepal to Malacca, in Ceylon, and in Sumatra, Java, and Borneo, while one species is peculiar to some of the Philippine Islands.

**TROGUS, CN. POMPEIUS**, a Roman historian, nearly contemporary with Livy. Although the epitome of his historical writings by Justin, and a few fragments, are all that have come down to us, there is abundant reason to believe that he deserves a place in the history of Roman literature by the side of Sallust, Livy, and Tacitus. Of his life little is known. He was almost certainly of Greek descent. He wrote, after Aristotle and Theophrastus, books on the natural history of animals and plants, used by the elder Pliny, who calls Trogus "one of the most precise among authorities" (*auctor ipse e severissimis*). But the principal work of Trogus consisted of forty-four *Libri Historiarum Philippicarum*. This was a great history of the world, or rather of those portions of it which came under the sway of Alexander and his successors. For the ancient history of the East, Trogus, even in the present mutilated state of his historical work, often proves to be an authority of great importance.

**TROITSK**, a district town of Russia, in the government of Orenburg, situated in a fertile steppe 392 miles to the northeast of Orenburg, on the Siberian highway, is one of those towns which have grown rapidly of late in the southeast of Russia. Cotton, silk, and especially horses and cattle, are imported, while leather, cotton, and woolen and metal wares are exported. An active trade in corn for the Ural gold mines is carried on. The population in 1898 was 15,000.

**TROLLOPE, ANTHONY**, English novelist, was born in Keppel street, Russell square, London, according to most authorities, on April 24, 1815; in his own *Autobiography* he merely gives the year. Trollope's mother, Frances Milton, according to her son, was nearly thirty when she married, in 1809. By her husband's wish, she made a strange journey to America in 1827, for the purpose of setting up a kind of fancy shop in Cincinnati, which failed utterly. Her visit, however, furnished her with the means of writing *The Domestic Manners of the Americans*. For some time Mrs. Trollope wrote chiefly travels; but she soon became known as a novelist, and was very industrious. Her novels, the best of which are probably *The Vicar of Wrexhill* and *The Widow Barnaby*, are now rarely read.

Anthony Trollope was the third son. By his own account, few Englishmen of letters have had an unhappier childhood and youth. In August, 1841, he obtained the appointment of clerk to one of the post-office surveyors in a remote part of Ireland.

Trollope had always dreamt of novel-writing, and his Irish experiences seemed to supply him with promising subjects. With some assistance from his mother he got his first two books, *The Macdermots of Ballycloran* and *The Kellys and the O'Kellys*, published, the one in 1847, the other the next year. But neither was in the least a success, though the second, perhaps, deserved to be; and a third, *La Vendée*, which followed in 1850, besides being a much worse book than either, was an equal failure. Trollope made various other literary attempts, but for a time ill-fortune attended all of them. Meanwhile he was set on a new kind of post-office work, which suited him even better than his former employment—a sort of roving commission to inspect rural post deliveries and devise their extension, first in Ireland, then throughout the west of England and South Wales. It was during this work that he struck the vein which gave him fortune and fame—which might perhaps have given him more fame and not much less fortune if he had not worked it so hard—by conceiving *The Warden*. This was published in 1855. It brought him little immediate profit, nor was even *Barchester Towers*, which followed, very profitable, though it contains his freshest, his most original, and, with the exception of *The Last Chronicle of Barset*, his best work. The two made him a reputation, however, and, in 1858, he was able, for the first time, to sell a novel, *The Three Clerks*, for a substantial sum, £250 (\$1,250). A journey on post-office business to the West Indies gave him material for a book of travel, *The West Indies and the Spanish Main*, which he frankly and quite truly acknowledges to be much better than some subsequent work of his in the same kind. From this time his production (mainly of novels) was incessant, and the sums which he received were very large, amounting to nearly £70,000 (\$350,000) in the twenty years between 1859 and 1879. All these particulars are given with great minuteness by himself, and are characteristic. The full high tide of his fortunes began when the *Cornhill Magazine* was established in the autumn of 1859. He was asked at short notice to write a novel, and wrote *Framley Parsonage*, which was extremely popular; two novels immediately preceding



it, *The Bertrams* and *Castle Richmond*, had been much less successful.

A life thus spent could not be very eventful, and its events may be summed up rapidly. In 1858 he went to Egypt also on post-office business, and, at the end of 1859, he got himself transferred from Ireland to the eastern district of England. Here he took a house at Waltham. He took an active part in the establishment of *The Fortnightly Review* in 1865; he was editor of *St. Paul's* for some time after 1867; and, at the end of that year, he resigned his position in the post-office. He stood for Beverley and was defeated; he received from his old department special missions to America and elsewhere (he had already gone to America in the midst of the Civil War). He went to Australia in 1871, and, before going, broke up his household at Waltham. When he returned he established himself in London, and lived there till 1880, when he removed to Harting on the confines of Sussex and Hampshire. He had visited South Africa in 1877, and traveled elsewhere. On November 3, 1882, he was seized with paralysis, and died on December 6th.

TROLLOPE, MRS. FRANCES, born in England in 1780, the daughter of a clergyman was married in 1809 to Mr. Anthony Trollope, barrister. In 1827 she came to the United States and remained here for three years, and on her return to England she published a book called *Domestic Life of the Americans*, characterized by its superficiality and ill temper. She also wrote *The Widow Barnaby*, and its sequel, *The Widow Married*, which books were somewhat popular in their day. Mrs. Trollope was the mother of THOMAS ADOLPHUS, the well known author, and ANTHONY TROLLOPE (*q.v.*), still better known as a novelist.

TROLLOPE, THOMAS ADOLPHUS, born in England, April 29, 1810, was the son of Mrs. Trollope, the authoress, and brother of ANTHONY TROLLOPE, (*q.v.*) He was educated at Winchester and Oxford, and in 1841 settled at Florence, Italy, and engaged in literature. He wrote a great many novels, besides *A Summer in Brittany*, *Story of the Life of Pius IX.* and other works. He died November 11, 1892.

TROMBONE, a musical instrument of brass. It has a cupped mouthpiece, and is formed of two principal parts—the bell, the bore of which gradually widens, and the slide, which is composed of two cylindrical tubes parallel to each other, upon which two other tubes, communicating at their lower extremities by a pipe curved in a half circle, glide without loss of air. The mouthpiece is adapted to one of the upper ends of the slide and the bell to the other end. When the slide, which is moved by the right hand, is closed, the instrument is at its highest pitch; the note is lowered in proportion as the column of air is lengthened by drawing out the slide.

Of all wind instruments the trombone has perhaps been least modified in form; changes have occasionally been attempted, but for the most part with only trifling success. The innovation which has had the most vogue dates from the end of the eighteenth century; it consisted in bending the tube of the bell in a half circle above the head of the executant, which produced a very bizarre effect. It also gave rise to very serious inconveniences: by destroying the regularity of the proportions of the bell it prejudicially affected the quality of tone and intonation of the instrument. For a long time the curved bell with its serpent's mask was maintained in military music, and it is only about twenty years ago that it was completely given up. By giving a half turn more to the bell tube its opening was directed to the back of the executant; but this form, in fashion for a little while about 1830, was not long adhered to,

and the trombone reassumed its primitive form, which is still maintained.

TROMP, the name of two famous Dutch admirals.

I. MARTIN HARPERTZOOM TROMP was born at Brielle, South Holland, in 1597. At the age of eight he made a voyage to the East Indies in a merchantman, but was made prisoner and spent several years on board an English cruiser. On making his escape to Holland he entered the navy in 1624, and in 1637 was made lieutenant-admiral. In February, 1639, he surprised, off the Flemish coast near Gravelines, a large Spanish fleet, which he completely destroyed, and in the following September he defeated the combined fleets of Spain and Portugal off the English coast—achievements which placed him in the first rank of Dutch naval commanders. On the outbreak of war with England, Tromp appeared in the Downs in command of a large fleet and anchored off Dover. Several indecisive engagements followed. On June 3d he fought an indecisive battle with the English fleet under Dean in the Channel, but the arrival of reinforcements under Blake on the following day enabled the English to turn the scale against him and he retired to the Texel with the loss of seventeen ships. Greatly discouraged by the results of the battle, the Dutch sent commissioners to Cromwell to treat for peace, but the proposal was so coldly received that war was immediately renewed, Tromp again appearing in the Channel toward the end of July, 1653. In the hotly-contested conflict which followed with the English under Monk on the 29th Tromp was shot by a musket bullet through the heart. He was buried with great pomp at Delft, where there is a monument to his memory in the old church.

II. CORNELIUS TROMP, the second son of the preceding, was born at Rotterdam on September 9, 1629. At the age of nineteen he commanded a small squadron charged to pursue the Algerian pirates. In 1652 and 1653 he served in Van Galen's fleet in the Mediterranean, and after the action with the English fleet off Leghorn, March 13, 1653, in which Van Galen was killed, Tromp was promoted to be rear-admiral. On July 13, 1665, his squadron was by a hard stroke of ill fortune defeated by the English under the duke of York. In the following year Tromp served under De Ruyter, and on account of De Ruyter's complaints of his negligence in the action of August 5th he was deprived of his command. He was, however, reinstated in 1673 by the stadtholder William, afterward king of England, and in the actions of June 7th and 14th, against the allied fleets of England and France, manifested a skill and bravery which completely justified his reappointment. In 1675 he visited England, when Charles II. created him a baron. In the following year he was named lieutenant-admiral of the United Provinces. He died at Amsterdam, May 29, 1691, shortly after he had been appointed to the command of a fleet against France. Like his father he was buried at Delft.

TROMSÖ, a town of Norway, capital of the amt of the same name and an episcopal see, stands on the eastern shore of a low fertile islet of the same name between Hvaloe and the mainland, in 69° 38' N. latitude and 18° 55' E. longitude. The main specialty of the place is bears' skins and other kinds of fur. The her-  
ring fishery of Tromsö is very productive, and the activity of the town is further increased by the circumstance that it is the port of call for ships making for the seal fishing and walrus hunting on Spitzbergen and Nova Zembla. Tromsö was founded in 1794. The population, which in 1816 did not exceed 300, was 5,809 in 1898.

TRONDHJEM. See THRONDHJEM.



**TROPHY**, originally a memorial of victory erected on the scene of a battle. The Romans did not erect trophies but decorated the buildings of Rome with the shields and spoils of the vanquished.

**TROPICS**, two parallels of latitude on the terrestrial globe passing through the most northerly and southerly points on the earth's surface at which the sun is vertical. The tropic north of the Equator is called the tropic of Cancer, and the south one the tropic of Capricorn. The tropics are not fixed at a uniform distance from the Equator, but the limits of variation are very narrow; in round numbers they may be located at  $23^{\circ} 30'$ , north and south respectively.

**TROPIC-BIRD**, so called of sailors from early times, because, as Dampier, among many others, testifies, it is "never seen far without either Tropic," and hence, indulging a pretty fancy, Linnæus bestowed on it the generic term, continued by modern writers, of *Phætho*, in allusion to its attempt to follow the path of the sun. There are certainly three well-marked species of this genus, but their respective geographical ranges have not yet been definitely laid down. All of them can be easily known by their totipalmate condition, in which the four toes of each foot are united by a web, and by the great length of the two middle tail-quills, which project beyond the rest, so as to have gained for the birds the names of "Rabijunco," "Paille-en-queue," and "Pijlstaart" among mariners of different nations. These birds fly to a great distance from land, and seem to be attracted by ships, frequently hovering round or even settling on the mast-head.

**TROPPAU** (Slavonic *Opava*), the chief town of Austrian Silesia, is a busy commercial place on the right bank of the Oppa, close to the Prussian border. Troppau manufactures large quantities of cloth, especially for the army; and its industrial establishments include a large sugar-refinery and manufactories of machines and stoves. In 1900 the population was 23,562. German is spoken in the town proper, but a dialect of Polish prevails in the suburbs.

**TROTZENDORFF**, or **TROCEDORFIUS**, VALENTIN FRIEDLAND, called Trotzendorff from his birthplace, near Görlitz, in Prussian Silesia, was born on February 14, 1490, of parents so poor that they could not keep him at school. The boy taught himself to read and write while herding cattle; he made paper from birch bark, and ink from soot. When difficulties were overcome and he was sent for education to Görlitz, his mother's last words were "stick to the school, dear son." The words determined his career: he refused all ecclesiastical promotion, and lived and died a schoolmaster. His system of education and discipline speedily attracted attention. He made his best elder scholars the teachers of the younger classes, and insisted that the way to learn was to teach. He organized the school in such a way that the whole ordinary discipline was in the hands of the boys themselves. The fame of the Goldberg school extended over all Protestant Germany, and a large number of the more famous men of the following generation were taught by Trotzendorff. He died on April 20, 1556.

**TROUBADOURS**. See **PROVENÇAL LITERATURE**, and **FRANCE**.

**TROUGHTON**, EDWARD, instrument maker, was born in the parish of Corney in Cumberland, England, in October, 1753. He joined his elder brother John in carrying on the business of mathematical instrument makers in Fleet Street, London, and continued it alone after his brother's death, until he in 1826 took W. Simms as a partner. He died in London on June 12, 1835.

**TROUT**. See **SALMONIDÆ**; also **ANGLING**.

**TROUVILLE**, a fashionable seaside town of France, chef-lieu of the department of Calvados, and a port of the English channel, is situated at the mouth of the river Touques, on the right bank, 136 miles west-north-west of Paris and 34 northeast of Caen by rail. In 1886 the population was 5,750 (commune 6,300). Deauville, on the left bank of the Touques, opposite Trouville, is remarkable for its casino, terrace, and fine mansions, but except during the race-week in August, is comparatively deserted. In 1901 its population was 2,500 (commune 2,820).

**TROVER**, or trover and conversion, the name of a form of an old action in law, corresponding to the modern action of conversion. It was brought for damages for the detention of a chattel, and differed from detinue in that the latter was brought for the return of the chattel itself. The name trover is due to the action having been based on the fictitious averment in the plaintiff's declaration that he had lost the goods and that the defendant had found them. An action of trover lay (as an action of conversion still lies) in every case where the defendant was in possession of a chattel of the plaintiff and refused to deliver it up on request, such refusal being *prima facie* evidence of conversion. The damages recoverable are usually the value of the chattel converted.

**TROWBRIDGE**, an ancient town of Wilts, Eng., is situated on the river Mere or Biss, a feeder of the Avon, and on a branch of the Great Western railway, thirty-three miles northwest of Salisbury and ninety-seven and one-half west of London. The principal industry is the manufacture of kerseymerie and of broad and other woolen cloths, established as early as the reign of Henry VIII. The town is governed by a local board of health of twenty-one members. The population of the urban sanitary district (area 2,080 acres) in 1871 was 11,508, and in 1901 it was 13,040.

**TROY**. See **TROAD**.

**TROY**, the county seat of Rensselaer county, N. Y., is situated in  $42^{\circ} 44'$  N. latitude and  $73^{\circ} 41'$  W. longitude, upon the east bank of the Hudson river, at the head of tidewater. It is nearly north of New York city (147 miles) and somewhat north of west from Boston (136 miles). The city, which has a length of about 4 miles, with an average breadth of 1 mile, is built mainly upon a level terrace slightly elevated above the river, but of late years the residence portion has extended up the hills (rising to 400 feet) which limit this plain on the east. It is in the main regularly laid out, and is traversed by street railways. Troy is situated at what is practically the terminus of the Érie canal, connecting the Hudson river (here navigable for vessels of eight to ten feet draught) with Lake Erie, and of the Champlain canal. It has three railroads, by which it is connected with New York on the south, Buffalo on the west, and also with the east and north. The principal industries, which in 1900 gave employment to 22,481 persons, are the manufacture of men's furnishing goods, malt liquors, and foundry and machine shop products. The value of the products was \$28,209,250. The city is the seat of the Rensselaer Polytechnic Institute, which was for many years the leading engineering school of the United States, and still maintains a high reputation. The population, which in 1810 was only 3,895, had in 1830 risen to 11,556, and by 1900 to 60,651.

**TROY**, JEAN FRANÇOIS DE, a French painter, highly endowed by nature, was born at Paris in 1679. Among the most considerable of his works are thirty-six compositions painted for the hotel of De Live (1729), and a series of the story of Esther, designed for the Gobelins while De Troy was director of the school of



France at Rome (1738-51)—a post which he resigned in a fit of irritation at court neglect. He did not expect to be taken at his word, but found himself forced to return to France, and was making ready to leave when he died suddenly (January 24, 1752) of an attack on the lungs.

TROY, WEST. See WEST TROY.

TROYES, a town of France, formerly the capital of Champagne, and now chef-lieu of the department of Aube, and an episcopal see, is 104 miles southeast of Paris by the railway to Belfort, at the junction of the line from Orleans to Châlons. The chief industry of Troyes and the surrounding district is the manufacture of cotton and woolen hosiery, which is woven almost entirely by hand, and is exported to America and Switzerland. One-fourth of the population live by subsidiary industries. There are fourteen cotton mills with 10,000 spindles, bleaching, dressing, and dye works, work-shops for making looms, needle factories, iron and copper foundries, eight flour mills, and nursery and market gardens. A trade is carried on in pork and cheese. A few miles from the town stands the curious church of St. Andrew (sixteenth century), with a remarkable portal. The population in 1901 was 53,159.

TROYES, CHRISTIEN DE. See CHRISTIEN DE TROYES, and ROMANCE.

TROY WEIGHT. A troy pound contains 12 ounces, and each ounce contains 20 pennyweights, and each pennyweight 24 grains; thus, a pound contains 5,760 grains, and is to the avoirdupois pound as 144 to 175. Troy weights were formerly used for medicines, and are still used in weighing the precious metals.

TRUCE. A suspension of hostilities between two armies or states for a period agreed upon. An armistice differs from a truce, in that it is made for a few days only, as, for instance, for the burying of the dead, while a truce may be for months or years, and is usually accompanied by the disarmament of the armies.

TRUCE OF GOD. The orderly administration of justice and the universal peace, which the Roman empire established from the Euphrates to the Atlantic, did not long survive the inroads of the Teutonic tribes who in western Europe divided the inheritance of the Latin world. All the early Teutonic codes, being based, however remotely, on the right of private war and private vengeance, might discourage, but were powerless to abolish, the instinct which impels the members of half-civilized communities to avenge their own wrongs. Hence the *pax Romana* died with the empire. At the moment when western Europe threatened to sink back into the chaos from which it had been won by Rome, the church came forward to arrest the process of its dissolution. Speaking at first in her own interest and in that of the poor, whose great protector she claimed to be, she decreed a special peace for the unarmed clerk and the industrious husbandman. The council of Charroux in Poitou led the way in 989. With the opening of the next century the movement spread over Aquitaine and the rest of France. Everywhere the bishops set themselves to exact from the whole diocese, noble and simple alike, a novel oath to abstain from violence and to respect the sanctity of churches. The times, however, were hardly ripe for the inauguration of an era of peace, and, on the whole, it may be said that the "Peace of God" was at best but a somewhat ineffectual protection to churches, priests, and laborers. If there was any hope of restraining the mutual feuds of the barons it must be by other means. And here the church again, recognizing the impossibility of absolutely stopping all feudal warfare, endeavored to limit it. This limitation of the right of perpetual warfare, reduced to writing, sanctioned by an oath, and confirmed by the decrees of councils, assumed the name

of the "Truce of God" (*treva* or *treuga Dei*). The truce of God seems to have been first established at the synod of Tuluges, near Perpignan in Roussillon, on May 16, 1027. In accordance with its decrees all warfare was to be suspended from noon on Saturday till prime on Monday; and the peace of God was permanently extended to all monks, clerks, bishops, and churches. Like the *pax ecclesie*, this laudable example was soon followed elsewhere. About 1041 it extended itself over Aquitaine and all France; in 1042 the council of Caen, under the sanction of Duke William, established it in Normandy—a country in which according to a contemporary writer (Rudolph Glaber, v. 1), it was not at first accepted. By this time its terms had been much enlarged; and we may perhaps take the provisions of a second synod at Tuluges (1041) as representing its normal form. According to this synod the *treuga Dei* was to last from the Wednesday evening to the Monday morning in every week, from the beginning of Advent to the octave of the Epiphany, from the beginning of Lent to the octave of Pentecost, for the feasts of the Holy Cross, the three great feasts of the Virgin, and those of the twelve apostles and a few other saints. More usually the interval between the Epiphany octave and Lent and that from Easter to Rogations were left subject to the weekly truce only. Thus from being a mere local institution it spread rapidly over all France, and seems to have crossed into Germany, Italy, Spain, and England. It had also its special courts and methods of procedure. Excommunication and banishment for seven or thirty years were its penalties.

TRUCK SYSTEM. See LABOR.

TRUFFLE, the name of several different species of subterranean fungi which are used as food. The species sold in English markets is *Tuber aestivum*; the commonest species of French markets is *T. melanosporum*, and of Italian the garlic-scented *T. magnatum*. Of the three, the English species is the least excellent, and the French is possibly the best. The truffle used for Perigord pie (*pâté de foie gras*) is *T. melanosporum*. When, however, the stock of *T. melanosporum* happens to be deficient, some manufacturers use inferior species of *Tuber*, such as the worthless or dangerous *Chaeromyces meandriformis*. Even the rank and offensive *Scleroderma vulgare* (one of the puffball series of fungi) is sometimes used for stuffing turkeys, sausages, etc. Indeed, good truffles, and then only *T. aestivum*, are seldom seen in English markets. The taste of *T. melanosporum* can be detected in Perigord pie of good quality. True and false truffles can easily be distinguished under the microscope.

When the plant is eaten raw the taste is sweet and sugary, but when cooked it is hardly agreeable. The odor belonging to many truffles is so potent that their places of growth can be readily detected by the odor exhaled from the ground. Squirrels, hogs, and other animals commonly dig up truffles and devour them, and pigs and dogs have long been trained to point out the places where they grow. Pigs will always eat truffles, and dogs will do so occasionally; it is therefore usual to give the trained pig or dog a small piece of cheese or some little reward each time it is successful.

TRUMBULL, the surname of more than one individual of note in the literature, art, and politics of America.

1. BENJAMIN TRUMBULL was born at Hebron, Conn., on December 19, 1735, and died at North Haven, Conn., February 2, 1820. He graduated at Yale in 1759, and entered the ministry. His literary work was considerable, the most important being the standard *History of Connecticut to 1764*.



2. JOHN TRUMBULL was born at Waterbury, Conn., April 24, 1750, and died at Detroit, Mich., May 12, 1831. He graduated at Yale in 1767, and became a lawyer and author of high reputation. His best work is *M'Fingal*, a Hudibrastic poem, intended to serve the 'Whig side in the American Revolution.

3. JOHN TRUMBULL, son of the following, was born at Lebanon, Conn., June 6, 1756, and died at New York city November 10, 1843. He graduated at Harvard in 1773, studied painting with Benjamin West in London, and left at his death a number of historical works. The earlier of these are the better; the later and larger were painted for the capitol at Washington.

4. JONATHAN TRUMBULL was born at Lebanon, Conn., June 10, 1710, and died at the same place August 17, 1785. He graduated at Harvard in 1727, and became a lawyer and colonial politician. His place in American history was gained as governor of Connecticut from 1769 until 1783, through the whole period of the American Revolution. He was a trusted supporter and confidential adviser of Washington, who was accustomed to speak of him as "Brother Jonathan," and the term has since passed into popular use as equivalent to the people of the United States.

5. JONATHAN TRUMBULL, son of the preceding, was born at Lebanon, Conn., March 26, 1740, and died at the same place August 7, 1809. He graduated at Harvard in 1759, and served as member of Congress, 1789-95 (being speaker of the House of Representatives during the last two years of his term), as United States senator, 1795-96, and as governor of Connecticut, 1798-1809.

TRUMPET, a musical instrument, consisting of a long, narrow brass tube, cylindrical for the greater part of its length; the fusiform development which terminates in the bell or opening of the lower end only begins at a point that varies from a third to a fourth of the total length from that extremity. The air inside is set in vibration by the lips (which act as true reeds) applied to the edges of a basin-like mouthpiece fitted to the upper part of the instrument. The material has nothing to do with the production of that brilliant quality of tone by which the trumpet is so easily distinguished from every other mouthpiece instrument: the difference is partly due to the distinct form given to the basin of the mouthpiece, but principally to the proportions of the column of air determined by the conical or cylindrical form of its envelope.

The credit of having bent the tube of the trumpet in three parallel branches, thus creating its modern form, has usually been claimed for a Frenchman named Maurin (1498-1515). But the transformation was really made in Italy about the middle of the fifteenth century, as is proved by the bas-reliefs of Luca della Robbia intended to ornament the organ chamber of the cathedral of Florence; there a trumpet having the tube bent back as just described is very distinctly figured. The shape of the trumpet, as seen in the bas-reliefs of Luca della Robbia, was retained for more than 300 years: the first alterations destined to revolutionize the whole technique of the instrument were made about the middle of the eighteenth century. Notwithstanding the imperfections of the trumpet during this long period, the performers upon it acquired an astonishing dexterity.

TRUMPET, SPEAKING AND HEARING. The speaking trumpet, though some instrument of the kind appears to have been in earlier use in more than one part of the world, is connected in its modern form with the name of Athanasius Kircher and that of Sir Samuel Morland, who in 1670 proposed to the Royal Society of London the question of the best form for a speaking trumpet. Lambert, in the *Berlin Memoirs* for 1763, seems to have been the first to give a theory of the ac-

tion of this instrument, based on an altogether imaginary analogy with the behavior of light. In this theory, which is still commonly put forward, it is assumed that sound, like light, can be propagated in rays. This, however, is possible only when the aperture through which the wave-disturbance passes into free air is large compared with the wave-length. If the fusiform mouth of the speaking trumpet were half a mile or so in radius, Lambert's theory might give an approximation to the truth. But with trumpets whose aperture is only a foot in diameter at most the problem is one of diffraction; and it has not yet been seriously studied from this point of view.

In the case of the hearing trumpet, the disturbance is propagated along the converging tube much in the same way as the tide-wave is propagated up the estuary of a tidal river.

Until the theory has been rigorously worked out the only safe course to adopt in manufacturing either class of instruments is to be guided by the results of varied trials.

The theoretical foundations of the subject will be found in Lord Rayleigh's *Sound* and in Sir G. Airy's *Tides and Waves*, respectively. In speaking and hearing trumpets alike all reverberation of the instrument should be avoided by making it thick and of the least elastic materials, and by covering it externally with cloth.

TRUMPETER, or TRUMPET BIRD, a native of South America, first described in 1747 by De La Condamine. There are many species, but a description of one will serve for all. The chief distinctions between the species lie in color and size, and it will be here enough to describe briefly the best known of them, *Psophia crepitans*. This is about the size of a large barndoor Fowl; but its neck and legs are longer, so that it is a taller bird. The head and neck are clothed with short, velvety feathers; the whole plumage is black, except that on the lower front of the neck the feathers are tipped with golden green, changing according to the light into violet, and that a patch of dull, rusty brown extends across the middle of the back and wing-coverts, passing into ash-color lower down, where they hang over and conceal the tail. The legs are bright pea-green. The habits of this bird are very wonderful, and it is much to be wished that fuller accounts of them had appeared. The curious sound it utters, noticed by the earliest observers, has been already mentioned, and by them also was its singularly social disposition toward man described. Nothing can be positively asserted as to its mode of nidification; but its eggs, according to Mr. E. Bartlett, are of a creamy white, rather round, and about the size of Bantams'.

TRUMPET FISH, a fish of the family of *Fistulariidae*, remarkable for its elongated and tubular snout. It is abundant in the Mediterranean, and is sold in the Italian markets. Its length is about five inches, the snout projecting about one and a half inches in front of the eyes.

TRUMPET FLOWER. The popular name of a flowering shrub of the genera *Bignonia* and *tecoma*, natives of the southern States of America. It is a climbing shrub with conjugate leaves and heart shaped oblong leaflets.

TRURO, a city, municipal borough, and port of Cornwall, England, is situated on a kind of peninsula formed by the rivers Allen and Kenwyn, which below the town unite with a branch of Falmouth harbor called Truro creek or river. Truro is 300 miles southwest of London by the Great Western railway, and 11 north of Falmouth. There is sufficient depth of water in the channel of Truro creek to permit vessels



of seventy tons burden to come up to the town quay. The principal imports are coal from Wales and timber from Norway, and the exports consist of tin, iron ores, lead and zinc, from the mines in the neighborhood. The population of the municipal borough (area 1,171 acres) in 1901 was about 12,619.

TRUSS, an instrument used in the palliative term of hernia with a view to preventing its descent, and, if possible, of effecting a permanent cure. It consists essentially of a pad or cushion attached to a spring, with straps so arranged that its position may be retained during the varied postures of the body. Great mechanical improvements have been made of late years in the construction of trusses, and no person suffering from hernia should purchase a truss without consultation with a surgeon or expert.

TRUSSING (in ship-building), diagonal timbers or iron plates crossing the ribs internally and consolidating the hull of the ship. Iron is now mostly used, as being lighter and stronger than wood.

TRUST. In Roman and English law alike that legal relation between two or more persons implied in the word *trust* was of comparatively late growth. The trust of English law is probably based upon a combination of the Roman conceptions of *usus* and *fideicommissum*. To *usus* is perhaps due the name, as well as the idea, of that right over property coördinate with the right of the nominal owner, possessed by the person having the use. To *fideicommissum* appears to be due the name, as well as the idea of that confidence reposed in another, which is the essence of the modern trust.

A trust in English law is defined by Mr. Lewin, adopting Coke's definition of a use, as "a confidence reposed in some other, not issuing out of the land, but as a thing collateral; annexed in privity to the estate of the land, and to the person touching the land, for which *cestui que trust* has no remedy but by *subpana* in Chancery." The term *trust* or *trust estate* is also used to denote the beneficial interest of the *cestui que trust*. The term *truster* is not used, as it is in Scotland, to denote the creator of the trust. A trust has some features in common with contract; but the great difference between them is that a contract can only be enforced by a party or one in the position of a party to it, while a trust can be, and generally is, enforced by one not a party to its creation. It has more resemblance to *fideicommissum*. But the latter could only be created by a testamentary instrument, while a trust can be created either by will or *inter vivos*; nor was there any trace in Roman law of that permanent legal relation which is suggested by the position of trustee and *cestui que trust*. The heir, too, in Roman law was entitled, from 70 A.D. to the reign of Justinian, to one-fourth of a *hereditas fideicommissaria* as against the beneficiary, while the very essence of the trust is its gratuitous character. Trusts may be divided in more than one way, according to the ground taken as the basis of division. One division, and perhaps the oldest, as it rests on the authority of Bacon, is into *simple* and *special*, the first being where the trust is simply vested in a trustee and the nature of the trust left to construction of law, the second where there is an act to be performed by the trustee. Another division is into *lawful* and *unlawful*, and corresponds to Bacon's division into intents or confidences and frauds, covins, or collusions. A third division is into *public* and *private*, the former being synonymous with charitable trusts. A division often adopted in modern text books is into *express*, *implied*, and *constructive*. An express trust is determined by the person creating it. It may be either *executed* or *executory*, the former where the limitations of the equitable interest are complete and final, the latter where such limitations

are intended to serve merely as minutes for perfecting the settlement at some future period, as in the case of marriage articles drawn up as a basis of marriage settlement to be in conformity with them. An implied trust is founded upon the intention of the person creating it; examples of it are a resulting trust, a precatory trust, and the trust held by the vendor on behalf of the purchaser of an estate after contract and before conveyance. In this case the vendor is sometimes called a trustee *sub modo* and the purchaser a *cestui que trust sub modo*. A constructive trust is judicially created from a consideration of a person's conduct in order to satisfy the demands of justice, without reference to intention. The distinction between an implied and a constructive trust is not always very consistently maintained. Thus the position of a vendor toward a purchaser after contract is sometimes called a constructive trust. The present law governing trusts rests upon the doctrines of equity as altered by legislation. Its great importance has led to its becoming one of the most highly developed departments of equity. The devolution of successive interests in wills and settlements is almost wholly attained by means of trusts.

*Who may be a Trustee or Cestui que Trust.*—The modern trust is considerably more extensive in its operation than the ancient use. There are certain persons who for obvious reasons, even if not legally disqualified, ought not to be appointed trustees. Such are infants, lunatics, persons domiciled abroad, felons, bankrupts, and *cestuis que trustent*. The appointment of any such person, or the falling of any existing trustee into such a position, is generally ground for application to the court for appointment of new trustee in his place. Any one may be a *cestui que trust* except a corporation aggregate; which cannot be a *cestui que trust* of real estate without a license from the crown.

*Creation and Extinction of the Trust.*—A trust may be created either by act of a party or by operation of law. Where a trust is created by act of a party, the creation at common law need not be in writing. The Statute of Frauds altered the common law by enacting that all declarations or creations of trusts or confidences of any lands, tenements, or hereditaments shall be manifested and proved by some writing, signed by the party who is by law enabled to declare such trust, or by his last will in writing, or else they shall be utterly void and of none effect. Trusts arising or resulting by implication or construction of law are excepted, and it has been held that the statute applies only to real estate and chattels real, so that a trust of personal chattels may still be declared by parol. The declaration of a trust by the crown must be by letters patent. Trusts created by will must conform to the requirements of the Wills Act. Except in the case of charitable trusts, the *cestui que trusts* must be a definite person. An unlawful trust is one which contravenes the policy of the law in any respect. Examples of such trusts are trusts for a corporation without license, for a perpetuity, and for purposes subversive of morality, such as trusts for illegitimate children to be hereafter born. Superstitious uses also fall under this head. There are also certain trusts which are avoided by statute under particular circumstances, such as settlements in fraud of creditors. The law cannot be evaded by attempting to constitute a secret trust for an unlawful purpose. If an estate be devised by words *prima facie* carrying the beneficial interest, with an understanding that the devisee will hold the estate in trust for such a purpose, he may be compelled to answer as to the secret trust, and on acknowledgment or proof of it there will be a resulting trust to the heir-at-law. The rules of equity in charitable trusts are less strict than those adopted in private



trusts. Charitable trusts must be lawful, *e.g.*, they must not contravene the Statutes of Mortmain; but a wider latitude of construction is allowed in order to carry out the intentions of the founder, and they will not be allowed to fail for want or uncertainty of objects to be benefited. The court, applying the doctrine of *cy près*, will, on failure of the original ground of the charity, apply the funds as nearly as possible in the same manner. On this principle gifts originally made for purely charitable purposes have been extended to educational purposes. Further, trustees of a charity may act by a majority, but ordinary trustees cannot by the act of a majority (unless specially empowered so to do) bind a dissenting minority or the trust property. A trust estate is subject as far as possible to the rules of law applicable to a legal estate of a corresponding nature, in pursuance of the maxim, "Equity follows the law." Thus trust property is assets for payment of debts, may be taken in execution, passes to creditors in bankruptcy, and is subject to dower and curtesy, to the rules against perpetuities, and to the Statutes of Limitation. This assimilation of the legal and equitable estates has been produced partly by judicial decisions, partly by legislation. A trust is extinguished, as it is created, either by act of a party or by operation of law. An example of the former mode of extinction is a release by deed, the general means of discharge of a trustee when the purposes of the trust have been accomplished. Extinction by operation of law takes place when there is a failure of the objects of the trust: *e.g.*, if the *cestui que trust* die intestate without heirs or next of kin, the trustee retains the property discharged of the trust if it be real estate, if it be personalty it falls to the crown. Equitable interests in real estate abroad are as a rule subject to the *lex loci rei sitæ*, and a court has no jurisdiction to enforce a trust or settle a scheme for the administration of a charity in a foreign country.

**Rights and Duties of the Trustee.**—The principal general properties of the office of trustee, as given by Mr. Lewin, are these:—(1) A trustee having once accepted the trust cannot afterward renounce. (2) He cannot delegate it. (3) In the case of co-trustees the office must be exercised by all the trustees jointly. (4) On the death of one trustee there is survivorship: that is, the trust will pass to the survivors or survivor. (5) One trustee shall not be liable for the acts of his co-trustee. (6) A trustee shall derive no personal benefit from the trusteeship.

**Rights and Duties of the Cestui que Trust.**—These may be to a great extent deduced from what has been already said as to the correlative duties and rights of the trustee. The *cestui que trust* has a general right to the due management of the trust property, to proper accounts, and to enjoyment of the profits. He can as a rule only act with the concurrence of the trustee, unless he seeks a remedy against the trustee himself. Thus the trustee must be a party to an action brought in respect of the trust estate, and must join in presenting a petition in bankruptcy on account of a debt due to the estate, but the *cestui que trust* on giving indemnity can require the trustee to lend his name as a party. He may also require the trustee to execute conveyances of the legal estate according to his directions. Trust property, if parted with by the trustee in fraud of the trust may be followed by the *cestui que trust*, even into the hands of a purchaser for value with notice of the trust. The *cestui que trust* may lose his rights by fraud, by laches, and by concurrence or acquiescence in a breach of trust.

In New York and some other States uses and trusts have been abolished (with certain exceptions), and every estate, subject to those exceptions, is deemed a

legal right cognizable in courts of law. The exceptions are in New York implied trusts and express trusts to sell land for the benefit of creditors, to sell, mortgage, or lease lands for the benefit of legatees, or for the purpose of satisfying any charge thereon, to receive the rents and profits of lands and apply them to the use of any person during the life of such person or any shorter term, or to receive such rents and profits, and accumulate the same within the limits allowed by the law. Trusts of personalty for public purposes are very generally allowed in States where private trusts do not exist. Provisions similar to those of the English Statute of Frauds have been generally adopted by the States which recognize private trusts. Some States go farther than the statute and allow the creation of trusts (other than those arising by implication or operation of law) only by means of will or deed. Where the trust is of real estate, the deed must generally be registered (see REGISTRATION). Forms of deeds of trust are given in the Statutes of Virginia and other States. The English doctrine of *cy près* seems to have been adopted only in Pennsylvania. Conveyances in trust for the settler are generally void against creditors by the policy of the Acts of Elizabeth. By the legislation of some States a freehold may commence *in futuro* without the operation of the Statute of Uses. Societies of professional trustees, receiving a percentage of the income of the property as payment for their trouble and liability, are frequently recognized by law. Such societies are generally under an obligation to make periodical returns of their receipts and expenditure. A public trustee as a corporation sole exists in some States. Trustee process in the New England States is what is generally known as garnishee process in England, that is, a means of reaching property and credits of a debtor in the hands of third persons for the benefit of an attaching creditor.

TRUSTS have come into prominence during a comparatively recent period and are known under definitions as varied as authorities concerning their legality are conflicting and indecisive. They were originally suggested, it is said, by the presence and prosperity in the United States of cooperative associations, and when first created were conducted and managed, it is further stated, in harmony with the principles applicable to cooperative organizations. They attracted but limited attention at first, but public opinion influenced by latter developments has since undergone a change in respect to the value of trusts and they are now regarded as agencies that "have inflicted serious injury upon the people" in "limiting the supply and enhancing the price of many articles of necessity, at the pleasure of their managers." W. W. Cook, a member of the New York bar and an authority on the subject of trusts, states that the word is used "to designate any combination of producers for the purpose of controlling prices and suppressing competition." S. C. J. Dodd, general solicitor and originator of the Standard Oil Trust, defines a trust as "an arrangement by which the stockholders of various corporations place their stocks in the hands of trustees and take in lieu thereof certificates showing each shareholder's equitable interest in all the stocks so held. The result is twofold: (1) The stockholders thereby become interested in all the corporations whose stocks are thus held, and (2) the trustees elect the directors of the several corporations."

The first application of the system of Trusts, as now understood, to American industries took the shape of syndicates for the purpose of securing under one management the control and operation of a number of railroads or other corporate interests of a similar character. The transportation, refining and handling of crude petroleum



gave birth to another syndicate, but in 1882 the Standard Oil Trust was created and, though at present inactive, its organization is still maintained and its property managed according to the policy adopted when the Trust was established. Its success was immediate and pronounced. The Cotton Seed Oil Trust, formed about 1882, was the next combination to be organized, and since that date the number has steadily increased, almost every department of commerce, manufactures, and trade having been enlisted, in the face of public disapproval and in some instances of legal opposition. Public opinion has declared and still contends that combinations organized for the purpose of controlling the prices of commodities, particularly those included among the necessities of life without regard to the natural laws of supply and demand, are not only unlawful but cannot be justified upon any plea of commercial enterprise, and insisted that inasmuch as they destroyed legitimate competition they should be made the subject of judicial investigation and determination. Notwithstanding the objections thus raised to their organization and continuance, trusts have grown in number and importance, and now exert an influence correspondingly potent. Those prominent, and said to be prospering, embrace trusts formed for the purpose of limiting the production and regulating the prices of sugar, oatmeal, gas, coal, whitelead, jute bagging, binding-twine, lead pencils, strawboard, whisky, and some other articles coming under the head of necessities. Their formation and operations have been accomplished and conducted up to a recent date without any serious opposition having been made, though wherever the question has been raised a majority of decisions was declared against them on the ground that they are combinations in restraint of trade, and consequently void. In the case of the Central Ohio Salt Company vs. Guthrie, the supreme court of Ohio laid down the rule, that combinations organized to purchase commodities from the manufacturer for sale to the public were illegal on the ground that they destroyed competition in trade, established monopolies and tended to advance the market prices to the injury of the public. The supreme court of Pennsylvania has promulgated similar views, and the supreme court of Louisiana, in a case where a number of parties owning a large quantity of Indian bagging combined and agreed not to sell except upon the consent of a majority of those who were parties to the agreement, refused to uphold the agreement, because it was "palpably and unequivocally a combination in restraint of trade and to enhance the price in the market of an article of prime necessity to cotton-planters; such combinations," the court further declared, were "contrary to public order, and cannot be enforced in a court of justice." In the case of the Chicago Gas Trust, involving the legality of trusts, Judge Collins held that it was illegal and a fraud upon the stockholders of companies composing the trust for whose benefit a receiver was appointed, thus practically terminating its existence. The most important decision, however, thus far made, was that announced by the court of appeals of New York, during June, 1890, affirming the judgment of dissolution against the North River Sugar Refining Company, and declaring the sugar trust an unlawful combination. The suit was originally instituted before the supreme court of New York city, upon the relation of the State for a forfeiture of the charter of the North River Company, on the ground that a trust to increase prices was illegal and that any company by becoming a member of such trust thereby surrenders its charter. The supreme court took such view of the case and upon appeal the points at issue were elaborately presented with the result above

stated. The decision says: "The question to be determined is whether the conduct of the defendant company in aiding to form the trust was illegal. In all of the points which were reviewed it is found that the corporation was doing a public injury, and in avoiding the State law which compels reservation of corporate rights proved unfaithful to its charter and duties. It is a violation of law for corporations to enter into a partnership, as shown in the case of Whittenton vs. Upton, 10 Gray, 596, which furnishes the reasons at length. If the trust had been properly formed as a corporation under the laws the twenty separate companies would have been dissolved, and not remain in existence as in this case. The present corporation or trust puts upon the market a capital stock defiant of actual values and capable of unlimited expansion. If corporations can combine and mass their forces in a solid trust with little added risk to capital already in, without limit to magnitude, a tempting and easy road is opened to enormous combinations, vastly exceeding in number and strength any possibilities of individual ownership. The law seeks to protect individuals rather than combinations. The defendant corporation has violated its charter and failed in the performance of its corporate duties, and that in respects so material and important as to justify a judgment of dissolution."

From the foregoing it is clearly apparent that the tendency of judicial opinions is against the legality of trust combinations. Eminent representatives of the judiciary in States not herein quoted entertain similar views, as also do many practitioners, notwithstanding there are members of the bar of conceded abilities, large experience, and amply provided with authorities, who contend that a violation of the right claimed by persons or corporations to combine for the "purposes of controlling the means of production, even though they are able to control the business of a continent," is an invasion of personal rights that should be summarily dealt with. Such seems to be the condition of affairs touching the question of trusts at present. And until the same, so far, at least, as those existing in the United States are concerned, is definitely determined by the court of last resort, the corporate death of such combinations will doubtless be indefinitely deferred.

**TRUXILLO**, a town of Spain with a population of 9,800, and considerable trading. It was the birthplace of Pizarro, who was buried there.

**TRUXILLO**, a town of Peru, founded in 1535 by Pizarro, who named it after his birthplace in Spain. It has a population of about 10,000, and exports considerable quantities of rice and spices.

**TRYSAIL**, a small fore-and-aft sail mounted by a cutter or schooner in a storm, when the wind is too violent to permit her to carry her ordinary canvas.

**TSARITSYN**, a district town of the government of Saratoff, Russia, situated on the right bank of the lower Volga, where it suddenly turns toward the southeast, only forty miles distant from the Don. The town has grown rapidly since the completion of the railway system, and has a large trade in naphtha from Baku, which is shipped up the Volga to Tsaritsyn and sent thence by rail to the interior of Russia. The railway between the Baskunchak salt lakes of Astrakhan and the Volga has made Tsaritsyn also a depot for the salt trade. In addition Tsaritsyn is the center of the trade connected with the mustard plantations of Sarepta, Dubovka, and the neighborhood. The fisheries of the place are also important. The population (6,750 in 1861) numbered 55,967 in 1898. It is still larger in summer, Tsaritsyn having become the gathering-place of poor people in search of work, and the misery and filth in its poorer quarters are very great.



**TSARSKOYE SELO**, a district town of Russia, in the government of St. Petersburg, and an imperial residence, eighteen miles to the south of the capital, is situated on the Duderhof Hills, and consists of the town proper, surrounded by several villages and a German colony, which are summer resorts for the inhabitants of St. Petersburg, and the imperial parks and palaces. The population numbered 17,000 in 1898.

**TSCHUDI**, or **SCHUDY**, the name of one of the oldest and most distinguished families of the land of Glarus, Switzerland. In literature, its most eminent member was GILES or ÆGIDIUS TSCHUDI (1505-72), who, after having served his native land in various offices, in 1558 became the chief magistrate or "land-ammann." Originally inclined to moderation, he became later in life more and more devoted to the cause of the counter-Reformation. It is, however, as the historian of the Swiss Confederation that he is best known. In 1538 his book on Rhetia, written in 1528, was published in Latin and in German—*De prisca ac vera Alpina Rhetia*, or *Die uralte wahrhaftig Alpische Rhätia*.

**TSE-NAN FOO**, the capital city of the province of Shantung in China, stands in  $36^{\circ} 40'$  N. latitude and  $117^{\circ} 1'$  E. longitude. It is situated in one of the earliest settled districts of the empire, and figures repeatedly in the records of the wars which troubled the country during the six centuries that preceded the Christian era. The most noticeable feature about the city is three springs outside the west gate, which throw up as many streams of tepid water to a height of about two feet. This water, which is pleasant to the taste, and is highly prized for its healing qualities, flows in such abundant quantities that it fills the moat and forms a fine lake in the northern quarter of the city. With the taste which Chinamen always show in such matters, the lake is divided into a number of water avenues by floating banks, on which flowers and trees are skillfully arranged, and is further adorned with several picturesque summer houses, which form points of attraction to picnic parties and pleasure-seekers during the warmer months. Its waters abound with many species of edible fish. The population of the town is reckoned at about 100,000.

**TSETSE FLY** (*Glossina morsitans*). The tsetse fly, so much dreaded by the traveler in South Africa, belongs to the sub-family *Muscinae* and is closely allied to *Stomoxys*. It is scarcely larger than the common house fly, which it resembles in its general shape. It can, however, be easily distinguished by its color and the position of its wings. The bite of the tsetse is innocuous to man and is not more painful than that of a gnat. Large game, goats, and apparently all animals while suckling, are also unaffected by it. But to the horse, ox, and dog it is fatal. The poison may take effect after a few days, or the animal may remain apparently unaffected for some months; but eventually symptoms of poisoning appear. These symptoms seem to be rather variable; as a rule swellings arise under the jaws and around the navel, the eyes and nose begin to run, and, although the animal continues to graze, it becomes more and more emaciated, suffers violently from purging, and at length succumbs to extreme exhaustion. The fly is said to avoid animal excreta, and in some parts a paste composed of milk and manure is smeared on cattle which are about to pass through the "fly-belts." This affords a certain amount of protection. Lion's fat is used in the same way, and is said to be efficacious.

**TUAM**, a market town and episcopal city of Galway, Ireland, is the terminus of the Athenry and Tuam railroad and lies 20 miles northeast of Galway and 129

west of Dublin. The town has a considerable retail trade, and is a center for the disposal of agricultural produce. From 4,223 in 1871 the population decreased to 3,267 in 1901.

**TUAMOTU ARCHIPELAGO**, a broad belt of seventy coral islands lying between  $14^{\circ} 5'$  and  $23^{\circ} 22'$  S. latitude and  $134^{\circ} 25'$  and  $148^{\circ} 40'$  W. longitude, and now under the protection of France. They trend in irregular lines in a northwest and southeast direction, and cover 1,500 miles of the Pacific, the easternmost Tuamotus being 3,600 miles from Peru. With the exception of a few insignificant islands the archipelago consists of atolls, mostly chains of low islets that crown the reefs and sometimes also obstruct the deep lagoons which they encircle. The largest island, Nairsa (Dean's Island), with a lagoon forty-five miles long by fifteen wide, is made up of twenty islets. Fakarava, the next in size, consists of fifteen islets, and its oblong lagoon affords the best anchorage in the group. Hao has fifty islets, and its lagoon is dangerously studded with coral. The symmetrically placed eleven islets of Anao suggested to Captain Cook the name of Chain Island. Matahiva, Niau, and Mururoa are good specimens of the horse-shoe-shaped atoll. Nengonengone, Pangataufa, and Marutea, true lagoon islands, form unbroken rings round their lake-like lagoons. In a few of the smaller atolls the lagoons have been completely silted up. To the southeast lie the Gambier Islands, a cluster of four larger and many smaller volcanic islets, inclosed in one wide reef. This group was discovered by Captain Wilson of the London Missionary Society in 1797. Tahitian teachers were sent thither in 1834; but Catholic missionaries followed in 1836, and converted the entire population. The natives, once very numerous, now number less than a thousand, and are still decreasing. Coral grows luxuriantly everywhere. From the abundance of pearl-oysters the archipelago gets its name of Pearl Islands; pearl-fishing indeed is the only remunerative industry. Under French control the newest appliances for obtaining shells have now mostly superseded the laborious diving of the natives. The Tuamotus are very thinly inhabited by a fine, strong Polynesian race, more muscular and mostly darker-skinned than that inhabiting Tahiti. In the west considerable intermixture with other races has taken place. Of the habits of the people little is known.

**TUBERCLE**. See **PHTHISIS**.

**TUBEROSE**. The cultivated tuberose (*Polianthes tuberosa*) is allied to the Mexican agaves and is a native of the same country. The tuberous root-stock sends up a stem three feet in height, with numerous lanceolate leaves and terminal racemes of white funnel-shaped, very fragrant flowers. Each flower is about one and a half inches long, with a long tube and a six-parted limb. The stamens are six in number, emerging from the upper part of the tube, and bear linear anthers. The ovary is three-celled; but the mature fruit and seed are not botanically known. The plant is largely grown in the United States.

**TUBE-WELL** is an American contrivance, having for its object the obtaining of a small supply of water in a very short space of time by the application of a limited amount of manual power. The apparatus comprises three parts—a tube or well, a rammer or monkey, and a pump. The tube consists of an iron pipe about one and one-quarter inches in diameter, made in pieces of convenient length, which can be screwed together end to end. The pipe terminates at the lower end in a solid tempered steel point, and is perforated for about sixteen inches from the end with small lateral apertures. The pipe is driven a short way into the ground, just sufficient to keep it upright without falling, and is tem-



porarily kept in that position by hand. A strong iron clamp is similarly fixed higher up. Two pulleys are supported by the upper clamp. The rammer, or monkey, consists of a fifty-pound iron weight, which slides up and down the tube encircling it like a ring or belt. The rammer being raised by two men is allowed to fall with its full weight on the lower clamp, thus giving a series of blows which drive the tube into the ground. When the lower clamp becomes level with the surface of the ground, it is raised up the tube; as is likewise the other clamp, which supports the two pulleys. Successive lengths of tube and successive shiftings of the clamps afford the means of enabling the perforated end of the tube to reach soil whence water can be obtained. When the symptoms appear of water having been reached, a small suction pump is applied and the water pumped. It is only when water is expected to be reached at a moderate distance below the surface that this apparatus is available, as it is not powerful enough for great depths, nor is the bore of the tube sufficient for a large influx of water; but the required conditions being found to exist, the apparatus saves a large amount of ordinary boring. As the water is pumped up, the loose sand and gravel disappear from the point of the tube, allowing the formation of a small pool or well, while small pebbles which collect around the perforations act as a sort of filter. The tube can be extracted from the ground by forcing the rammer upward against the upper clamp.

TÜBINGEN, the university town of Württemberg, is picturesquely situated on the hilly and well-wooded banks of the Neckar, at the junction of the Ammer and Steinlach, eighteen miles south of Stuttgart, and on the southeast border of the Black Forest. Tübingen's chief claim to attention lies in its famous university, founded in 1477 by Duke Eberhard. The university adopted the Reformed faith in 1534, and in 1536 a Protestant theological seminary—the so-called Stift—was incorporated with it. In 1817 a Roman Catholic theological faculty (the "Convict") and a faculty of politics and economics were added, and in 1863 a faculty of science. The leading faculty has long been that of theology, and an advanced school of theological criticism, the founder and chief light of which was F. C. Baur, is known as the Tübingen school. The pop. (1900) was 15,338. The country in the neighborhood of Tübingen is very attractive; one of the most interesting points is the former Cistercian monastery of Bebenhausen, founded in 1185, and now a royal hunting-chateau.

TUCKER, ABRAHAM, holds a place of his own among the English moralists of the eighteenth century. He was born in London, of a Somerset family, September 2, 1705. In 1721 Tucker entered Merton College, Oxford, as a gentleman commoner. In 1736 he married Dorothy Barker, the daughter of a neighboring landed proprietor. His wife, to whom he was fondly attached, died in 1754, leaving him with two daughters. He took an active part in the education of his daughters, and from this time onward began to occupy himself with the composition of the work by which he is known—*The Light of Nature Pursued*. In 1765 the first four volumes of his work were published under the pseudonym of Edward Search. The remaining three volumes did not appear till after his death. He died on November 20, 1774.

TUCKER, JOSIAH, dean of Gloucester from 1758, a sagacious and candid writer on politics and political economy, was born in 1711 and died in 1799.

TUCSON, a city in Pima county, Arizona Territory, is situated in 32° 13' N. latitude and 110° 53' W. longitude at an elevation of 2,403 feet above the sea, upon the Santa Cruz river and on the Southern

Pacific Railroad, about seventy miles from the Mexican frontier. The surrounding country is arid and barren, except where it has been fertilized by irrigation. The climate is exceedingly hot and dry. The principal industries of Tucson, besides stockrearing, are connected with mining, as it is a supply point for mining districts in the neighboring mountains and has several smelting works. The population, which in 1860 was 915, in 1870 3,224, had grown by 1890 to 5,150, and in 1900 had increased to 7,531. About one-half are of foreign birth, a large proportion being Mexicans. Tucson is one of the oldest settlements in the United States, having been founded as a Jesuit mission by the Spaniards in the seventeenth century.

TUCUMAN, or, more fully, SAN MIGUEL DE TUCUMAN, capital of the province of Tucuman, in the Argentine Republic, is a straggling town, on the right bank of the Tala. The surrounding district is fertile, and also produces excellent timber. Leather and sugar are the principal objects of industry. The population was recently estimated (1901) at 50,000.

TUDELA, a city of Spain, in the province of Navarre, is situated on the right bank of the Ebro where it is joined by the Queyles, and on the railway from Zaragoza to Pamplona, about fifty miles to the northwest of the former city. The manufactures of the place (cloth, silk, pottery) are unimportant. There is some trade in wine and oil. The population within the municipal boundaries in 1897 was 12,086.

TUDOR, HOUSE OF. See HENRY VII. and LANCASTER, HOUSE OF.

TUKE, SAMUEL, English philanthropist, son of Henry Tuke, born at York in 1784, greatly advanced the cause of the amelioration of the condition of the insane, and devoted himself largely to the York Retreat, the methods of treatment pursued in which, he made more widely known by his *Description of the Retreat near York*, etc. (York, 1813). His writings on the construction of asylums and on other subjects connected with the insane are well known. He died in 1857.

TUKE, WILLIAM, English philanthropist, was born at York in 1732. He devoted himself to many philanthropic objects, but his name is more especially known in connection with the humane treatment of the insane, for whose care he projected, in 1792, the Retreat at York, which became famous both abroad and in Great Britain as an institution in which a bold attempt was made to manage lunatics without the excessive restraints then regarded as essential. When he died, in 1822, the superiority of the treatment adopted at the Retreat was fully acknowledged.

TUKE, HENRY, son of the preceding and father of Samuel Tuke, coöperated with his father in the reform at the York Retreat. He was the author of several moral and theological treatises, which have been translated into German and French. He was born in 1756, and died in 1814.

TULA, a government of central Russia, bounded by Moscow on the north, Ryazan on the east, Tamboff and Orel on the south, and Kaluga on the west, has an area of 11,950 square miles. Devonian limestones, dolomites, and sandstones appear chiefly in the southwest; Lower and Middle Carboniferous limestones and clays occupy the remainder of the area. The former contain deposits of coal, which are now worked (chiefly at Malevka and Novoselsk) to the extent of nearly 1,500,000 hundredweights annually. Jurassic clays are found in patches here and there. Glacial boulder clay covers most of the region, while Lacustrine deposits are widely spread in the valleys and depressions. Iron-ore is found all over the government; limestone, fire-clay, and pottery clay are also obtained. The soil is black



earth in the south and east and clay or sandy clay in the northwest. The climate is less rigorous than that of Moscow, the average yearly temperature being 40.2° Fahr. (January, 13.8°; July, 67.5°).

The population of the government is 1,432,743. They are all Great Russians, and either Orthodox Greeks or Raskolniks. Their chief occupation is agriculture, 70 per cent. of the area being arable. Nearly one-half of the soil belongs to landlords and merchants, and the other half to the peasant communities (53 per cent. of the area, and 58 per cent. of the land under culture). Beet-root culture is increasing (8,520 acres in 1885, yielding 59,800 hundredweights of sugar). The growth of tobacco is also spreading (10,000 hundredweights in 1885). There were in 1883 380,620 horses, 203,500 cattle, and 786,000 sheep. Manufactures are rapidly developing. Petty trades, especially the manufacture of tea-urns, small brass ware, and harmoniums, and also weaving, are extensively carried on and support a lively export trade; timber, raw metals, and various manufactured wares are imported. The government is traversed by the Moscow and Sebastopol and the Ryazhsk and Vyazemsk railways, as well as by the Oka. The government is divided into twelve districts, the chief towns of which with their population in 1898 are TULA (see below), Alexin (4,960), Bogoroditsk (8,030), Byeleft (9,300), Epifan (3,820), Efremoff (7,770), Kashira (4,610), Krapivna (1,560), Novosil (4,660), Odoeff (5,140), and Tcheriñ (2,675). Byeleft, Alexin and Kashira are important loading places on the Oka. The villages Malevka (coal mines) and Nikitino have more than 5,000 inhabitants each.

TULA, capital of the above government is situated on the Upa, 120 miles by rail to the south of Moscow. It is built in the broad but low, marshy, and unhealthy valley of the Upa and is divided into three parts—the Posad on the left bank, the Zaryetskaya or Oruzheinaia on the right bank, and Tchulkova between the Upa and the Tuliitsa. It is an old town of Old Russia, but its growth began only toward the end of the eighteenth century after the manufacture of arms had commenced, and now, 1898, its population has reached 111,048. They are employed chiefly either at the imperial gun factory or at numerous private factories (about 130 with 4,350 men) and small workshops. The main branch of the industry is the making of rifles (from 20,000 to 30,000 annually). Next in importance comes the manufacture of *samovars* (tea-urns), in which more than 5,000 persons are engaged. All sorts of cutlery and ironmongery are manufactured in the small workshops of Tula, which have a high repute in Russia.

TULIP (*Tulipa*), a genus of bulbous herbs belonging to the *Liliaceae*. The species are found wild along the northern shores of the Mediterranean, in the Levant, Armenia, Caucasus, Persia, Central Asia, and Afghanistan. The cup-shaped flowers have six regular segments in two rows, as many free stamens, and a three-celled ovary with a sessile stigma, which ripens into a leathery, many-seeded capsule. The species are numerous, and are distinguished one from another by the scales of the bulb being woolly or smooth on the inner surface, by the character of the flower-stalks, by the filaments being hairy or otherwise, and by other characteristics. Owing to the great beauty of the flowers they have been favorites in gardens for two or three centuries, and have been crossed and recrossed till it has become almost impossible to refer the plants to their original types. The early flowering "Van Thol" tulips, the segments of which are mostly scarlet with yellow edges, are derived from *T. suaveolens*, a native of the Caspian region. *T. Gesneriana*, a native of Armenia and central Russia, is the origin of some of the later flowering

varieties. During the last few years a large number of new species have been discovered in Turkestan, and introduced into Europe. Some of these are very beautiful, and render it probable that by intercrossing with the older species still further difficulties will be presented in the way of identification. This innate power of variation has enabled the florist to obtain, and ultimately to "fix," so many remarkable varieties. At the present day tulips are less fashionable than they once were, and consequently the enormous prices given for new or improved varieties no longer obtain, though, even now, large sums are asked for special bulbs.

TULLAMORE, one of the capitals, and now the assize town of King's county, Ireland, is situated on the Grand canal, fifty-nine miles west-southwest from Dublin, with which it is connected by a branch from the Great Southern and Western railway. It stands upon what may be called a fertile island of the great Bog of Allen, and has within the last half century risen into some importance. The population amounted in 1901 to 5,100, mostly Roman Catholics. It is a place of considerable business, commanding from its central position the inland traffic of a very large and fertile district. A large trade in grain and agricultural produce is carried on with Dublin by the canal. There is a large distillery, extensive breweries and several tanneries; and Tullamore is the center of a busy cattle trade. The schools, both conventual and national, are excellent and numerous attended. There are a jail and court-house, barracks, Roman Catholic and Protestant churches, etc. A newspaper is published here every week. Within a few miles is situated the extensive Jesuit College of Tullabeg, which receives about 150 pupils.

TULLE, a town of France, chef-lieu of the department of Corrèze and a bishop's see, is sixty-one miles east-northeast of Périgueux by the railway from Bordeaux to Clermont-Ferrand. The town rises picturesquely on both banks of the Corrèze, a sub-tributary of the Dordogne. The Corrèze, crossed by four bridges, flows between embankments, and the narrow streets on the steep left bank are connected by stairs. Of the twelfth century cathedral only the porch and the nave of six bays remain, the choir and transept having been destroyed in 1793; but there is a fourteenth century tower, with a fine stone steeple. The principal industry is the manufacture of firearms. The government establishments employ from 1,500 to 3,000 workmen, and can turn out 70,000 guns annually. Manufactories for the variety of lace called "tulle" were first established here. There is a collection of the firearms of all nations. The population in 1889 was 10,635, and was in 1901, 13,500.

TULLE, a term restricted in England to a fine bobbin-net of silk, used for veils, scarfs, millinery purposes, and trimmings of ladies' dresses, etc. The French used the word to mean all machine-made lace the basis of which is the intertwisted net-work made on the bobbin-net machine. The word is derived from the town of TULLE in France, (*q.v.*)

TULLOCH, JOHN, Scottish theologian, was born in Perthshire in 1823, and received his university education at St. Andrews and Edinburgh. In 1845 he became minister of St. Paul's, Dundee, and in 1849 of Kettins, in Strathmore, where he remained for six years. His literary gifts, shown in his contributions to various reviews, as well as his talent for society, drew attention to him, and in 1854 he was appointed to the principalship of St. Mary's College, St. Andrews. The appointment was immediately followed by the appearance of his Burnet prize essay on *Theism*. At St. Andrews, where he held along with the principalship the post of professor of systematic theology and apologetics, his work as a



teacher was distinguished by several features which at that time were new. No one, except perhaps Dr. Robert Lee, has done more during the last generation to widen the national church. For three years before his death he was convener of the church interests committee of the Church of Scotland, which had to deal with a great agitation for disestablishment. His death took place at Torquay February 13, 1886.

**TULLUS HOSTILIUS**, third legendary king of Rome, is represented as having reigned for thirty-two years (670–638 B.C.). His successful wars with Alba, Fidenæ, and Veii shadow forth the earlier conquests of Latian territory and the first extension of the Roman domain beyond the walls of Rome. (See **ROME**, *ante*.)

**TUMKUR**, or **TOOMKOOR**, a district of India, in the west of the Nandidrug division of Mysore. It is bounded on the north by the Bellary district, on the east by Kolar and Bangalore, on the south by Mysore, and on the west by Chitaldrug and Hassan. Tumkur consists chiefly of elevated land intersected by river valleys. The principal streams are the Jayamangala and the Shimsha. The mineral wealth of Tumkur is considerable: iron is obtained in large quantities from the hill sides, and excellent building stone is quarried. The slopes of the Devarây-durga Hills, a tract of eighteen square miles, are clothed with forests.

In 1901 the population of Tumkur numbered 413,483 (males 203,253, females 209,930), embracing 395,443 Hindus, 17,130 Mohammedans, and 603 Christians. Tumkur town, situated at the base of the Devarây-durga Hills, forty-three miles northwest of Bangalore, with a population of 9,909, is the administrative headquarters.

**TUMOR**. See **PATHOLOGY** and **SURGERY**.

**TUMULUS**. See **BAPROWS**.

**TUNBRIDGE**, or **TONBRIDGE**, a town of Kent, England, is situated on rising ground above the Medway, and on the South-Eastern railway, forty-one miles (by rail) southeast of London and thirty-three northwest of Hastings. The Medway is crossed by a stone bridge, erected in 1775. The town consists chiefly of one long main street and a large number of suburban villas. There are gunpowder mills on the banks of the Medway; and wool-stapling, brewing, and tanning are carried on. The population of the urban sanitary district (area 1,200 acres) in 1881 was 9,317, and was in 1901 13,000.

**TUNBRIDGE WELLS**, an inland watering-place of England, chiefly in Kent but partly in Sussex, is situated in the midst of charming and picturesque scenery, on the South-Eastern railway and at the terminus of a branch line of the London, Brighton and South Coast railway, forty-six miles (by rail) southeast of London and five south of Tunbridge. It owes its popularity to its chalybeate spring and its romantic situation. The wells are situated near the Parade (or Pantiles), a walk associated with fashion since the time of their discovery. The town is built in a picturesquely irregular manner, and a large part of it consists of districts called "parks," occupied by villas and mansions. On Rushall common, about a mile from the town, is the curiously shaped Toad Rock, and about a mile southwest the striking group called High Rocks. The population of the urban sanitary district (area 3,351 acres) is 24,308.

The town owes its rise to the discovery of the medicinal springs by Dudley, Lord North, in 1666. Henrietta Maria, wife of Charles I., retired to drink the waters at Tunbridge after the birth of her eldest son Charles. Soon after the Restoration it was visited by Charles II. and Catherine of Braganza. It was a favorite residence of Anne previous to her accession, and from that time became one of the special resorts of London fashion.

It reached the height of its comparative popularity in the latter half of the eighteenth century, and is specially associated with Colley Cibber, Samuel Johnson, Cumberland the dramatist, Garrick, Richardson, Reynolds, Beau Nash, Miss Chudleigh, and Mrs. Thrale. The Tunbridge of that period is sketched with much graphic humor in Thackeray's *Virginians*.

**T'UNG-CHOW**, a sub-prefectural city in Chih-li, the metropolitan province of China, is situated on the banks of the Peiho, about twelve miles southeast of Peking. Like most Chinese cities, T'ung-Chow has appeared in history under various names. By the founder of the Han dynasty (206 B.C.) it was called Lu-Hien; with the rise of the T'ang dynasty (618 A.D.) its name was changed to Heuen-Chow; and, at the beginning of the twelfth century, with the advent of the Kin dynasty to power, Heuen-Chow became T'ung-Chow. The city marks the highest point at which the Peiho is navigable, and here merchandise for the capital is transferred to a canal, by which it reaches Peking. The city, which is faced on its eastern side by the river, and on its other three sides is surrounded by populous suburbs, is upward of three miles in circumference. The place derives its importance from the fact that it is the port of Peking. Its population was estimated at about 50,000 in 1897.

**TUNGSTEN** (Germ. *wolfram*, or, antiquated, *scheel*), one of the metallic elements of chemistry. The mineral tungsten (meaning in Swedish "heavy stone") used to be taken for a tin ore until this was disproved by Cronsted. Scheele showed, in 1781, that it is a compound of lime with a peculiar acid, the metallic nature of which was recognized in the same year by Bergmann. It occurs only as a component of a number of relatively rare minerals, the most important of which are wolfram or wolframite, and scheelite (tungsten) (see **MINERALOGY**). The metal is prepared from the pure oxide  $WO_3$  by reduction with hydrogen in a platinum tube at a high temperature. It forms resplendent tin-white or gray plates, or a dull black powder similar to hydrogen-reduced iron. It is more difficult to fuse than even MANGANESE, (*q.v.*) It is unalterable in ordinary air; oxygen and even chlorine act upon it only at a high temperature. Hydrochloric and sulphuric acid do not attack it. Nitric acid attacks it slowly, aqua regia readily, with formation of the trioxide  $WO_3$ .

**TUNGUSES**, a wide-spread Asiatic people, forming a main branch of the Mongol division of the Mongol-Tartar family. They are the *Tung-hu* of the Chinese, probably a corrupt form of *tonki* or *donki*, that is, "men" or "people." The Russian form *Tungus*, wrongly supposed to mean "lake people," appears to occur first in the Dutch writer Massa (1612); but the race has been known to the Russians ever since they reached the Yenisei. The Tungus domain, covering many hundred thousand square miles in central and east Siberia and in the Amur basin, stretches from the Yenisei eastward to the Pacific, where it occupies most of the seaboard between Corea and Kamchatka. It also reaches the Arctic Ocean at two points, in the Nisovaya tundra, west of the Khatanga river, and in a comparatively small inclosure in the Yana basin over against the Liakhoff (New Siberia) Archipelago. But the Tunguses proper are chiefly centered in the region watered by the three large eastern tributaries of the Yenisei, which from them take their names of the Upper, Middle or Stoney, and Lower Tunguska. The Amur is still mainly a Tungus river almost from its source to its mouth; the Oroches (Orochus), Daurians, Birars, Golds, Manegrs, Sanagirs, Ngatkons, Nigidals, and some other aboriginal tribes scattered along the main stream and its affluents—the Shilka, Sungari, and Ussuri—are all of



Tungus stock and speech. On the Pacific the chief subdivisions of the race are the Lamuts, or "sea people," grouped in small isolated hunting communities round the west coast of the Sea of Okhotsk, and further south the Yu-pi-ta-tze ("fish clad"), the Tazi of the Russians, between the Amur delta and Corea. The whole race, exclusive of Manchus, numbers probably about 80,000, of whom 15,000 are in the Amur basin, the rest in Siberia.

**TUNICATA.** This group of animals was formerly regarded as constituting along with the *Polyzoa* and the *Brachiopoda* the invertebrate class *Molluscoidea*. It is now known to be a degenerate branch of the *Chordata*, and to be more nearly related to the *Vertebrata* than to any group of the *Invertebrata*. More than 2,000 years ago Aristotle gave a short account of a Simple Ascidian under the name of *Tethyum*. He described the appearance and some of the more important points in the anatomy of the animal. From that time onward to a little more than a century ago, although various forms of Ascidians had been briefly described by writers on marine zoölogy, comparatively little advance was made upon the knowledge of Aristotle. Schlosser and Ellis, in a paper containing a description of *Botryllus*, published in the *Philosophical Transactions* of the Royal Society for 1756, first brought the Compound Ascidians into notice; but it was not until the commencement of the nineteenth century, as a result of the careful anatomical investigations of Cuvier upon the Simple Ascidians, and of Savigny upon the Compound, that the close relationship between these two groups of the *Tunicata* was conclusively demonstrated. Up to 1816, the date of publication of Savigny's great work, the few Compound Ascidians then known had been generally regarded as *Alcyonaria*, or as Sponges; and, although many new Simple Ascidians had been described by O. F. Müller and others, their internal structure had not been investigated. Lamarck, in 1816, chiefly as the result of the anatomical discoveries of Savigny and Cuvier, instituted the class *Tunicata*, which he placed between the *Radiata* and the *Vermes* in his system of classification. The *Tunicata* included at that time, besides the Simple and the Compound Ascidians, the pelagic forms *Pyrosoma*, which had been first made known by Péron, in 1804, and *Salpa*, described by Forskal, in 1775.

The most important epoch in the history of the *Tunicata* is the date of the publication of Kowalevsky's celebrated memoir upon the development of a Simple Ascidian. The tailed larva had been previously discovered and investigated by several naturalists—notably H. Milne-Edwards, J. P. van Beneden, and Khron; but its minute structure had not been sufficiently examined, and the meaning of what was known of it had not been understood. It was reserved for Kowalevsky, in 1866, to demonstrate the striking similarity in structure and in development between the larval Ascidian and the vertebrate embryo.

As a type of the *Tunicata*, *Ascidia mentula*, one of the larger species of the Simple Ascidians, may be taken. This species is found in most of the European seas, generally in shallow water on a muddy bottom. It has an irregularly ovate form, and is of a dull gray color. It is attached to some foreign object by one end. The opposite end of the body is usually narrow, and it has a terminal opening surrounded by eight rounded lobes. This is the mouth or branchial aperture, and it always indicates the anterior end of the animal. About half way back from the anterior end, and on a rounded projection, is the atrial or cloacal aperture—an opening surrounded by six lobes—which is always placed upon the dorsal region. When the

Ascidian is living and undisturbed, water is being constantly drawn in through the branchial aperture and passed out through the atrial. If colored particles be placed in the water near the apertures, they are seen to be sucked into the body through the branchial aperture, and after a short time some of them are ejected with considerable force through the atrial aperture. The current of water passing in is for respiratory purposes, and it also conveys food into the animal. The atrial current is mainly the water which has been used in respiration, but it also contains all excretions from the body, and at times the ova and spermatozoa or the embryos.

In most Ascidians the eggs are fertilized in the peribranchial cavity, and undergo most of their development before leaving the parent; in some cases, however, the eggs are laid, and fertilization takes place in the surrounding water.

The embryo is hatched about two or three days after fertilization, in the form of a tadpole-like larva, which swims actively through the sea by vibrating its long tail. The anterior end of the body is provided with three adhering papillæ in the form of epiblastic thickenings. In the free-swimming tailed larva the nervous system, formed from the walls of the neural canal, becomes considerably differentiated.

After a short free-swimming existence the fully developed tailed larva fixes itself by its anterior adhering papillæ to some foreign object, and then undergoes a remarkable series of retrogressive changes, which convert it into the adult Ascidian. The tail atrophies, until nothing is left but some fatty cells in the posterior part of the trunk. The adhering papillæ disappear and are replaced functionally by a growth of the test over neighboring objects. The nervous system with its sense organs atrophies until it is reduced to the single small ganglion, placed on the dorsal edge of the pharynx, and a slight nerve cord running for some distance posteriorly. Slight changes in the shape of the body and a further growth and differentiation of the branchial sac, peribranchial cavity, and other organs now produce gradually the structure found in the adult Ascidian.

**TUNING FORK,** a small bar of cast tool steel with tolerably defined edges, bent into a fork with two prongs. A handle of the same metal extending from the bend of the fork serves as a sound-post to transmit the vibrations of the fork to any resonance board or body convenient for reinforcing the sound. The fork is set in vibration by striking one of the prongs against any hard substance, by pressing the prongs together if the fork is a light one, or, if it is large, by drawing a double bass bow across one of the prongs. The ordinary use of a tuning fork is to serve as a pitch carrier or standard, for which it is particularly suited owing to the permanence with which it maintains the pitch to which it may be tuned. It is flattened by heat and sharpened by cold about 1 vibration in 20,000 for every degree Fahr., so that the exact pitch always depends upon the temperature. A tuning fork is tuned by filing the ends of the prongs or between them near the ends to make it sharper, or by filing between them near or at the bend to make it flatter. Less filing is required to flatten than to sharpen. The tuning fork is of value in certain physical investigations, from the constancy of its rate of vibration. In England it is generally tuned to C in the treble clef, because organ-builders start their tuning from that note; in France it is tuned to A in the treble clef, which is the note of the third open string of the violin.

**TUNIS, REGENCY OF,** formerly one of the Barbary states of North Africa, but since 1881 a dependency of France, whose resident-general exercises all real author-



ity in the nominal dominions of the bey. It is bounded on the west by Algeria, on the north by the western basin of the Mediterranean, on the east from Cape Bon to the Gulf of Gabes (Kábis) by the eastern basin of the same sea, and on the southeast by the province of Tripoli. On the south the boundary is the Sahara and the frontier line is indefinite. The greatest breadth from east to west is about 150 miles, the length from north to south about 300 miles. The population does not exceed a million and a half.

Tunis is formed by the prolongation toward the east of the two great mountain chains of ALGERIA (*q.v.*), and closely resembles that country in its physical features, products, and climate; see AFRICA. The northern Algerian chain (the Little Atlas) is prolonged through Tunis to Rás Sidi 'Alí al-Makkí, the highest summits never attaining an altitude of 4,000 feet. It forms a picturesque, fertile, and well-watered region, with extensive cork woods in its western parts, and separated from the southern mountains by the valley (the ancient Zeugitana) of the Mejerda (the ancient Bagradas), the most important river of north Africa, which after a tortuous course of nearly 300 miles falls into the Gulf of Tunis at Porto Farina. The basin of the Mejerda, which is now traversed by the railway from Algiers to Tunis, is very fertile, and many important ruins testify to its prosperity in Roman times. The rich lacustrine deposits in the Dákhila, or plain of Bulla Regia, show that it was only in relatively recent times that its upper waters found a passage to the sea by cutting a deep gorge through the cretaceous barrier that shuts in this upland plain upon the east. The upland district from Tebessa southward sinks into the desert by a step-like series of great plateaus, separated by rugged walls of variegated marls, sands, and alluvium, torn into fantastic shapes, and scored with deep ravines by streams which at some remote period of copious rainfall poured down into the Sahara. Farther east the plateaus disappear and the mountains rise like a rampart from the Sibákh or Saharian marshes and salt-flats. Even the Sahar of Tunis abounds in fertile oases.

The mean annual temperature at Súsá is 75° Fahr., the mean of the winter or rainy season 60° and of the hot season 97°. At Tunis the temperature rarely exceeds 90°, except with a wind from the Sahara. The prevailing winds from May to September are east and northeast and during the rest of the year northwest and east. A rainy season of about two months usually begins in January; the spring season of verdure is over in May; summer ends in October with the first rains. Violent winds are common at both equinoxes.

Flora and Fauna are generally the same as those of ALGERIA, (*q.v.*) The lion and panther are almost extinct, but the sportsman finds in abundance the wild boar, partridge, Carthage fowl, quail, and snipe. The African moufflon still exists in the southern mountains. Herds of buffaloes are found in the district of Mater. The stag occurs in the eastern districts. The camel, now so important, was hardly known here before the Roman sovereignty.

Cork and "zen" trees cover about 360,000 acres toward the Algerian frontier, and the pine and deciduous oak almost as large an area south of the Mejerda; but the country is much less wooded than in antiquity. The richness of the grain crops is still remarkable, in spite of imperfect cultivation. Olives and many excellent fruits are largely produced, and vineyards have been much extended since the French occupation. The oases of the Jerid are devoted to the date palm and produce the best dates known in the market.

The mineral wealth of Tunis, like that of Algeria, is considerable, but it has been imperfectly explored.

The industrious Berbers (Kabyles), the oldest stock in the country, are less sharply marked off from the Arabs than in Algeria, but are distinguishable by their lighter complexion and often fair hair. They form a large part of the population in the northern and eastern mountains, and in the island of Jerba (Jirba). They are organized in tribes with purely democratic self-government, and laws of their own, which are not those of the Koran. The pastoral Arab nomads are descended from the second Arab invasion, which began in the eleventh century. They have little agriculture and are still as indolent and unruly as their ancestors. The Arabs of the towns are usually known as Moors; among them the Spanish Moors, descendants of the Andalusian refugees, form an exclusive and aristocratic class. The pure Turks and the Kuluglis (sons of Turkish fathers by Moorish women or slave girls) are no longer numerous. Of Europeans there are some 10,000 Italians, 8,000 Maltese, and 4,000 French (exclusive of the army). The Jews number some 50,000, of whom perhaps half are in the capital. The trade of the country is largely in their hands. Pop. estimated at 1,900,000.

For the capital, TUNIS, see below. Of the coast towns SFAX and SUSA have separate notices; Bizerta (Benzert), the ancient Hippo Zarytus, is the chief place on the north coast, with 5,000 inhabitants. On the east coast are Hammamet (Hamámát), with 3,700 inhabitants; Monastir, with 5,600 inhabitants and a trade in cereals and oils; Mahdiya (Mehedia), with 6,300 inhabitants, the fallen city of the Fátimites, which since the French occupation has begun to rise again, and has a new harbor; and Gabes (Kábis) on the Syrtis, a group of small villages, with an aggregate population of 14,000, the port of the shott country and a depot of the esparto trade. Of the inland towns the holy city of KAIRWAN (*q.v.*) is the most remarkable. Its fine mosques are now open to visitors.

The history of Tunis begins with the establishment of the Phœnician colonies; see PHœNICIA and CARTHAGE. The Punic settlers Semitized the coast, but left the Berbers of the interior almost untouched. The Romans entered into the heritage of the Carthaginians and of the vassal kings of Numidia, and Punic speech and civilization gave way to Latin, a change which from the time of Cæsar was helped on by Italian colonization. Carthage was the second city of the Latin part of the empire, "after Rome the busiest and perhaps the most corrupt city of the West, and the chief center of Latin culture and letters." In the early history of Latin Christianity Africa holds a more important place than Italy. Lost to Rome by the invasion of the Vandals, who took Carthage in 439, the province was recovered by Belisarius a century later (533-4), and remained Roman till the Arab invasion. The empire of the Fátimites rested on Berber support, and from that time forth till the advent of the Turks the dynasties of north Africa were really native, even when they claimed descent from some illustrious Arab stock.

The conquest of Algiers by the Turks gave a dangerous neighbor to Tunis, and after the death of Mohammed the Hafsité in 1525 a disputed succession supplied Khair al-Dín Barbarossa with a pretext for occupying the city in the name of the sultan of Constantinople. In 1573 the Turks retreated on the approach of Don John, who had dreams of making himself king of Tunis; but this success was not followed up, and in the next year Sultan Selim II. sent a strong expedition, which drove the Spaniards from Tunis and Goletta, and reduced the country to a Turkish province. The civil administration was now placed under a pasha; but in a few years a military revolution transferred the supreme power to a dey elected by the janissaries, who formed



the army of occupation. The government of the deys lasted till 1705. From 1631 to 1702 the office of bey was hereditary in the descendants of Murád, a Corsican renegade, and their rivalry with the deys and internal dissensions kept the country in constant disorder.

Frequent wars with Algiers form the chief incidents in the internal history of Tunis under the deys. Under deys and deys alike Tunis was essentially a pirate state. Occasional acts of chastisement, of which the bombardment of Porto Farina by Blake in 1655 was the most notable, and repeated treaties, extorted by European powers, checked from time to time, but never put an end to, the habitual piracies, on which indeed the public revenue of Tunis was mainly dependent. The powers were generally less concerned for the captives than for the acquisition of trading privileges, and the deys took advantage of the commercial rivalry of England and France to play off the one power against the other. The release of all Christian slaves was not effected till after the bombardment of Algiers; and the definite abandonment of piracy may be dated from the presentation to the bey in 1819 of a collective note of the powers assembled at Aix-la-Chapelle. The French had long regarded the dominions of the bey as their natural inheritance, and in 1881, having got a grievance against the bey in a commercial transaction of the French African Society, a French force crossed the Algerian frontier under pretext of chastising the independent Kroumir or Khomair tribes in the northeast of the regency, and, quickly dropping the mask, advanced on the capital and compelled the bey to accept the French protectorate. The actual conquest of the country was not effected without a serious struggle with Moslem fanaticism; but all Tunis was brought completely under French jurisdiction and administration, supported by military posts at every important point. The power of the bey is null and his dignity merely nominal.

TUNIS, capital of the regency of the same name, in  $36^{\circ} 50'$  N. latitude and  $10^{\circ} 12'$  E. longitude, is situated on an isthmus between two salt lakes, a marshy sebkha to the southwest and the shallow Boheira, to the northeast. The latter is twelve miles in circumference, and on the side opposite Tunis is connected with the Bay of Tunis at the port of Goletta (Halk al-Wād) by a short canal. The old town, of which the walls have in great part disappeared, lies between two suburbs, the Ribāt al-Soweika on the north and the Ribāt Bab al-Jezira on the south. These suburbs were surrounded by a wall in the beginning of the nineteenth century. Between the old town and the Marine Gate on the Boheira a European quarter, containing the palace of the resident, public offices, the provisional cathedral, and huge blocks of new houses in the French style have sprung up. At the extreme west of the old town is the citadel, now used as barracks, whose lofty circuit includes the mosque built by Abū Zakariyá the Hafsite in 1232. To the same century belongs the great mosque of the Olive Tree (Jámi' al-Zeitūna) in the center of the town, with its many domes and spacious cloister, which possesses a library and serves as a college for some 450 students of Moslem learning. The chief attraction of the old town lies in its bazaars, which retain their Oriental character unimpaired. Water is supplied to numerous fountains by an ancient aqueduct from Jebel Zaghwán, repaired at a cost of half a million sterling by the late Bey Mohammed al-Sádk. The population of Tunis is about 170,000, of whom one-fifth are Jews and one-fifth Europeans, chiefly Maltese and Italians. The environs of Tunis are admirable from the beautiful views they present; the finest prospects are from the hill on the southeast,

and from the Belveder on the north of the town. Tunis was a Carthaginian city, and is repeatedly mentioned in the history of the Punic wars. Strabo speaks of its hot baths and quarries. Under the Arabs it rose to importance, became the usual port for those going from Kairwan to Spain, and was one of the residences of the Aghlabites. In the tenth century it suffered severely, and was repeatedly pillaged in the wars of the Fátimites with Abū Yazid and the Zenáta Berbers.

**TUNNELING.** The process of making a more or less horizontal underground passage, or tunnel, without removing the top soil, is known as tunneling. In former times any long tube-like passage, however constructed, was called a tunnel. At the present day the word is sometimes popularly applied to an underground passage constructed by trenching down from the surface to build the arching and then refilling with the top soil; but a passage so constructed, although indistinguishable from a tunnel when completed, is more correctly termed a "covered way," and the operations "cutting and covering," instead of tunneling. Making a small tunnel, afterward to be converted into a larger one, is called "driving a heading," and in mining operations small tunnels are termed "galleries," "driftways," and "adits." If the underground passage is vertical it is a shaft; if the shaft is commenced at the surface the operations are known as "sinking," and it is called a "rising" if worked upward from a previously constructed heading or gallery.

Tunneling has been effected by natural forces to a far greater extent than by man. In limestone districts innumerable swallow-holes, or shafts, have been sunk by the rain water following joints and dissolving the rock, and from the bottom of these shafts tunnels have been excavated to the sides of hills in a manner strictly analogous to the ordinary method of executing a tunnel by sinking shafts at intervals and driving headings therefrom. Many rivers find thus a course underground.

The mammoth cave of Kentucky and the Peak caves of Derbyshire are examples of natural tunneling.

Tunneling is also carried on to an enormous extent by the action of the sea. Where the Atlantic rollers break on the west coast of Ireland, on the seaboard of the western Highlands of Scotland, and elsewhere, numberless caves and tunnels have been formed in the cliffs, beside which artificial tunneling operations appear insignificant. The most gigantic subaqueous demolition hitherto carried out by man was the blowing up, in 1885, of Flood Rock, a mass about nine acres in extent, near Long Island Sound, New York. To effect this gigantic work by a single instantaneous blast a shaft was sunk sixty-four feet below sea level, from the bottom of which four miles of tunnels or galleries were driven so as to completely honeycomb the rock. The roof rock ranged from ten feet to twenty-four feet in thickness, and was supported by 467 pillars fifteen feet square; 13,286 holes, averaging nine feet in length and three inches in diameter, were drilled in the pillars and roof. About 80,000 cubic yards of rock were excavated in the galleries and 275,000 remained to be blasted away. The holes were charged with 110 tons of "rackarock," a more powerful explosive than gunpowder, which was fired by electricity, when the sea was lifted 100 feet over the whole area of the rock.

With so many examples of natural caves and tunnels in existence it is not to be wondered at that tunneling was one of the earliest works undertaken by man, first for dwellings and tombs, then for quarrying and mining, and finally for water supply, drainage, and other requirements of civilization. Petrie has traced the method of underground quarrying followed by the Egyptians opposite the Pyramids. Parallel galleries



about 20 feet square were driven into the rock and cross galleries cut, so that a hall 300 to 400 feet wide was formed, with a roof supported by rows of pillars 20 feet square and 20 feet apart. Blocks of stone were removed by the workmen cutting grooves all round them, and, where the stone was not required for use, but merely had to be removed to form a gallery, the grooves were wide enough for a man to stand up in. Where granite, diorite, and other hard stone had to be cut, the work was done by tube drills and by saws supplied with corundum, or other hard gritty material, and water—the drills leaving a core of rock exactly like that of the modern diamond drill. Pliny refers to the tunnel constructed for the drainage of Lake Fucino as the greatest public work of the time. It was by far the longest tunnel in the world, being more than three and one-half miles in length, and was driven under Monte Salviano, which necessitated shafts no less than 400 feet in depth. It is stated that 30,000 laborers were occupied eleven years in its construction. With modern appliances such a tunnel could be driven from the two ends without intermediate shafts in eleven months.

No practical advance was made on the tunneling methods of the Romans until gunpowder came into use. Old engravings of mining operations early in the seventeenth century show that excavation was still accomplished by pickaxes or hammer and chisel, and that wood fires were lighted at the ends of the headings to split and soften the rock in advance. Crude methods of ventilation by shaking cloths in the headings and by placing inclined boards at the top of shafts are also on record. In 1825 Brunel commenced and in 1843 completed the Thames tunnel, which was driven at points through liquid mud by the aid of a "shield" at a cost of about \$6,500 per lineal yard. It is now used by the East London railway. In 1872 Chesborough began tunneling under the Detroit river, between Canada and Michigan, but the work was abandoned owing to continued irruptions of water after some 600 yards of headings had been driven. The most important subaqueous work yet accomplished—the Severn tunnel, four and one-third miles in length—was commenced in 1873 and finished in 1886. The bed of the Severn is formed principally of marls, sandstones, and conglomerates in nearly horizontal strata, overlying highly inclined coal measures, shales, and sandstones, which are also exposed in the bed of the river. The tunnel is made almost wholly in the Trias and Coal Measure formations, but for a short distance at its eastern end it passes through gravel. The tunnel is for a double line of railway and is lined throughout with vitrified bricks set in Portland cement mortar. The total amount of water raised at all the pumping stations is about 27,000,000 gallons in twenty-four hours; but the total pumping power provided is equal to 66,000,000 gallons in twenty-four hours.

Another example of subaqueous tunneling, second only in importance to the foregoing, is the Mersey tunnel, the length of which between the pumping shafts on each side of the river is one mile.

Proposals for the construction of a tunnel about thirty miles in length to connect England and France have been brought forward periodically from the commencement of the nineteenth century, but nothing was done until 1881, when preliminary works of some importance were commenced by Sir Edward Watkin and the South-Eastern Railway Company. At the proposed point of crossing the deepest part of the channel is 210 feet, and, as the beds on the English side and those on the French side, so far as relates to the gray chalk and chalk marl, are each 225 feet thick, it is assumed that those strata are continuous and that the tunnel would

be driven through a watertight material. Shafts have been sunk near Folkestone, and experimental headings have been driven 2,000 yards under the sea; on the line of the tunnel. The heading, seven feet in diameter, was cut by a Beaumont boring machine, having two arms with steel teeth, and driven by compressed air; the usual rate of progress was fifteen lineal yards per day.

A partially constructed subaqueous tunnel now lies drowned under the Hudson river at New York. An attempt was made to drive a double tunnel through the mud and silt forming the river bed. In 1880, when about a hundred yards had been completed, the water burst in, and twenty men were drowned.

Small subaqueous tunnels have been driven through clay without difficulty under Lakes Michigan and Erie, and elsewhere in America. In England a heading was driven nearly across the Thames in 1807, and eighty years later two iron-lined tunnels (each 10 ft. 6 in.) were constructed under the river close to the foundation of London Bridge, with the aid of a simple annular shield advanced by six hydraulic presses. Where open gravel or water has to be tunneled through a diaphragm must be fitted to the shield. Mallet proposed in 1858 to carry in this way a tubular tunnel across the English Channel.

Where a great thickness of rock overlies a tunnel, it is necessary to do the work wholly from the two ends, without intermediate shafts. The problem resolves itself into devising the most expeditious way of excavating and removing the rock, and there are none of the uncertainties and difficulties which make subaqueous tunneling of so high an interest. Experience has led to great advances in speed and economy, as will be seen from the following particulars of the three tunnels through the Alps, the longest yet constructed:

TUNNEL.	Length.	Progress per Day.	Cost.
	Miles.	Lineal Yards.	Per Lineal Yard.
Mont Cenis.	7½	2.57	\$1,130
St. Gotthard	9½	6.01	715
Arlberg.....	6 1-5	9.07	540

In 1857 the first blast was fired in connection with the Mont Cenis works; in 1861 machine drilling was introduced; and in 1871 the tunnel was opened for traffic. With the exception of about 300 yards the tunnel is lined throughout with brick or stone. Little interest now attaches to the method of tunneling adopted at Mont Cenis, as it is in several respects obsolete.

In 1872 the St. Gotthard tunnel was commenced and in 1881 the first locomotive ran through it. Mechanical drills were used from the commencement. Tunneling was carried on by driving in advance a top heading about eight feet square, then enlarging this sideways, and finally sinking the excavation to invert level. Air for working the rock-drills was compressed to seven atmospheres by turbines of about 2,000 horse-power. Six to eight Ferroux drills, making about 180 blows a minute, were mounted on a carriage and pushed up to the point of attack.

The driving of the Arlberg tunnel was commenced in 1880 and the work was completed in little more than three years. The main heading was driven along the bottom of the tunnel and shafts were opened up twenty-five to seventy yards apart, from which smaller headings were driven right and left. The tunnel was enlarged to its full section at different points simultaneously in lengths of eight yards, the excavation of each occupying about twenty days, and the masonry fourteen days. Ferroux percussion air drills and Brandt rotary hydraulic drills were used, and the performance of the



latter was especially satisfactory. After each blast a fine spray of water was injected, which assisted the ventilation materially. In the St. Gotthard tunnel the discharge of the air drills was relied on for ventilation. In the Ärlberg tunnel over 8,000 cubic feet of air per minute were thrown in by ventilators. In a long tunnel the quick transport of materials is of equal importance with rapid drilling and blasting.

The new Croton aqueduct tunnel from Croton dam to the reservoir in New York is worthy of note both for its great length and the rapid progress made with it. The distance is thirty-three and one-fourth miles and practically the whole is tunneled through rock. Shafts were sunk about one and one-half miles apart and beatings driven each way. Ingersoll drills were chiefly used, and the rate of advance with the headings was in 1886 one and one-fourth miles per month. The old Croton aqueduct was seven feet eight inches wide by eight feet five inches high; the new one is thirteen feet seven inches in width and height.

Where tunnels have to be carried through soft soil and in proximity to valuable buildings special precautions have to be taken to avoid settlement.

**TUNNY** (*Thynnus thynnus*), one of the largest fishes of the family of Mackerels, belongs to the genus of which the Bonito (*Th. pelamys*) and the Albacores (*Th. albacora*, *Th. alalonga*, etc.) are equally well-known members. From the latter the tunny is distinguished by its much shorter pectoral fins, which reach backward only to, or nearly to, the end of the first dorsal fin. It possesses nine short finlets behind the dorsal, and eight behind the anal fin. Its color is dark bluish above, and grayish, tinged and spotted with silver below. The tunny is a pelagic fish, but periodically approaches the shore, wandering in large shoals, at least in the Mediterranean, within well-ascertained areas along the coast. The regularity of its appearance on certain parts of the coast of the Mediterranean has led to the establishment of a systematic fishery, which has been carried on from the time of the Phœnicians to the present day. Immense numbers of tunnies were caught on the Spanish coast and in the sea of Marmora, where, however, this industry has much declined. The Sardinian tunnies were considered to be of superior excellence. The greatest number is now, caught on the north coast of Sicily, the fisheries of this island supplying most of the preserved tunny which is exported to other parts of the world. The tunny occurs also in the South Pacific; but several other species seem to take its place in the Indo-Pacific Ocean. It is one of the largest fishes, attaining to a length of ten feet and to a weight of more than a thousand pounds.

**TUNSTALL**, a market town of Staffordshire, England. The town is chiefly the growth of the nineteenth century, and in 1811 numbered only 1,677 inhabitants. The population of the urban sanitary district (area 690 acres) was 14,244 in 1881, and is now (1901) 18,500.

**TUPELO** (*Nyssa*), a genus of trees of the natural order *Alangiaceæ*, natives of North America, chiefly of the southern parts of the United States; having simple alternate leaves, mostly entire, greenish inconspicuous flowers at the extremity of long stalks, the fruit a drupe. *N. villosa* attains the height of 60 to 70 feet. It is often called black gum tree. *N. tomentosa*, the large tupelo, is a lofty and beautiful tree, remarkable for the extraordinary enlargement of the base of the trunk, which is sometimes eight or nine feet in diameter, while at no great height the diameter diminishes to fifteen or twenty inches. The fruit resembles a small olive, and is preserved in the same way. *N. candicans* or *capitata*, the Ogeechee lime or sour gum tree, is a small tree, of which the fruit is very acid and is used like that of the

lime. The wood of all the species is soft, that of the large tupelo remarkably so.

**TUPPER**, MARTIN FARQUHAR, D.C.L., F.R.S., a poet rather popular than great, was born July 17, 1810, and died November 29, 1889. His father, Martin Tupper, was a well-known London surgeon, of a family originally German, which had long been settled in Guernsey. Martin Tupper was educated at the Charterhouse, and afterward at Christ Church, Oxford. On leaving college he entered himself as a student at Lincoln's Inn, and was called to the bar in 1835; but literature had more charms for him than the law, which he never seriously prosecuted. In 1832 he published anonymously a small volume of poems which attracted little attention. For this lack of success he was, however, amply repaid on the appearance, in 1839, of his *Proverbial Philosophy*. The popularity of this work in England, and still more in America, has ever since been immense and almost unprecedented. The critics have indeed been less kind to it than the reading public; and the fame of Mr. Tupper has long been a topic of mirth to the wits of the literary guild; but from the serene height of his fortieth edition an author can perhaps afford to smile at the attacks of the envious generation below.

A fair criticism would probably adjudge that while there is nothing in *Proverbial Philosophy* to justify its enormous success—so far as mere circulation is success—the book is yet something better than a mere conglomeration of stupid platitudes, which its detractors so confidently proclaim it to be. Besides this work, on which his reputation, such as it may be, rests, he has published *The Crook of Gold*, a tale; *Geraldine*, a sufficiently ludicrous attempt to complete Coleridge's inimitable fragment *Christabel*; with various other works in prose and verse.

**TURANIAN**. This word means etymologically no more than "not Iranian," and in this sense the word Turan was used by Sasanian monarchs to cover those parts of their realm that did not belong to Iran. The application of the word to denote the Ural-Altaic family of languages is extremely unfortunate and seems to be falling out of use. See PHILOLOGY.

**TURBINE**. See HYDROMECHANICS.

**TURBOT**, the largest and best known of a genus of flat fishes, *Rhombus*, which bears the appropriate systematic name of *Rh. maximus*. The turbot has great width of body, and is scaleless, but it is covered with conical bony tubercles. The eyes are on the left side of the body, the lower being slightly in advance of the upper; the mouth is large and armed with teeth of uniformly minute size. The turbot is found all round the coasts of Europe (except in the extreme north), preferring a flat sandy bottom with from ten to fifty fathoms of water. The broad banks of the Dutch coast are a favorite resort. It is a voracious fish, and feeds on other fish, crustaceans, and mollusks. It seems to constantly change its abode, wandering northward during the summer, and going into deeper water in the cold season. The turbot is also common, though not abundant, in the Mediterranean, and is replaced in the Black Sea by an allied species with much larger bony tubercles (*Rh. Maoticus*). Both species grow to a large size, being usually sold at from five to ten pounds; but the common turbot is stated to attain to a weight of thirty pounds.

**TURENNE**, HENRI DE LA TOUR D'AUVERGNE, VICOMTE DE, a famous French general of the seventeenth century, was the second son of Henry, Duc de Bouillon, by Elizabeth, daughter of William I., prince of Orange, and was born at Sedan on September 11, 1611. He was carefully educated in the strictest doctrine of



the reformed religion, and at the age of thirteen was sent to learn war from his uncles Maurice and Henry of Nassau in the campaigns of these princes against the Spaniards. In 1626 he received a commission as captain of infantry in the service of Holland, and by 1630 had shown such military capacity that Richelieu invited him back to France and appointed him colonel of a regiment. He was present at the relief of Casale, and on June 21, 1635, was made a *maréchal de camp* for his services at the siege of La Motte in Lorraine under De la Force. In that year he took command of a division in the army under Cardinal La Valette in the defense of Mainz. In 1636 he was present under La Valette at the siege of Saverne, where he was wounded, and in the campaign in Franche Comté; in 1637 he served under the same commander in Flanders, took Landrecies, and drove back the cardinal infant from Maubeuge. In 1638 he served under Bernhard of Saxe-Weimar at the siege of Breisach, and in the following year was transferred to the army of D'Harcourt in Italy. It was at this epoch that he established his fame as a general. In November, 1639, he covered the retreat of the army, and fought a famous engagement, known as the battle of the "route de Quiers;" in 1640 he saved Casale, and insisted upon not abandoning the siege of Turin, which town surrendered on September 24th; in 1641 he took Coni, Ceva, and Mondovì; and on March 11, 1642, he was promoted to the rank of lieutenant-general. He was appointed by Richelieu in 1643 to the command of the army in Italy, under Thomas of Savoy, although his brother, the Duc de Bouillon, had just before been arrested as an accomplice in the conspiracy of Cinq Mars. Mazarin did not exhibit quite so much confidence in Turenne, and in December, 1643, removed him from Italy, but he softened the transference by creating Turenne a marshal of France on May 16, 1644.

Turenne's four campaigns in Germany, which largely contributed to the peace of Westphalia, have always been regarded as models in the art of war. In May, 1645, Turenne was surprised by Mercy at Marienthal and defeated; but he skillfully concentrated the remains of his army and retreated into Hesse, where he was soon joined by D'Enghien. The two marshals, having reorganized their army, marched against Mercy and totally defeated him at Nördlingen on August 3, 1645, when Mercy was killed. D'Enghien again left the army to Turenne, who, in conjunction with the Swedish army under Wrangel, overran Franconia and Swabia, taking all the fortresses there in 1646. In 1647 he conducted a still more masterly campaign, and after beating the Bavarians and Imperialists in two engagements he and the Swedes occupied Bavaria, and drove the old duke out of his dominions.

When the troubles of the Fronde (see FRANCE and MAZARIN) broke out, Turenne, who was in command of the veteran troops of Bernhard of Saxe-Weimar in Alsace, hesitated which side to take, till the Duchesse de LONGUEVILLE (*q.v.*) with whom he fell violently in love, persuaded him to side with the *parlement*. But his troops refused to follow him, and he had to fly with her to Flanders. He there took a command in the Spanish army under Don Estevan Gomar, and, when trying to raise the siege of Réthel, was utterly defeated by Du Plessis-Praslin. But in 1652 he defeated Condé at Gien, and nearly annihilated his army in the battle of the Faubourg St. Antoine. When the troubles of the Fronde were over, Turenne marched upon the frontier, and in several campaigns defeated the Spaniards. In these campaigns he had once more to fight against Condé, general-in-chief of the armies of Spain, and in 1654 he showed his superiority by raising the

siege of Arras and driving the Spaniards from their lines. In 1656 Condé, assisted by Don John of Austria, won an exactly similar victory and relieved Valenciennes, which Turenne was besieging. The prolonged contest between the two was decided in 1658 by Turenne's victory of the Dunes, in which Cromwell's contingent of 6,000 soldiers took part.

Louis XIV. now began to rule in reality, and one of his first acts was to create Turenne in 1660 marshal-general of the armies of France. Seven years later Turenne occupied French Flanders and took all the fortresses in that province. It was in 1668 that Turenne made his notorious change of faith. Born of Calvinist parents and educated a Protestant, he had in compliance of the tenets of his religion refused to marry one of Richelieu's nieces in 1639, and had eventually married a daughter of the Protestant Marshal de la Force. But it can hardly be believed that he was converted at the age of fifty-seven from religious convictions. In 1672 the second great European war broke out, brought about by the ambition of Louis XIV. Turenne once more took command of the army, which the king accompanied, and speedily occupied the greater part of Holland, which, however, they were forced to evacuate owing to the Dutch cutting their dykes. In the following year Turenne marched into Westphalia to oppose the imperialist forces, and, though his army was small compared to that of Montecuculi, the imperialist general, he managed to make head against both him and the elector of Brandenburg. In 1673 he was compelled to act on the defensive; but in 1674, in spite of his inferiority of numbers, he boldly resumed the aggressive. Crossing the Rhine at Philippsburg in June, and marching rapidly to Sinheim, he defeated the imperialist general Caprara and the duke of Lorraine. After the rout of Colmar and the defeat of Türkheim which followed it, he laid waste the greater part of Alsace, as a defensive measure against another advance of the imperialists. He then advanced into the heart of Germany, and again met Montecuculi, who had succeeded the elector of Brandenburg as general-in-chief. The two generals maneuvered for four months in much the same way as Wellington and Marmont marched and counter-marched before the battle of Salamanca; at last, on July 27, 1675, their field of battle was chosen, and, as Turenne was directing the position of a battery, he was struck by a cannon ball and killed on the spot.

TURGAI, a Russian province in Central Asia, formerly a part of the Kirghiz steppe, and now embodied in the governor-generalship of the Steppes, is bounded by Uralsk and Orenburg on the west and north, by Akmo-linsk on the east, and by Syr-Daria and the Sea of Aral on the south. This extensive and irregularly-shaped territory, which has an area (176,800 square miles) as large as that of Caucasia and Transcaucasia taken together, belongs to the Aral-Caspian depression. The steppe land of Turgai is only some 300 feet above the sea-level, and is dotted with lakes, of which the Tcholgardenghiz, which receives the Turgai and its tributary the Irghiz, is the largest. The Turgai was, at a recent epoch, a large river flowing into the Sea of Aral and receiving an extensive system of tributaries, which are now lost in the sands before joining it.

The climate of Turgai is exceedingly dry and continental. Orsk, a town of Orenburg, on its northwestern border, has a January as cold as that of the west coast of Nova Zembla ( $-4^{\circ}$  Fahr.), while in July it is as hot as July in Morocco ( $73^{\circ}$ ); the corresponding figures for Irghiz, in the center of the province, are  $7^{\circ}$  and  $77^{\circ}$ . At Irghiz and Orsk the annual rainfall is somewhat under ten and twelve inches respectively (three inches in summer).



The population of Turgai was, in 1898, 453,123, all nomad Kirghiz, with the exception of some 3,600, who are settled in four villages officially described as towns. Agriculture is in its earliest stage of development; but some 800,000 bushels of grain are raised in the southwest by the Kirghiz, who sell some of it in Orenburg. Cattle-breeding is the chief occupation, and within the province there are some 800,000 horses, 335,000 cattle, about 200,000 camels, and more than 2,000,000 sheep. But the want of fodder in spring occasions violent murrains which sometimes result in actual famine among the Kirghiz. The four settlements of the province are Turgai, chief town and seat of the provincial administration, with less than 400 inhabitants, and the "district towns" of Irghiz (920), Ak-tube (400), and Karabutak (300), the last two being more or less fortified. Several merchants in these carry on trade with the Kirghiz, exchanging manufactured goods for wool and skins, which are sent to the frontier settlements of Orenburg.

**TURGENEF** (or **TOURGUENIEF**), **IVAN SERGEJEVITSCH**, one of the best known of modern Russian novelists, was born at Orel November 9, 1818, educated at Moscow and Berlin, and obtained a post under the minister of the interior. He became known as a poet in 1843. He was banished in 1852 for his liberalism; and, though afterward pardoned, has lived mostly in Paris, and Baden. Turgenev was a very prolific author. Of his novels, the chief that have been translated are *Russian Life*, *Fathers and Sons*, *Smoke*, *Liza*, *Spring Floods*, and *Virgin Soil*. He died September 3, 1883.

**TURGOT**. **ANNE ROBERT JACQUES TURGOT**, **MARQUIS DE L'AULNE**, French statesman and economist, was born at Paris, May 10, 1727. His family, which was ancient and noble, is said to have been originally Scottish, but had long been settled in Normandy. His ancestors early abandoned the sword for the robe. Both his father and grandfather had been in the civil service of the state; his father was "prévôt des marchands" at Paris, and won a high reputation as a magistrate and administrator. Turgot in his childhood was timid, and showed in company an absent and embarrassed air. He obtained his early education at the Collège Louis-le-Grand, and was afterward a student of the Collège du Plessis. He then entered the seminary of St. Sulpice, and thence passed to the Sorbonne with the view of taking his license in theology. But he decided finally, in 1751, not to follow the ecclesiastical profession.

As prior of the Sorbonne (an honorary office conferred annually on some distinguished student) he wrote and delivered publicly in 1750 two remarkable pieces—one *On the Benefits which the Christian Religion has conferred on Mankind*, the other *On the Historical Progress of the Human Mind*. Having chosen the law as his profession, he was appointed in 1752 "conseiller substitut du procureur général," and afterward "conseiller au parlement." Turgot wrote (1753) *Letters to a Vicar-General on Toleration* and a pamphlet entitled *Le Conciliateur* in favor of religious liberty and against the interference of the temporal power in theological disputes. In 1753 he became "maître des requêtes." Turgot accompanied Gournay in 1755 and 1756 in his official tours of inspection as intendant of commerce, and on Gournay's death in 1759 he wrote his *Éloge*. He contributed about this period several articles to the *Encyclopédie*.

Shortly after the accession of Louis XVI. Turgot was appointed by Maurepas (July 19, 1774) minister of marine, and in that capacity began at once to initiate important reforms, and to conceive far-reaching projects. But he filled the post only for five weeks, being

then (August 21st) promoted to the ministry of finance. In his new office he addressed to the young king a declaration of the principles by which he intended to be guided: "No bankruptcy, no increase of taxation, and no borrowing." Economy and wise management were to be his only resources. By a decree of September, 13, 1774, he reestablished free trade in grain within the kingdom, which had been suspended by Terray, and authorized the importation of supplies from abroad; the traffic in other alimentary substances was also relieved of many impediments, and various monopolies and exclusive privileges were abolished; the *octroi* taxation was reformed, public works promoted, and improvements in agriculture encouraged. Some of these measures were made the pretext for disturbances, known as *la guerre des farines*, which Turgot always suspected the Prince de Conti of having fomented. A vile conspiracy having poisoned Louis' mind against him, he addressed to the king an eloquent letter in which he pointed out the grave perils impending over the throne and the state, and warned Louis that princes who are tempted to give themselves up to the direction of the courtiers should remember the fate of Charles I. The minister received his dismissal on May 12, 1776. He had been in office only twenty months, of which he had lost six in repressing sedition, and for seven more had been confined to his bed by the gout; but he had done during his tenure an extraordinary amount of work. Voltaire, however, nobly avenged Turgot on his enemies in his *Épître à un Homme*. The fallen minister devoted his remaining years to his favorite studies, especially to physical science and the ancient poets; he enjoyed the society of Lavoisier, D'Alembert, Condorcet, Bossut, Rochon, and Rouelle, and attended the meetings of the Academy of Inscriptions, of which he was elected vice-director in 1777. He also corresponded with Price and Franklin, and, if we may believe Condorcet, with Adam Smith, whose acquaintance he had made at Paris in 1766. Turgot died at Paris on March 18, 1781.

**TURIN**, a city of northern Italy, formerly the capital of Piedmont and the Sardinian states and now the chief town of a province in the compartimento of Piedmont, is situated in the alluvial valley of the Po, just above the confluence of the Dora Riparia. The Monte dei Cappuccini in the neighborhood reaches 922 and La Superga 2,405 feet. As viewed from the east the city stands out boldly against the Alps. Taken as a whole Turin may be described as a very modern city, with broad and regular streets, and large squares and public gardens. The cathedral of St. John the Baptist is a cruciform Renaissance building dating from the close of the fifteenth century. The site was first occupied by a church erected, it is said, by the Lombard duke Agilulf (seventeenth century). Of the secular buildings the more interesting are the Madama palace, first erected by William of Montferrat in the close of the thirteenth century, and the extensive royal palace begun in the seventeenth century. The university, founded in 1400 by Lodovico di Acaja, has faculties of jurisprudence, medicine and surgery, literature and philosophy, and the mathematical, physical, and natural sciences. The number of students enrolled was 2,132 in 1886. About 1876 the old university buildings, erected in 1713 by the Genoese architect Ricca, began to prove too small for their purpose; and at the present time new buildings, fitted more especially for the medical and scientific departments, are being erected. The area of the botanical gardens has also been extended and the observatory enlarged. The medical school derives advantage from the number of important hospitals in the city. The academy of sciences was founded in 1757.



The industries of Turin and its suburbs give employment to 17,936 persons (13,305 men, 4,631 women). Spinning-mills, weaving-factories, "vesta" factories (De Medici), breweries, and iron-works are among the more extensive establishments. The commercial relations of the city are very extensive. It is the seat of the central offices of the North Italian railway; and the central station is one of the most imposing buildings of its class in the country. The mean annual temperature at Turin is 53° Fahr. (Jan. 36°, July 74°), with a maximum of 96° and a minimum of 4.1°. Mists are frequent in the winter mornings, and to a less degree in autumn. Snow seldom falls in any great quantity, and on an average only on seven days per annum. The rainfall, distributed over 100 days, reaches thirty-two inches—December being 1.6 and April 4.3. The population of Turin was only about 4,200 in 1377 and 9,000 in 1580; but by 1702 it was returned as 43,866. In 1848 it had risen to 136,849, and in 1861 to 204,715. In spite of the changes caused by the removal of the capital, first to Florence and then to Rome, the census of 1901 showed 335,639 inhabitants (commune 352,832). Between 1859 and 1865 Turin was the capital of united Italy. Among the many men of mark born in Turin it is enough to mention Lagrange, Gioberti, Cesare Balbo, Cavour, Marochetti the sculptor, D'Azeglio, and Sommeiller.

**TURKESTAN.** The terms "Turkestan" and "Central Asia" are often used indiscriminately to describe the whole of the immense territory to the east of the Caspian, comprised between Siberia on the north and Khorasan (Persia), Afghanistan, and Tibet on the south, or to designate separate, sometimes arbitrarily determined, parts of the same region. In the beginning of the nineteenth century the whole of the territory just named, with its great variety of altitudes, climate, inhabitants—these last differing as much in their history as in their present characteristics—was comprised under the vague denomination of High Tartary, or High or Interior Asia. After the appearance of Humboldt's first draft of *Asie Centrale* in 1831, the term "Central Asia" came into favor. The name Central Asia can still be used with great advantage to designate that immense portion of the continent to the east of the Caspian and the Ust-Urt plateau which is limited on the north by the important climatic and geo-botanic boundary of the Irtish and Aral water-parting and the Great or Ektagh Altai, on the east by the eastern Gobi, and on the south by the northern border of the Khor plateau (Altyn-Tagh and Kuen-Lun), the Hindu-Kush, and the Kopet-Dagh. Extensive as it is, this territory has its own climatic and geo-botanic features; it forms a distinct part of the continent, when the orography of Asia is broadly viewed; and its inhabitants have a number of common characteristics resulting directly from the physical features of the territory. But this immense area must be subdivided; and its subdivisions become apparent as soon as the orographical features are grasped.

Two great plateaus constitute the two backbones, as it were, of the orographical structure of Asia—that of eastern Asia, an immense triangle stretching north-eastwards, having the Himalayas for its base and the peninsula of the Tchukchis for its apex; and that of western Asia, which extends at right angles to the above, from the lower Indus to the Black Sea. The Hindu-Kush connects these two massive swellings, both continents of the oldest formation in Asia. Both are fringed on their northern edges by lofty chains of mountains. The Tian-Shan, the Altai, the Sayan, and the Vitim mountains rise in a long succession on the borders of the former, while a series of chains, which might be de-

scribed under the general name of Kopet-Dagh, continued into the Transcaucasian chains, rise on the northeastern edge of the western plateau.

An immense trapezoidal depression occupies the angle on the west where the great plateaus meet, and this depression is West Turkestan. Its southeastern limits are the Hindu-Kush and the Tian-Shan; on its southwestern edge it has the Iranian plateau; and its northwest and northeast boundaries correspond with the edge of the Ust-Urt and the Irtish and Aral water-parting, which separates it from Siberia. The trapezium is 1,100 miles long from southwest to northeast, and 900 miles wide from southeast to northwest. It thus includes, not only the depression at the junction of the two plateaus, but also the girdle of alpine tracts which fringes them, and in whose deep and sheltered valleys the Turkish and partly Iranian population of Turkestan find a fertile soil and plenty of water for their fields, while their herds graze on the rich alpine meadows in the very heart of the Tian-Shan. Not orographically only but also in respect of its recent geological past, its climate, flora, fauna, and inhabitants, this region forms a geographical domain by itself, quite distinct from the steppes of southeastern Russia, the prairies of Siberia, and the two great plateaus by which it is inclosed; and, although it is easily subdivided into two parts—the dry lowlands of the Transcasian depression and the plains and highlands of Turkestan proper—it presents one geographical whole when contrasted with the surrounding regions. West Turkestan is often called Russian Turkestan, as distinguished from Chinese or East Turkestan.

This second great region of Central Asia also has well-defined limits. A glance at any recent map shows that there is in the great eastern plateau a depression bordered by the deep slopes of the Pamir (Humboldt's Bolor) on the west, the border-ridges of Tibet (Kuen-Lun and Altyn-Tagh) on the south, the eastern Tian-Shan on the north, and the western Gobi on the east. Although we call it a depression, because it is much lower than the surrounding plateaus, it is itself a plateau, ranging from 3,000 to 4,000 feet above sea-level. This depression, the Hang-hai of the Chinese, which, during the later Tertiary and earlier Quaternary period, was covered by a sea, of which a very small survival still exists in Lob-Nor, is now drained by the Tarim. Its deserts, in which human settlements are now very rare, though formerly the population was much denser, have been described under a variety of names, Little Bokhara, Alty-shar or Jity-shar, Kashgaria, and so on; but the name of East Turkestan has prevailed, and there is no reason for abandoning it, provided it is not confounded with DZUNGARIA (*q.v.*) in the north and the great Desert of Gobi in the east.

West Turkestan has an area of nearly 410,000 square miles, and a population of nearly 5,000,000. It presents a very great variety of aspects, including the lonely plateau of Pamir, in height second only to that of Tibet; the immense complex of alpine tracts described under the general name of Tian-Shan (three times as long as the Alps of Europe), which lift their snow-clad peaks four and nearly five miles above the sea, and feed huge glaciers, while their deep valleys and gorges partake of almost every variety of climate and vegetation; rich prairies and still wider lowlands descending below the level of the ocean; and deserts where the winds, burning hot or icy, but always dry, have free scope to modify the surface, which is bare of vegetation.

Nevertheless West Turkestan is sharply divided into two parts—the highlands in the southeast and the plains and deserts in the northwest. The former cover an



area nearly 1,000 miles long by 270 broad, of which the northern parts are described under the general name of Tian-Shan (properly, T'han-Shān). Their distinctive feature is that, like the highlands of Siberia, they constitute a high border-ridge, running west-southwest to east-northeast on the edge of the great plateau of eastern Asia. The Hindu-Kush, with its snow-clad summits of 18,000 and 20,000 feet, limits the highlands of Turkestan to the southeast. At the foot of its northwestern slope it has the plateau of Pamir—the "Roof of the World"—with an area of about 37,000 square miles. A series of chains, gently sloping and dome-shaped, rising 4,000 or 5,000 feet above the level of the plateau, traverse it from southwest to northeast.

Nearly 150 miles to the northwest of the Hindu-Kush lies the northwestern border of the Pamir, fringed by the lofty Trans-Alai Mountains. Their crest, covered with snow, rises nearly four miles above the sea (Kaufmann Peak 23,000 feet); but the traveler approaching them from the south would hardly guess their height, because their southern slope toward the wildernesses of the plateau, themselves 13,000 feet high, is very gentle.

Like the highlands of Siberia, those of Turkestan are fringed by a girdle of plains, having an altitude of from 1,000 to 1,500 feet, and these again are skirted by an immense lowland area reaching only 400, 300, and 150 feet, or even sinking below the level of the ocean. These plains and lowlands cover nearly 650,000 square miles. The dryness of the climate is excessive: rain falls only where the hills cause the clouds to condense, the soil elsewhere being moistened only occasionally by a few showers. Two rivers only—the Syr and the Amu—succeed in crossing the desert and reaching the Sea of Aral.

The whole area is now undergoing geological changes on a vast scale. Rivers have changed their courses, and lakes their outlines. Far away from their present shores the geologist finds indubitable traces of the recent presence of the lakes in the shells they have left amid the sands. Traces of former rivers and channels, which were the main arteries of prosperous regions within the period of written history, have now disappeared. Of the highly developed civilizations which grew up and flourished in Bactriana, Bokhara, and Samarkand the last traces are now undergoing rapid obliteration with the desiccation of the rivers and lakes.

The climate of West Turkestan is exceedingly dry and continental. Although the country is comprised within the latitudes of Sicily and Lyons, it has a south Norwegian January and a Persian summer. Temperatures of more than 100° Fahr. in the shade are common, and the heat is rendered still more unbearable by the reflection from a soil destitute of vegetation. The winter is for the most part so cold that the average temperature for January is below the freezing point, and even reaches 0° Fahr. Snow falls for several months on the lower Syr-Daria, and, were it not blown away by the winds, sledge communication would be possible. This river is frozen for an average of 123 days every year in its lower parts, and nearly 100 days at Perovsk. The fauna of Turkestan belongs to the great zoo-geographical domain of northern Asia, and is only differentiated by the presence of species which have disappeared from the peripheric parts of the Old World and now find a refuge in the remotest regions of the uninhabited plateau. From the great Palearctic region it is distinguished by the presence of Himalayan species. It would be impossible to describe in a few words the avifauna. No fewer than 385 species are recorded, most of them being middle-European and Mediterranean. A large number were formerly known

only in the Himalayas, or in Persia, while others have their origin in east Asia. The commonest are mostly European. As for the very rich insect fauna, of which full descriptions are now accessible, it is worthy of note that among the *Lepidoptera* of the Pamir there is an interesting mixture of Tian-Shan with Himalayan species.

As a whole the flora of Turkestan belongs to that of Central Asia, which was formerly continued by geobotanists as far west as the steppes of Russia, but which must now be considered as a separate region subdivided into two—the Central Asian proper and that of the Gobi.

The arable land occupies less than a fiftieth of the whole area of West Turkestan, even when the Transcasian deserts are left out of account. The remainder is nearly equally divided between pasture land and desert (sandy steppe and barren mountain). Owing to a very equitable distribution of irrigation water in accordance with Moslem Law, agriculture and gardening have reached a high stage of development in the oases. Two crops are usually taken every year. Wheat, barley, millet, pease, lentils, rice, sorghum, lucerne, and cotton are the chief agricultural products. Carrots, melons, vegetable marrows, and onions are extensively grown. Rye and oats are cultivated in Kazalinsk and Kopal. Corn is exported. Owing to the irrigation, total failure of crops and consequent famines are unknown, unless among the Kirghiz shepherds. The kitchen gardens of the Mohammedans are, as a rule, admirably kept. Potatoes are grown only by the Russians. The cultivation of cotton is rapidly extending as also is sericulture, which is chiefly carried on in Ferghana, whence silk cocoons are an important item of export. Cattle-breeding is extensively pursued, and in Russian Turkestan alone recent estimates show 400,000 camels, 1,600,000 horses, 1,200,000 cattle, and 11,000,000 sheep. This last figure, however, is but a very rough estimate—the flocks on the Kirghiz steppe being so large that the proprietors themselves do not know their exact numbers. Murrains are of frequent occurrence; a recent one resulted in a terrible famine among the Kirghiz. Live cattle, hides, wool, camel-hair, tallow, felt, and leather are exported to a considerable extent.

The mineral wealth of Turkestan is considerable. Traces of auriferous sands have been discovered at many places, but the percentage of gold is too poor to make the working remunerative. Silver, lead, and iron ore occur at several places; but the want of fuel is an obstacle to their exploitation. The vast coal-beds of Kulja and several inferior ones in Turkestan are not yet seriously worked, the total yearly output being only some 120,000 hundredweights. The naphtha wells of Ferghana and the layers of graphite about Sairam-Nor are also neglected. There are abundant deposits of gypsum, alum, kaolin, marble, and similar materials. Notwithstanding the salt springs of Ferghana and Syr-Daria, the salt lakes of the region, and the rock-salt strata of the Alexandrovsk Mountains, salt is imported.

Turkestan has no manufacturing industry carried on by means of machinery, except a few distilleries and two establishments for dressing raw cotton. But there is a great variety of artisan work, which, however, has been for some time declining and now stands at a rather low level.

Turkestan has no lack of populous cities, which, notwithstanding recent vicissitudes, continue to be important for their trade, while several others are widely famous for the part they have played in history. KHOKAND, MARGHILAN, Namangan, and Andijan in Ferghana; TASHKEND and KHOJEND in Syr-Daria;



SAMARKAND in Zerashan; BOKHARA and KHIVA in the independent Khanates have each from 30,000 to 100,000 inhabitants.

The Kuruk-Tagh and the steep slope of the Gashun Gobi separate East Turkestan from the higher terrace of the plateau, so that about Lob-Nor the Tarim depression is narrowed to a width of about 100 miles; and on the ninety-eighth meridian, at Lake Tchih-shen-ho, the steep edge of the Gobi meets the spur of the Nan-Shan Mountains. In its physical features it forms a connecting link between the Chinese territories and the Aral-Caspian depression. It covers about 465,000 square miles, but has hardly more than 1,000,000 inhabitants.

Although lying at a high altitude (Kashgar 4,000 feet and Yarkand 4,120 feet), it has the character of a depression in comparison, not only with the mountains, but also with the lofty plateaus which surround it—Tibet, Pamir, and the Tian-Shan syrts.

One river only, the Tarim—now lost in the marshes of Lob-Nor—and its tributaries, water this region. It is formed by the confluence of several rivers flowing from the semicircle of mountains which fence in East Turkestan on the south, west, and north. The Kashgar-Daria rises under the name of Kizil-su on the Alai. The Yarkand-Daria has its origin in a high valley between the Kuen-Lun and Karakorum Mountains. The Tarim is navigable for steamers from the confluence of the Yarkand and Khotan rivers all the way to Lob-Nor. These rivers, however, do not bring life to the immense deserts, the aspect of which recalls partly the Aral-Caspian depression and partly the Mongolian Gobi. Their undulating surface is covered with a gravelly soil, out of which all the finer particles have been winnowed by the wind, and it resounds under the hoofs of the passing hordes; grass covers it only in the beginning of spring. Here and there occur clayey deposits with an efflorescence of salt, which is hard in summer but impassable after rains. Then come immense areas of loose sand, which is raised in clouds by storms of wind, and the hills of which, moving on like waves, invade the cultivated fields that have been conquered by laborious effort from the desert. The features with which the traveler in the Sahara, or on the plateau of eastern Iran about Lake Zareh (Hamun) is familiar, are here reproduced on the same large scale. The Takla-makan desert north of Khotan covers 93,000 square miles.

The vegetation of the interior of East Turkestan is very poor, being the same as that of the steppes of West Turkestan. Immense areas are covered with *Salsolaceae*, and the gravelly ground is clothed in spring with a rich carpet of grass. The oases possess all the plants which are cultivated in West Turkestan—the mulberry, walnut, pear, apple, apricot, olive, and vine. Cotton, rice, maize, millet, and wheat are grown.

As a rule, the mammals are not numerous, and the fauna closely resembles that of the Tian-Shan. It seems to be owing to the loneliness of its deserts that East Turkestan has preserved the wild ancestors of our domestic animals. Besides the wild ass (*Equus hemionus*), Przevalsky discovered in the Dzungarian steppes the wild horse—the real ancestor of our domestic horse—and on the plateau of Tsaidam the wild camel and the wild yak.

Raw cotton and silk are exported to a considerable amount. Mineral resources are not wanting, but the mining industry is in a primitive condition. Gold is obtained from alluvial deposits at Kiria, east of Kashgar, jade in Khotan, and sulphur and saltpeter at Uch-Turfan.

KASHGAR (q.v.), surrounded by a series of populous

villages, is the chief commercial center, owing to its position on the highway to Lake Issyk-kul. It is surrounded by forts, one standing at the confluence of the Kashgar and Yarkand rivers. KHOTAN (q.v.), or Itchi (also Yu-thian), a very populous city under the Han dynasty of China (206 B.C.–1 A.D.), has much declined of late. It is renowned for its gold mines, and especially for its jade and its musk. Copper kettles, carpets, some silk, and felt ware are manufactured. Sanju (7,000) houses, Kilian, Pialma, Guma, Kargalyk, and Posgan, on the slopes of the Kuen-Lun between Yarkand and Khotan, are the richest parts of the region.

The population is mixed, Aryans and Turanians being thoroughly intermingled. On the slopes of the Pamir, about Sary-kol, there is a purely Aryan population of Persian Galtchas. Kirghiz and Kara-Kirghiz inhabit the slopes of the Tian-Shan. Kalmucks occur in the northeast; and in the central parts the population consists of Turkish Sarts and Uzbeks and of Persian Tajaks—the Mongolian element increasing toward the northeast. The language is Turkish, like that spoken in West Turkestan, with several varieties of *patois* and a considerable addition of Chinese words.

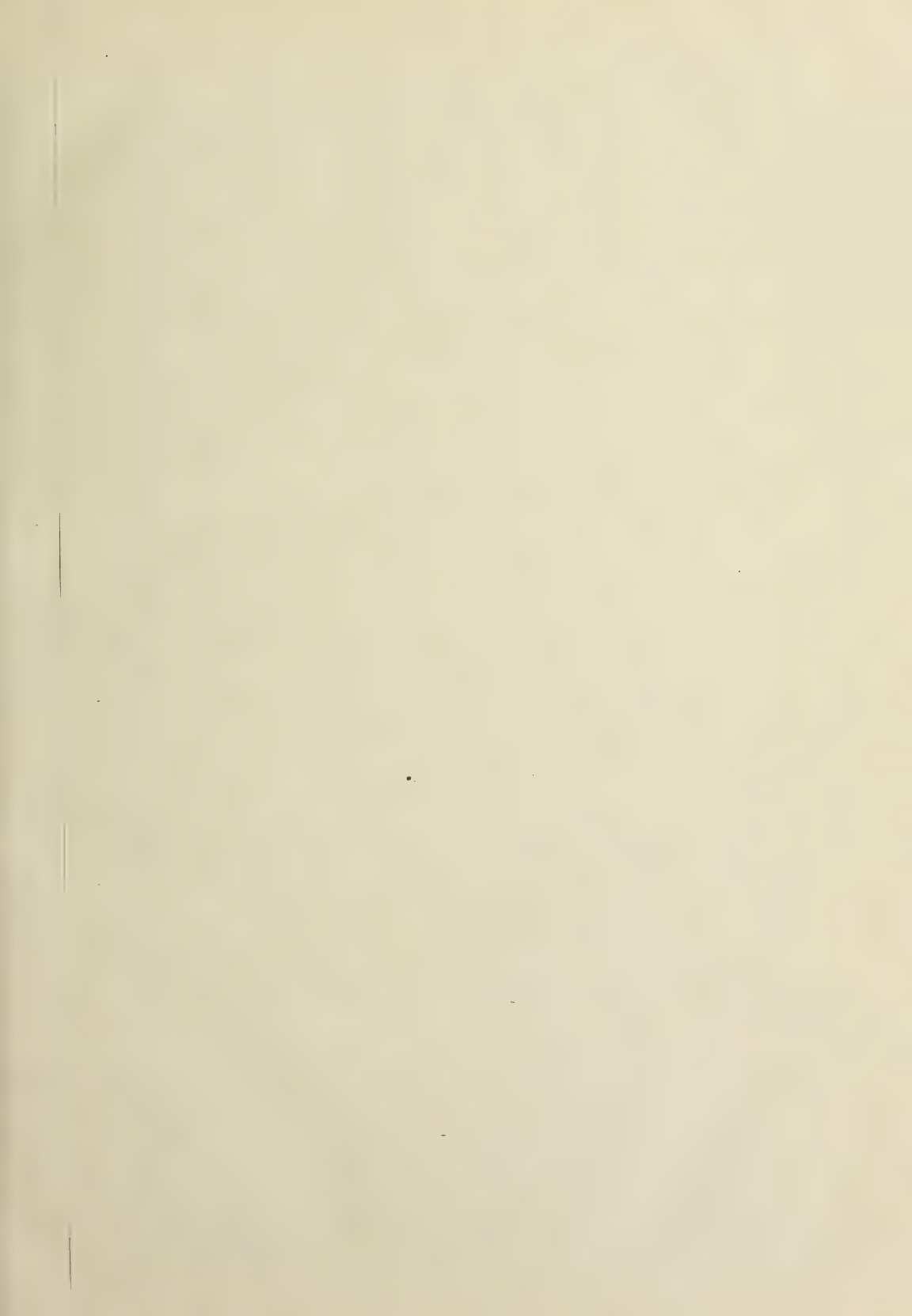
The aggregate population of East Turkestan, estimated between 375,000 and 1,500,000 in 1825, is now (1900) hardly more than 600,000. Kuropatkin estimates it at 1,200,000, Forsyth at 600,000. The population of the chief towns may be stated approximately as follows—Yarkand, 60,000; Kashgar, 50,000; Khotan, 40,000; Sanju, 35,000; Ak-su, 20,000; Kiria, 15,000; Yanghi-hissar, 10,000; Kargalyk, 10,000; Keriya, 6,000.

TURKEY. Somewhere about the second decade of the thirteenth century the little Turkish tribe which in due course was to found the Ottoman empire fled before the Mongols from its original home in Central Asia, and, passing through Persia, entered Armenia; under the leadership of Suleymán Sháh, its hereditary chief.

In 1300 (A.H. 699) the Seljuk empire (see SELJUKS) fell to pieces under the onslaught of the Mongols, who were, however, powerless to replace it by any government of their own. Ten separate Turkish dynasties arose from its ruins. These principalities were all eventually merged in that of the *Osmanlis*, once the least among them, and the inhabitants assumed the name of Ottoman. Hence by far the greater portion of the people called Ottomans owe their name to a series of political events. On the collapse of the Seljuk power the Greeks retained hardly any possessions in Asia except Bithynia and Trebizond. Armenia was abandoned for a time to roving Tartar or Turkman tribes, till some sixty or seventy years later one or two petty local dynasties sprang up and founded short-lived states.

To Suleymán the Ottomans owe their first establishment in Europe: one night that prince, accompanied by a few companions, crossed the Hellespont on a raft and surprised the town of Galipoli (Gallipoli). The next day he brought over a number of Turkish troops, with whose assistance he possessed himself of many of the neighboring towns and villages; but his career was cut short by a fatal fall from his horse when out hunting. Orkhan did not long survive his son, grief at whose untimely end is said to have hastened his own death, in 1359 (761). This monarch is celebrated for the number of mosques, colleges, and other public institutions that he founded. During his reign the Ottoman army was thoroughly organized, and a body of regular paid soldiers was raised, which formed the nucleus of the military power of the state, though the old irregular militia was still called out whenever a campaign was to be undertaken. The famous corps of the janissaries (Turkish *yeni cheri*, i.e., "new troop") was instituted at this time. It consisted of the children of Christian subjects,







# BALKAN STATES

SCALE OF MILES  
0 20 40 60 80 100 120 140

Through Railways  
Other

Size of type indicates relative importance of places.

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M E D I T E R R A N E A N S E A

C Longitude 22° East D from 24 Greenwich E 26° F 28° G



who were educated as Mussulmans and brought up to a military life.

Having taken the city of Angora from certain territorial lords who, incited by the prince of Karaman, had attacked the Ottoman dominions, Murád I., the son and successor of Orkhan, found himself free to extend his possessions across the Hellespont. He forthwith passed over into Europe, where he and his generals soon reduced almost all Rœmelia, capturing Adrianople, Philippopolis, and many other places of importance. These successes alarmed the Christian princes, who determined to make a vigorous effort to drive the Turks back into Asia. The kings of Bosnia, Hungary, and Servia accordingly marched with a large army upon Adrianople, but were surprised during the night and completely defeated by an inferior Turkish force.

Bâyezid I., surnamed Yildirim, "Thunderbolt," did much to secure the position of the Ottomans in Europe, taking many of the towns which still remained to the Christians in Rœmelia. In Asia he annexed the remaining Turkish principalities, and pushed his conquests as far as Cæsarea and Sivas. Bâyezid inflicted an overwhelming defeat on the Christians. He turned his attention to Constantinople, the reduction and annexation of which he had long meditated, when he was summoned to meet Tímur, the Tartar conqueror, who had invaded his Asiatic dominions and taken Sivas. The Ottoman and Tartar hosts encountered each other outside Angora, and there the former sustained their first disastrous overthrow, Bâyezid being taken prisoner and his army practically annihilated. Next year, 1403 (805), he died in captivity; the story of his having been imprisoned in an iron cage is not confirmed by the Turkish historians, and is most probably fictitious. After this victory Tímur overran the Ottoman territories in Asia, taking and sacking Brusa, Nicea, and many other cities.

On the withdrawal of Tímur from Asia Minor, the four surviving sons of Bâyezid fought for what was left of their father's kingdom; after ten years of civil war success finally rested with Muhammed, who alone of the four is reckoned among the Ottoman sovereigns. The Turks were next called upon to face the most formidable Christian enemy they had yet encountered, namely Hunyady, the illegitimate son of Sigismund, king of Hungary. This famous general, after having inflicted several severe though not very important defeats upon his adversaries, invaded European Turkey with a large army of Hungarians, Poles, Servians, Bosnians, Wallachians, and Frankish crusaders, the last named being under the command of Cardinal Julian. The Ottoman army was utterly routed, Sophia taken, and the chain of the Balkans forced.

Muhammed II. determined to accomplish the long-cherished design of his house, and make Constantinople the capital of the 'Osmanli empire. He easily found a pretext for declaring war against Constantine Palæologus and in the spring of 1453 (857) led an immense army to beleague the city. His troops covered the ground before the landward walls between the Sea of Marmora and the Golden Horn; but he found that even his monster cannon could do but little against the massive fortifications. At length he resolved to assail the city from its weakest side, that facing the Golden Horn. But the Greeks, having foreseen the likelihood of an attack from this quarter, had thrown a great chain across the entrance to the harbor, thereby blocking the passage against the hostile ships. The Ottomans, however, constructed a road of planks, five miles long, across the piece of ground between the Bosphorus, where their own fleet lay, and the upper part of the Golden Horn. Along this road they hauled a number of their galleys,

with sails set to receive the aid of the favoring wind, and launched them safely in the harbor, whence they cannonaded with more effect the weaker defenses of the city. This compelled the Greek emperor to withdraw a portion of his little garrison from the point where the more serious attack was being made, to repair the destruction wrought in this new quarter. As dawn on May 29th the Ottomans advanced to storm the city. The Christians offered a desperate resistance, but in vain. The emperor died fighting in the forefront of the battle, and at noon Muhammed rode in triumph into his new capital and went straight to the cathedral of St. Sophia there, before the high altar, where the preceding night Constantine had received the Holy Sacrament, he prostrated himself in the Moslem act of worship. The capture of Constantinople is not the only exploit to which Muhammed owes his surname of Fâthi, or the Conqueror: he also reduced Servia and Bosnia, overthrew and annexed the Greek empire of Trebizond and the Turkish principality of Karaman, acquired the suzerainty of the Crimea, and won many of the islands of the Greek Archipelago from the Venetians and Genoese.

Selim I. was personally the greatest of the Ottoman monarchs: his unflinching courage and tireless vigor were not more remarkable than his political sagacity and his literary and poetic talents; but so merciless was he that he has always been known in Turkish history as Yawuz Selim or Selim the Grim. Happily for Europe he turned his attention to the neighboring Mohammedan states and left the Christian powers in peace. Selim's most important campaign was against the Memliks of Egypt. This body of Eastern chivalry offered a most gallant resistance to the 'Osmanlis; but, possessing no artillery, which they disdained as unbecoming men of valor, they were defeated in a series of engagements, and Selim and his army entered Cairo as conquerors in 1517 (923). The results of this war were momentous and far-reaching: the Ottoman empire was greatly increased by the addition of Egypt, Syria, and the Hejaz, of all of which the Memliks had been lords; the caliphate of Islâm was won for the house of 'Osman, Selim constraining the representative of the old Abbassid family, who resided, a purely spiritual prince, at Cairo, to make over to him and his heirs the rights and privileges of the successors of the Prophet. The sultan at the same time acquired from him the sacred banner and other relics of the founder of Islâm, which had been handed down to the Arabian prince from his fathers, and which are now preserved in the seraglio at Constantinople.

Suleymán I., who succeeded his father Selim as sultan, had not been long on the throne before he found himself involved in a war with the king of Hungary. He marched northward with a powerful army and wrested from the enemy several places of importance, including the strongly fortified city of Belgrade. Four years after the conquest of Rhodes the sultan again invaded Hungary, where in the renowned battle of Mohacz he annihilated the army of the Magyars and slew their king. Thence he marched along the Danube to Buda-Pesth, which opened its gates to him, and there he rested a little while before starting on his homeward way. The disturbed state of Asia Minor hastened Suleymán's departure; but in three years (1529) he was back at Buda, ostensibly as the ally of Zapolya, a Hungarian who claimed the throne left vacant by Louis, who fell at Mohacz. Ferdinand of Austria had opposed the claim of Zapolya, who thereon had applied to the sultan for aid, which that monarch was most willing to accord. The troops of Ferdinand being driven from Buda, Suleymán, accompanied by his



protégé, advanced upon Vienna. On September 27, 1529, the vast Turkish host, under the personal command of one of the greatest of the family of 'Osmán, laid siege to the capital of the German empire, and on the 14th of the following month, after a most desperate assault carried on for four days, the invaders were compelled to retire, leaving the city in the possession of its heroic defenders. The torrent of Turkish military might had now reached its northern limit: once again it vainly swept round the walls of Vienna, but further it never went.

On the death of Ahmed II. in the year 1695 (1106) Mustafa II., son of Muhammed IV., was girt with the sword of 'Osmán. The new sultan, aware of the pitiful condition to which the empire had sunk, in part, at least, through the negligence and indifference of his predecessors, resolved to restore the old Ottoman usages, and placed himself at the head of his armies. His first campaign was altogether successful; he recaptured several important fortresses and totally defeated a great Austrian army. During the following winter he worked hard to repair the finances and bring the forces of the empire into a higher state of efficiency; and, when he set out in the spring against the Austrians, fortune continued to smile upon his banners. He defeated the duke of Saxe, raised the siege of Temesvar, and strengthened the garrisons of those fortresses which Turkey still held in Hungary. But in the next year, 1697, all was changed; Prince Eugene was at the head of the Austrians, and on the banks of the Theiss, near Zenta, the Turks sustained an overwhelming defeat, which compelled the sultan to retreat to Temesvar. Thence he returned to Constantinople, and never again led an army against the enemy.

Although the peace of the empire was often broken during his reign, Ahmed III. was not of a warlike disposition, and all the representations and entreaties of Charles XII. of Sweden, who after the disaster of Pultowa had taken refuge in Turkey, failed to induce him to reopen hostilities with the czar. The menacing preparations of Russia in the south had more influence with the Porte than the prayers of the Swedish king, and in 1711 the new grand vizier, Baltaji Muhammed, marched into Moldavia to meet the forces of Peter the Great, who had formed an entrenched camp near the village of Hush, on the right bank of the Pruth. Here the vizier blockaded him, and after two days' severe fighting compelled him to surrender with all his army. By the treaty which followed, the czar pledged himself, among other things, to restore the fortress of Azoff and all its dependencies to the sultan, and to grant the king of Sweden a free and safe passage to his own country through the Muscovite dominions. The lenity of Baltaji Muhammed in not destroying the czar and his army when they were within his grasp caused such discontent at Constantinople that he was dismissed from the vizierate.

After the long and resultless war with Persia, hostilities again broke out with Russia in 1736. Marshal Münnich stormed the lines of Perekop and devastated the Crimea; but he was unable to maintain his army there, and retreated with greatly diminished forces. Azoff was taken by General Lascy; and in the following year Otchakoff fell into the hands of Münnich, while the Crimea was again invaded and ravaged. Austria now joined Russia, and the Porte had to sustain a war in Servia and Bosnia as well as on the coast of the Black Sea. The double combat was carried on with very different results. While the Russians won victory after victory, and finally penetrated the heart of Moldavia, the Austrians were defeated and driven across the Danube. On their advancing from Belgrade in the

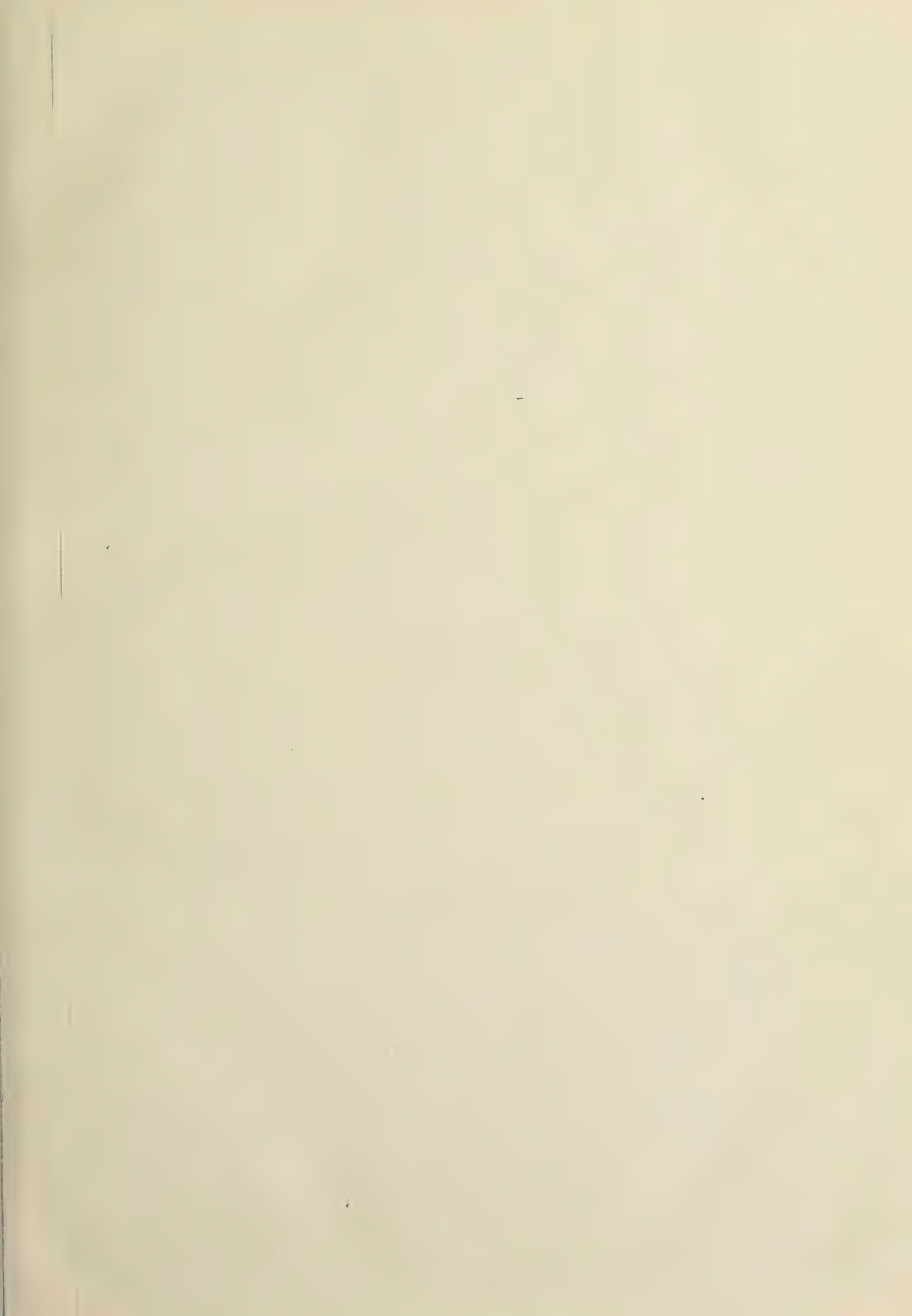
summer of 1739, they were defeated with great loss at Krotzka, and compelled to sue for peace. The treaty of Belgrade, which was signed on September 1, 1739, restored to the Porte Belgrade and Orsova, with the portions of Servia, Bosnia, and Walachia which it had ceded to Austria at the peace of Passarowitz. Russia, unable to continue the war with a victorious Turkish army ready to fall upon its flank, had to conclude peace on very moderate terms.

After this followed the wars with the empress Catherine, before whose genius and resources it seemed as if Turkey must inevitably sink into nothingness. The first contest was provoked by the armed intervention of the empress in Polish affairs and her well-known intrigues with rebellious subjects of the Porte. War was rashly declared by Mustafa III. in October, 1768. In 1771 the Russians invaded and conquered the Crimea. Austria now took alarm, and signed a convention with the Porte preparatory to armed intervention. But the partition of Poland reunited the three neighboring Christian powers and prevented a general war. The Russians crossed the Danube, and, though unsuccessful in their attempts upon Silistria and Varna, so completely defeated the Turkish forces in the field that on July 21, 1774, the Porte concluded peace at Kutchuk-Kainardji under conditions more unfavorable than those which it had rejected in the previous year. The Tartar territory of the Crimea, with Kuban and the adjoining districts, was made into an independent state, Russia retaining Azoff, Kertch, and Kinburn. By other clauses in the treaty the obligations restraining Russia from making fortifications and placing ships of war on the Black Sea were annulled. It received the right of free navigation for its merchant ships on all Turkish waters, and the right of placing consuls at all Turkish ports. These last two conditions were of great historical importance through their effect upon Greece.

The stipulation that the Crimea and adjoining districts should be made into an independent state was of course not intended by Russia to be anything more than a veil for annexation; and in 1783 Catherine united this territory to her dominions. She had now definitely formed the plan of extinguishing Turkish sovereignty in Europe and placing her younger grandson on the throne of a restored Greek kingdom. The boy was named Constantine; his whole education was Greek and such as to fit him for the throne of Constantinople. Joseph II. of Austria threw himself eagerly into the plan for a partition of the Ottoman empire, and in 1788 followed Russia into war. Otchakoff was stormed by Suwaroff on December 16, 1788. In the following year the Turkish armies were overthrown by Suwaroff in Moldavia and by the Austrian Laudon on the south of the Danube. The fate of the Ottoman empire seemed to tremble in the balance; it was, however, saved by the convulsions into which Joseph's reckless autocracy had thrown his own dominions, and by the triple alliance of England, Prussia, and Holland, now formed by Pitt for the preservation of the balance of power in Europe. Joseph died in 1790; his successor Leopold II. entered into negotiations, and concluded peace at Sistova in August, 1791, relinquishing all his conquests except a small district in Croatia. Catherine continued the war alone. Ismail was captured by Suwaroff with fearful slaughter, and the Russian armies pushed on south of the Danube.

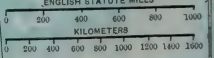
Catherine's successor Paul (1796-1801) made it his business to reverse his mother's policy by abandoning the attack on Turkey. Bonaparte's invasion of Egypt and the destruction of the French fleet by Nelson at the battle of the Nile led the Porte to join the second coalition against France. Bonaparte, invading Syria, was







# ASIA



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checked and turned back at Acre, where Jezzaz Pasha was assisted in his strenuous defense by an English squadron under Sir Sydney Smith. A Turkish army was meanwhile transported from Rhodes to the Egyptian coast. This army was destroyed by Bonaparte on his return to Egypt at the battle of Aboukir on July 25, 1799, after which Bonaparte set sail for France, leaving the Egyptian command to Kléber. Kléber, cut off from all communication with France and threatened by superior Turkish forces, entered into a convention at El Arish for the evacuation of Egypt. This convention, however, was annulled by Lord Keith, the English admiral, and Kléber replied by giving battle to the Turks and defeating them at Heliopolis on March 20, 1800. Egypt was finally wrested from the French by the English expedition under Abercromby, and restored to the sultan.

On the restoration of peace France reassumed its ancient position as the friend and ally of the Porte. The sultan now on the throne was Selim III. (1789-1807). Though the results of the war of the second coalition had been favorable to Turkey, the Ottoman empire was in a most perilous condition.

When the third European coalition against France was in course of formation Russian and French influences were in rivalry at Constantinople. The victories of Napoleon in 1805 gave him the ascendancy, and his envoy prevailed upon the sultan to dismiss, without consulting Russia, the hospodars of Walachia and Moldavia, who were considered to be agents of the court of St. Petersburg. This was a breach of the engagement made by the sultan in 1802, and it was followed by the entry of Russian troops into the principalities. England, as the ally of Russia, sent a fleet under Admiral Duckworth through the Dardanelles to threaten Constantinople. While the admiral wasted time in negotiations, the French ambassador, General Sebastiani, taught the Turks how to fortify their capital. The English admiral found that he could do nothing, and repassed the Dardanelles, suffering some loss on the passage. The treaty of Tilsit ended the war between France and Russia, and provided for the nominal mediation of Napoleon between Russia and the Porte. A truce followed between the armies on the Danube.

Mahmúd II. (1808-1839) was the only sultan of modern times who possessed the qualities of a great ruler. The difficulties of his reign were enormous. He belonged to an epoch when the Ottoman empire might fairly be considered as in actual dissolution. This he to some extent arrested, and the reforms which he effected, partial and imperfect as they were, have prolonged the existence of the Turkish state to our own day.

After the convulsions of 1848 the sultan incurred the enmity of the autocratic courts by refusing to give up Kossuth and other exiles who had taken refuge within his dominions. The suppression of the National Hungarian Government by Russia in 1849 had heightened in the emperor Nicholas the sense of his own power. He now looked forward to the speedy extinction of Turkey, and in 1853 proposed to the British ambassador, Sir H. Seymour, a plan for the division of "the sick man's" inheritance as soon as he should expire. Disputes between France and Russia relating to the rights of the Latin and Greek Churches in certain sacred places were made the occasion for the assertion of a formal claim on the part of the czar to a protectorate over all Christians in Turkey belonging to the Greek Church. This claim not being acknowledged by the Porte, a Russian army entered the Danubian principalities. After ineffective negotiations war was declared by the sultan on October 4, 1853. Hostilities commenced in Walachia, and the Turkish fleet was attacked and destroyed

at Sinope. England and France allied themselves with the Porte, and landed an army at Varna in the spring of the following year. Silistria was successfully defended by the Turks; and, on the occupation of the Danubian principalities by Austria, the allies took up the offensive and transferred their forces to the Crimea. The siege of Sebastopol followed, ending in its capture in September, 1855. Meanwhile Russian and Turkish forces were opposed in Asia. Kars maintained a gallant defense, but succumbed to famine two months after the fall of Sebastopol. The peace of Paris followed, by which Russia ceded to Turkey the portion of Bessarabia adjacent to the mouth of the Danube. The Black Sea was neutralized, Russia and the Porte alike engaging to keep no war-ships and to maintain no arsenals there. The exclusive protectorate of Russia over the Danubian principalities was abolished, and the autonomy of these provinces, as well as of Servia, placed under the guarantee of all the powers.

The Crimean War gave to part of the Balkan population twenty years more of national development under the slackened grasp of the Porte; and by extinguishing the friendship of Austria and Russia it rendered the liberation of Italy possible. But each dire proviso of the treaty of Paris seemed made only to be mocked by events. A new series of massacres in the Lebanon in 1860 caused France to land a force in Syria. Wallachia and Moldavia formed themselves into a single state under the name of Roumania, to which the house of Hohenzollern soon afterward gave a sovereign. Bosnia and Montenegro took up arms. Servia got rid of its Turkish garrisons. Crete fought long for its independence, and seemed for a moment likely to be united to Greece under the auspices of the powers; but it was ultimately abandoned to its Turkish masters. The overthrow of France in the war of 1870 and the consequent isolation of England led Russia to declare the provision of the treaty of Paris which excluded its ships of war and its arsenals from the Black Sea to be no longer in force. To save appearances, the British Government demanded that the matter should be referred to a European conference, where Russia's will was duly ratified.

A few years later the horizon of eastern Europe visibly darkened with the coming storm. Russian influences were no doubt at work; but the development of national feeling which had so powerfully effected every other part of Europe during the nineteenth century could not remain without effect among the Christian races of the Balkan peninsula. In 1875 Bosnia and Herzegovina revolted. In the meantime the government of 'Abd-ul-'Aziz (1861-76) had become worse and worse. The state was bankrupt. Ignatieff, the Russian ambassador, gained complete ascendancy in the palace, and frustrated every attempt on the part of the better Turkish statesmen to check the torrent of misrule. His creature, Mahmúd Pasha, maintained his place in spite of universal contempt, until a conspiracy was formed at Constantinople, which cost the sultan his throne (May 30, 1876) and a few days later his life. His imbecile successor, Murád V., gave place after a reign of three months to 'Abd-ul-Hamid II. The Bosnian insurrection had already extended to Bulgaria, and the slaughter of the Turkish inhabitants in certain villages had been avenged by massacres of the most fearful character. Servia and Montenegro took up arms. The resources of European diplomacy were exhausted in fruitless attempts to gain from the Porte some real securities for better government, and in April, 1877, Russia declared war. The neutrality of Austria had been secured by a secret agreement permitting that country to occupy Bosnia and Herzegovina, if Russia



should extend its influence beyond the Balkans. The Bulgarian massacres had excited such horror and indignation in England that Lord Beaconsfield was forced to remain neutral.

Turkey was, thus left without an ally. The Russians entered Bulgaria in June; and, while Rustchuk was besieged, their advanced guard under Gourko hurried across the Balkans. Meanwhile Osman Pasha, coming from Widdin, occupied and fortified Plevna on the Russian line of march. Against his redoubts the Russians, ill commanded, threw themselves in vain, and Gourko was compelled to fall back on the Shipka Pass. But in December the capture of Plevna, in which Roumanian troops coöperated, set free the invading army, and the march on Constantinople was resumed. The Balkans were passed in midwinter; Adrianople was occupied; and the Turkish armies were captured or annihilated. The Russians now pressed forward to the very suburbs of Constantinople, and on March 3, 1878, peace was concluded at San Stefano. In Asia the Russians had captured Kars and were besieging Erzerum. The treaty of San Stefano ceded to Russia the portion of Bessarabia taken from it in 1856, together with the Dobrudja, and also Kars, Batoum, and the adjoining territory in Asia. It recognized the independence of Servia, Montenegro, and Roumania, and largely extended the territory of the first two. Bulgaria was constituted an autonomous state, though tributary to the Porte, and was defined so as to extend to the Ægean Sea and to include the greater part of the country between the Balkans and the coast. Crete, Thessaly, and Epirus were to receive the necessary reforms at the hands of a European commission. To this treaty Great Britain refused to give its assent, and vigorous preparations were made for war. The fleet was at the Dardanelles, and Indian troops were brought to Malta. Russia could no longer count on the neutrality of Austria. Under these circumstances the court of St. Petersburg consented to submit the treaty to a European congress, which, after a secret agreement had been made between Russia and England on the principal points of difference, assembled at Berlin. The treaty of San Stefano received various modifications, the principal being a reduction of the territory included in Bulgaria and the division of that state into two parts. Bulgaria north of the Balkans was constituted an autonomous principality; Bulgaria south of the Balkans was made into a province, with the title of Eastern Roumelia, subject to the authority of the sultan, but with a Christian governor and an autonomous administration. Austria received Bosnia and Herzegovina. The territory ceded to Servia and Montenegro by the treaty of San Stefano, as well as that ceded to Russia in Asia, was somewhat diminished. The Porte was advised to make some cession of territory to Greece, and the line of frontier subsequently recommended gave to Greece Janina as well as Thessaly. The usual promises of organic reform were made by Turkey. By a separate convention England undertook the defense of Asiatic Turkey and received Cyprus. The organization of Eastern Roumelia was duly taken in hand by a European commission and brought to a favorable conclusion; but it was not until a naval demonstration had been made by England that the final cession of Dulcigno to the Montenegrins was effected, and that Thessaly, without Epirus, was given up to Greece. Alexander of Battenberg became prince of Bulgaria. By a popular movement in 1885 Bulgaria and Eastern Roumelia were united into a single state. This revolution occasioned the utmost displeasure at St. Petersburg; and under Russian influence Prince Alexander was kidnapped and forced to

abdicate. The Porte offered no armed resistance to the union.

Since the Russo-Turkish War of 1878, the extremely irregular frontiers of European Turkey are conterminous with Greece in the south, and in the north with Montenegro, Austria, Servia, and Roumania, being separated from the last country partly by the Danube, partly by a conventional line drawn from Silistria on that river to Mangalia on the Black Sea. By the Berlin congress Roumania and Servia, hitherto vassal states, were made absolutely independent kingdoms, Roumania at the same time receiving the district of Dobrudja between the lower Danube and the Black Sea, and Servia those of Nish and Leskovatz about the upper Morava river. Montenegro was also recognized as an independent principality, with an increase of territory, which gave it a sea frontier limited southward by the river Boyana, and including the Albanian ports of Dulcigno and Antivari on the Adriatic. The Greco-Turkish frontier was also shifted north, Greece obtaining most of Thessaly and a strip of Epirus (South Albania), so that since 1881 the border line runs from near Mount Olympus on the Gulf of Saloniki (40° N. latitude) west to the Pindus range, then southwest to the Gulf of Arta on the Ionian Sea. A still more serious step was taken toward disintegration by the withdrawal of Bulgaria and Eastern Roumelia from the immediate jurisdiction of the Sublime Porte. The former was constituted a tributary principality, with representative institutions, and Eastern Roumelia was erected into an autonomous province, both under the guarantee of the European powers. But in 1885 the latter province declared for union with Bulgaria, and since then these two territories have practically formed one state administered from Sophia, Europe assenting and Turkey consenting (imperial firman of April 6, 1886) to the retrocession to Turkey of the Moslem districts of Kirjali and the Rhodope. In the year 1878 Austria occupied and assumed the civil administration of the northwestern provinces of Bosnia and Herzegovina, besides taking military possession of the contiguous strategical district of Novi-Bazar. The direct possessions of the sultan have thus been reduced in Europe to a strip of territory stretching continuously across the Balkan Peninsula from the Bosphorus to the Adriatic, and lying in the east mainly between 40° and 42° and in the west between 39° and 43° N. latitude. To these must be added the Turkish islands in the Ægean usually reckoned to Europe, that is, Thasos, Samothrace, Imbros, and, in the extreme south, Crete or Candia, with estimated (1897) areas and populations as under:—

PROVINCES.	Area in Sq. Miles.	Population.
Constantinople .....	2,702	1,136,000
Adrianople .....	15,015	1,006,500
Salonica .....	13,684	1,165,400
Monastir .....	10,690	847,400
Kossova .....	12,100	961,000
Scutari (Albania) .....	4,516	322,000
Janina .....	7,045	648,000
Immediate Possessions .....	65,752	6,086,300
Bulgaria (including Eastern Roumelia) autonomous .....	37,860	3,733,189
Bosnia, Herzegovina, and Novi-bazar—under Austria-Hungary .....	23,570	1,591,036
Crete, Samos, and Egypt .....	403,506	10,185,132
Total European Turkey .....	530,688	21,595,657

For detailed accounts of the physical features, climate, fauna, and flora of these regions, the reader is referred



to the articles ALBANIA, BOSNIA, BULGARIA, CONSTANTINOPLE, EPIRUS, HERZEGOVINA, MACEDONIA, and THRACE. Here it will suffice to remark in a general way that the territory still directly administered from Stamboul comprises one of the most favored regions of the temperate zone. The whole region enjoys a somewhat southerly aspect, sheltered from the north by the lofty crests of the Rilo Dag and northern Pindus, and in every way admirably suited for the cultivation of most cereals, as well as of cotton, tobacco, madder, the mulberry, the vine, and fruits. Here maize yields such a bountiful harvest that, although originally introduced from America, it has long been regarded as indigenous, and for the Italians is simply the Turkish corn ("gran turco") in a preëminent sense. The inhabitants also, Greeks intermingled with Turks in the east, with Bulgarians in the west, are intelligent and industrious, noted for their skill in the manufacture of carpets and other woven goods, of saddlery, arms, and jewelry.

Turkey, or the Ottoman empire (*Osmanli Vilâeti*), embraces extensive territories in southeastern Europe, western Asia, and northern Africa, grouped mainly round the eastern waters of the Mediterranean, and along both sides of the Red Sea, the west coast of the Persian Gulf, and the southern and western shores of the Black Sea. These territories form an aggregate of provinces and states, some under the direct control of the sultan, some enjoying a large share of political autonomy, some practically independent, either administered by foreign powers or ruled by hereditary vassals or tributary princes. The extent of the Ottoman empire is about 1,579,982 square miles, and its population 40,440,957.

The mainstay of the Ottoman dynasty is the Asiatic portion of the empire, where the Mohammedan religion is absolutely predominant, and where the naturally vigorous and robust Turki race forms in Asia Minor a compact mass of many millions, far outnumbering any other single ethnical element and probably equaling all taken collectively. Here also, with the unimportant exception of the islands of Samos and Cyprus and the somewhat privileged district of Lebanon, all the Turkish possessions constitute vilayets directly controlled by the Porte. They comprise the geographically distinct regions of the Anatolian plateau (Asia Minor), the Armenian and Kurdish highlands, the Mesopotamian lowlands, the hilly and partly mountainous territory of Syria and Palestine, and the coastlands of west and northeast Arabia. The changes caused by the Russo-Turkish War of 1878 were the cession to Persia of the little district of Kotur on the eastern frontier and to Russia of the districts of Kars and Batoum on the northeast frontier, while to England were conceded the military occupation and administration of Cyprus. Asiatic Turkey is conterminous on the east with Russia and Persia; in the southwest it incloses on the west, north, and northeast the independent part of Arabia. Toward Egypt the frontier is a conventional line drawn from Akabah at the head of the Gulf of Akabah northward to the little port of El Arish on the Mediterranean. Elsewhere Asiatic Turkey enjoys the advantage of a sea frontage, being washed in the northwest and west by the Euxine, Ægean, and Mediterranean, in the southwest by the Red Sea, and in the southeast by the Persian Gulf.

The above enumerated five natural divisions of Asiatic Turkey are divided for administrative purposes into about twenty vilayets, which, however, have been and still are subject to considerable fluctuations. The subjoined grouping, with areas and populations, is based mainly on data lately communicated confidentially to the British Government by Mr. Redhouse. His esti-

mates of population have been strikingly confirmed by the official returns that have for the first time just been made for certain provinces in Asia Minor and the Armenian highlands. Thus the census of the Trebizond vilayet, completed in 1898, gave a total of 1,163,800. So also the (1897) census for the Erzeroum vilayet gives 597,000, or 998,000 including the territory ceded to Russia in 1878.

PROVINCES.	Area in Sq. Miles.	Population.
Broussa, with Biga and Ismid.....	35,434	1,979,100
Aidin (Smyrna).....	20,844	1,396,500
Castamouni.....	19,184	1,018,900
Angora.....	26,055	892,900
Konia.....	39,681	1,088,000
Adana.....	14,359	403,400
Sivas.....	24,240	1,086,500
Trebizond.....	11,850	1,163,800
Erzeroum and Van.....	35,203	1,027,000
Diarbekr with Aziz.....	26,943	1,046,800
Bitlis.....	10,345	398,600
Bagdad.....	45,793	850,000
Mossul and Bassora.....	54,502	500,300
Aleppo and Zor.....	63,189	1,095,800
Syria and Beyrouth.....	35,589	1,489,300
Jerusalem and Lebanon.....	10,731	732,500
Hedjaz and Yemen.....	173,700	1,050,000
Tripoli and Benghazi.....	398,900	1,300,000
Archipelago.....	2,744	325,900
Asiatic, African, and Arabian Turkey.....	1,049,294	18,845,300

Detailed descriptions of Asiatic Turkey will be found under the separate articles ARABIA, ARMENIA, ASIA MINOR, KURDISTAN, MESOPOTAMIA, PALESTINE, and SYRIA. Of these natural divisions Asia Minor or Anatolia is by far the most important for extent, population, and natural resources. It constitutes an elevated and fertile plateau inclosed by irregular mountain ranges, which in the Taurus and Antitaurus on the south and east rise to from 7,000 to 10,000 feet, culminating in the volcanic Erjish-Dagh, or Argæus, nearly 12,000 feet high. The western rivers—Granicus, Xanthus (Scamander), Hermus, Simois, Meander—although renowned in song and history, are comparatively insignificant coast-streams, rushing from the escarpment of the plateau down to their fjord-like estuaries in the Ægean. None of the rivers are navigable to any distance from their mouths, and in the absence of good means of communication the very rich resources of the plateau in minerals and agricultural produce have hitherto been little developed.

This lowland region is separated by the more elevated Syrian desert or steppe from the much smaller and less productive provinces of Syria and Palestine. Here the main physical features are at once simple and yet striking. The narrow, hilly region disposed north and south between the Mediterranean and the desert, and stretching for over 400 miles between Anatolia and the Sinai Peninsula, culminates toward the center in the parallel Libanus and Antilibanus (10,000 to 11,000 feet), inclosing between them the fertile depression of the Bekâ' (Cœle-Syria). The stupendous ruins of Baalbek, standing at the highest point of this depression in 30° N. latitude, mark the parting line between the northern and southern water-sheds of the region.

Turkey's Arabian possessions comprise, besides El Hasa on the Persian Gulf, the low-lying hot, and insalubrious Tehama and the southwestern highlands (vilayets of Hejaz and Yemen) stretching continuously along the east side of the Red Sea, and including the two holy cities of Mecca and Medina. These are held



by military occupation, probably at a loss to the imperial exchequer, and certainly against the wishes of the inhabitants. But these drawbacks are supposed to be more than compensated by the political prestige derived from the possession of the Holy Land by Islam.

Since the abandonment of Eastern or Egyptian Soudan in 1884, consequent on the revolt of the Mahdi, and the occupation of Tunis by the French in 1881, Turkey in Africa has been reduced to the two territories of Egypt and Tripolitana with Barca and Fezzan, jointly occupying the northeast corner of the continent. Of these Tripolitana alone is directly administered, constituting the pashalik or vilayet of Tripoli. Egypt, whose southern frontier was temporarily fixed in January, 1887, at the station of Akashe above Wady Halfa, near the second cataract in Lower Nubia (22° N. latitude), has formed a practically independent principality under the dynasty of Mehemet Ali since 1841, subject only to an annual tribute of \$3,500,000 to the Porte. The areas and populations of Turkey in Africa were estimated as follows in 1897:—

	Area in Sq. Miles.	Popula- tion.
Tripoli, with Benghazi.....	398,900	800,000
Egypt, tributary principality.....	400,000	9,734,495
Total Turkey in Africa.....	798,900	10,534,495

Turkey is essentially a theocratic absolute monarchy, being subject in principle to the direct personal control of the sultan, who is himself at once a temporal autocrat and the recognized caliph, that is, "successor" of the Prophet, and consequently the spiritual head of the Moslem world (see MOHAMMEDANISM).

The grand vizier (*sadr-azam*), who is nominated by the sultan, presides *ex-officio* over the privy council (*mejliss-i-khass*), which, besides the sheikhu 'l-Islâm, comprises the ministers of home and foreign affairs, war, finance, marine, trade, public works, justice, public instruction, and worship, with the president of the council of state and the grand master of artillery. For administrative purposes the immediate possessions of the sultan are divided into vilayets (provinces), which are again subdivided into sanjaks or mutessariks (arrondissements), these into kazas (cantons), and the kazas into nahiés (parishes or communes). A vali or governor-general, nominated by the sultan, stands at the head of the vilayet, and on him are directly dependent the pashas, effendis, beys, and other administrators of the minor divisions. All these officials unite in their own persons the judicial and executive functions, and all alike are as a rule thoroughly corrupt, venal in the dispensation of justice, oppressors of the subject, embezzlers of the public revenues, altogether absorbed in amassing wealth during their mostly brief and precarious tenure of office. Foreigners settled in the country are specially protected from exactions by the so-called "capitulations," in virtue of which they are exempt from the jurisdiction of the local courts and amenable for trial to tribunals presided over by their respective consuls. Cases between foreigners of different nationalities are heard in the court of the defendant, and between foreigners and Turkish subjects in the local courts, at which a consular dragoman attends to see that the trial is conducted according to law.

The trade returns for the last few years show that the country is slowly recovering from the disastrous consequences of the Russo-Turkish War. Exclusive of coasting craft, the mercantile fleet of Turkey in 1885 consisted of fourteen steamers of 11,000 tons and 400 sailing vessels of 65,000 tons.

All branches of the foreign trade, together with most of the local traffic and the banking business, are almost exclusively in the hands of Greeks, Armenians, Jews, and foreigners. The Turks and other Mohammedans are engaged nearly altogether in agricultural and pastoral pursuits. But the land, especially in Anatolia, is gradually passing from its Moslem owners into the possession of Christian mortgagees. Scarcely any accurate agricultural returns are available, except for one or two districts.

Previous to 1880 Turkey was commonly regarded as practically bankrupt. But since then a considerable improvement has been effected. Trustworthy data are still wanting; but a careful estimate gave the gross revenue and expenditure of 1884 at \$60,500,000 and \$60,300,000 respectively, the expenditure including over \$1,600,000 available for state creditors. The public debt stood at \$530,000,000 in 1890. The sultan is reported to draw a sum of from \$5,000,000 to \$10,000,000 annually from the public revenues for the support of the seraglio or imperial household of over 5,000 persons.

Until 1886 the military service, compulsory on all Moslems over eighteen years of age, was kept up by 45,000 annual recruits drawn by ballot; but in November of that year universal conscription of the whole able-bodied male population was decreed. By this measure the army, hitherto reckoned at about 160,000 men, with a war strength of from 450,000 to 500,000, will be probably raised to a permanent footing of 1,000,000 effectives under the flag and in the reserves. These will continue to be grouped in the three categories of the nizâm or regulars in active service, the redif or first reserve, and the mustahfiz or second reserve. The navy at the beginning of 1890 comprised fifteen large and several smaller ironclads (monitors, gunboats, etc.), a number of mostly old-fashioned steamers, and fourteen torpedo boats, and was manned by 30,000 sailors and 10,000 marines (nominal strength), raised by conscription or voluntary enlistment and serving for twelve years in the active and reserve classes.

Public instruction is much more widely diffused throughout the empire than is commonly supposed. This is due partly to the Christian communities, notably the Maronites and others in Syria, the Anatolian and Roumelian Greeks, and the Armenians of the eastern provinces and of Constantinople. Education is practically limited among the Mohammedans to reading and writing and the study of the Koran.

Besides administrative and financial reforms, one of the most pressing needs is improved means of communication. In Trebizond the route from the coast at Unieh through Niksar to Sivas has recently been completed to the limits of the vilayet. But the works on the more important road from Kirasun to Kara-hissar for the silver and lead mines at Ijessy are still suspended, owing to disputes between the contiguous provincial administrations. Many of the great historic highways are also much out of repair. At the end of 1899 only 2,980 miles of railway were completed in the empire, of which 1,267 were in Europe and 1,713 in Asia. The chief cities of the Ottoman Empire with their populations (1897) are: Constantinople, 1,125,000; Salonica, 105,000; Smyrna, 201,000; Bagdad, 145,000; Adrianople, 81,000; Damascus, 140,500; Aleppo, 127,150; Beirût, 118,800; Mecca, 60,000; Jerusalem, 42,000; Erzerûm, 38,900; Trebizond, 35,000; Brûssa, 76,303; Kaisarieh, 72,000; Kerbela, 65,000; Mosûl, 61,000; Medineh, 48,000; Adana, 45,000; Koniah, 44,000; Sivas, 43,100; Bitlis, 38,800; Diarbekr, 34,000; Cairo, 579,062; Alexandria, 319,766.

The telegraph system is much more developed, com-



prising (1897) 23,440 miles, with 38,400 miles of wire and 750 stations. The yearly average of letters and packages of all sorts sent through the 1,031 postoffices scarcely exceeds 23,800,000.

**TURKEY**, an abbreviation for **TURKEY-COCK** or **TURKEY-HEN** as the case may be, a well-known large domestic gallinaceous bird. How it came by this name has long been a matter of discussion, for it is certain that this valuable animal was introduced to Europe from the New World, and in its introduction had nothing to do with Turkey or with Turks, even in the old and extended sense in which that term was applied to all Mahometans. But it is almost as unquestionable that the name was originally applied to the bird which we know as the **GUINEA-FOWL** (*g.v.*), and there is no doubt that some authors in the sixteenth and seventeenth centuries curiously confounded these two species. As both birds became more common and better known, the distinction was gradually perceived, and the name "Turkey" clave to that from the New World—possibly because of its repeated call-note—to be syllabled *turk, turk, turk*, whereby it may be almost said to have named itself. But even Linneus could not clear himself of the confusion, and unhappily misapplied the name *Meleagris*, undeniably belonging to the Guinea-Fowl, as the generic term for what we now know as the Turkey, adding thereto as its specific designation the word *gallopavo*, taken from the *Gallopava* of Gesner, who, though not wholly free from error, was less mistaken than some of his contemporaries and even successors.

The Turkey, so far as we know, was first described by Oviedo in his *Sumario de la Natural Historia de las Indias*, said to have been published in 1527. He, not unnaturally, includes both Curassows and Turkeys in one category, calling both "Pavos" (Peafowls); but he carefully distinguishes between them, pointing out among other things that the latter make a wheel (*hacen la rueda*) of their tail, though this was not so grand or so beautiful as that of the Spanish "Pavo," and he gives a faithful though short description of the Turkey. The chief point of interest in his account is that he speaks of the species having been already taken from New Spain (Mexico) to the islands and to Castilla del Oro (Darien), where it bred in a domestic state among the Christians. Much labor has been given by various naturalists to ascertain the date of its introduction to Europe, to which we can at present only make an approximate attempt; but after all that has been written it is plain that evidence concurs to show that the bird was established in Europe by 1530. There is no need to describe here a bird so familiar and in these days so widely distributed. As a denizen of our poultry-yards (see **POULTRY**) there are at least two distinct breeds, though crosses between them are much commoner than purely-bred examples of either. That known as the Norfolk breed is the taller of the two, and is said to be the more hardy. Its plumage is almost entirely black, with very little luster, but the feathers of the tail and some of those of the back have a brownish tip. The chicks also are black, with occasionally white patches on the head. The other breed, called the Cambridgeshire, is much more variegated in color, and some parts of the plumage have a bright metallic gloss, while the chicks are generally mottled with brownish-gray. White, pied and buff Turkeys are also often seen, and if care be taken they are commonly found to "breed true." The northern form of wild Turkey, whose habits have been described in much detail by all the chief writers on North-American birds, is now extinct in the settled parts of Canada and the eastern States of the Union, where it was once so numerous; and in Mexico the southern form, which would seem to have been never

abundant since the conquest, has been for many years rare. Further to the south, on the borders of Guatemala and British Honduras, there exists a perfectly distinct species, *M. ocellata*, whose plumage almost vies with that of a Peacock in splendor, while the bare skin which covers the head is of a deep blue studded with orange caruncles.

The genus *Meleagris* is considered to enter into the Family *Phasianide*, in which it forms a Subfamily *Meleagrina*, peculiar to North and Central America. The fossil remains of three species have been described by Professor Marsh—one from the Miocene of Colorado, and two, one much taller and the other smaller than the existing species, from the Post-Pliocene of New Jersey. Both the last had proportionally long and slender legs.

**TURKEY-RED**. This celebrated color—the most durable, and perhaps one of the most beautiful which has yet been produced in cotton, is dyed by a process supposed to have been in practice in India from immemorial time. It passed from thence through other parts of Asia, to the countries of the Levant, and was introduced into France about the middle of the last century. The first successful attempt to introduce it into Great Britain was made in Glasgow in 1783, by a Rouen dyer named Papillon, in conjunction with Mr. Geo. Macintosh, the father of the inventor of waterproof cloth. By an agreement with the Trustees for Manufactures in Scotland, Papillon allowed them to make his process public in 1803; and since then Turkey-red dyeing has been extensively carried on in Glasgow and its neighborhood and also in Lancashire.

There was a mode of dyeing cotton red with madder practiced by calico printers—the cloth being previously bleached with chloride of lime—where the whole process only occupied a day or two. But in the case of Turkey-red, which is also a madder dye, the operations are long and tedious, and the bleaching with chloride of lime is especially objectionable. The following is an outline of the steps for the Turkey-red process as usually conducted: 1. Unbleached calico is thoroughly washed at a dash wheel or other washing machine and then boiled for some time in a solution of carbonate of soda. 2. The cloth is soaked in a bath containing a soapy emulsion of olive oil, sheep's dung, carbonate of soda and water; and allowed to remain for a week or more impregnated with the solution, after which it is aired in the field and dried in stoves. This operation is repeated at least three times. 3. The next stage, sometimes called "liquoring," consists in passing the cloth through an emulsion of olive oil and carbonate of soda, but without sheep's dung; after which it is aired in the field, and dried in stoves, as in the last operation. The "liquoring" is repeated at least four times. 4. The cloth now requires to be soaked in a weak alkaline lye of pearl-ash and soda, in order to remove any excess of oil. 5. The cloth is warmed in a bath containing a mixture of powdered oak-galls and sumach, or either of these substances alone, the operation being sometimes called "galling," and sometimes "sumaching." 6. The cloth is next steeped for twelve hours in a solution of alum, partially neutralized by carbonate of soda, but sometimes acetate of alumina is used instead of alum. Without this treatment, the dye could not be fixed upon the cotton. 7. When thoroughly washed, the cloth is ready to receive the red dye, which is produced by immersing it in a decoction of madder, to which some chalk and bullock's blood are sometimes added.

It is put into the dye-beck when cold, and kept in it for two hours after it has been raised to the boiling point. It is next boiled in a weak solution of soap and



soda, which removes a brown coloring matter present in the madder dye, but more fugitive than the red portion. Finally the dyed cloth is cleared or brightened by boiling it in solution of chloride of tin, and then washing and drying it. A more recent plan is to employ chloride of lime for the clearing.

The theory of Turkey-red dyeing is not well understood, which so far accounts for the fact, that it has been found impossible materially to shorten the process. The three most essential operations are the oiling, or rather the impregnation with an oleaginous soap, the mordanting with alumina, and the dyeing with madder; but it is found, that if any of the numerous dippings in the oily emulsions are left out the color is inferior in proportion to the number of omissions. This is the least understood part of the process, and is no doubt the cause of the rich appearance of the dye, which approaches some of the fine reds produced in wool. Besides being largely used in the plain state, Turkey-red cloth is extensively employed for handkerchiefs with white patterns produced upon them by discharging the color.

**TURKS.** The use of the name "Turks" has never been limited in a clear and definite way from the time of the Byzantine authors to the present day. To the former, as also to the Arabs, it has a collective sense like Scythians or Huns; at the present day we are wont to restrict the name to the Osmanli Turks, though they themselves refuse to be called Turks, having, as they hold, ceased to be such in becoming imbued with Arabo-Persian culture. On the other hand, when we speak of Uigurs and Tartars, we mean tribes who style themselves Turks and really are such. It is only by the aid of historical and linguistic evidence that we can determine the true limits of the Turkish name.

The principal Turkish peoples are the following. (I.) By a popular distinction the Turks of Siberia and Russia, with some colonies in Turkey, are styled Tatars (see TARTARS), though the Yakuts, of northern Siberia are not usually included in this term. The Yakuts, who are perhaps a mixture of Turkish and Tungus tribes, deviating from the ordinary course of Turkish wanderings, are settled about the lower Lena, and number probably 200,000. They are nominally Christians. (II.) On the Kirghiz (Kara-Kirghiz and Kazaks) and Kara-Kalpaks see KIRGHIZ. (III.) Uzbek is a political, not an ethnological denomination, originating from Uzbek Khán of the Golden Horde (1312-1340). The Uzbeks are a mixed race of different Turkish tribes. According to Kostenko, they number 201,972 in the Russian provinces of Sir-Daria, Ferghána, Zerafschan, and Amu-Daria, and Vambéry conjectures that there are 1,000,000 more in Bokhara, 700,000 in Khiva, and 200,000 under Afghan supremacy, giving a total number of about 2,000,000. (IV.) The eastern Turks on the southern slopes of the Tian-Shan Mountains at Kashgar, Ust-turfan, Ak-su, Sairam, Kutcha, Yarkand, Khotan, etc., are the remnants of the ancient Uigurs; and of the same origin are the Taranjis (=agriculturists), settled in the Ili valley and elsewhere. The number of the latter is given as about 50,000; that of the former may be estimated from the statements of Forsyth and Kuropatkin at about 1,000,000 for the whole district, the great majority being Turks and the rest Mohammedan Chinese (Sungans). (V.) The Turcomans (properly Turkmen) inhabit the steppe east of the Caspian and south of the Oxus from Astrabad to the Paropamisus. (VI.) The Turkish nomads scattered throughout Persia are partly the descendants of the Ghuzz tribes that invaded the country at the Seljukian period; others have migrated thither in the following centuries.

(VII.) The Osmanlis, under which term are comprehended all the Turkish subjects of the sultan of Turkey, consist chiefly of the following elements. (1) Turkmanian tribes and Turks of every description. The Mongolian invasion drove the obscure ancestors of this the most illustrious Turkish dynasty to Asia Minor, whence they gradually spread to the province of Khodavendikyár (Bithynia). (2) Tartars scattered among the rest of the population, but forming a large colony in the Dobrudja. (3) The so-called Kizil-bashis or "Red Heads," a nickname of the Shi'itic Turkish immigrants from Persia, who are found chiefly in the plains from Kara-hissar along Tokat and Amasia to Angora. (4) Turkmenian tribes—Yuruks and Götchebes (words meaning "nomads" and characteristic of their most distinctive quality)—who occupy the mountains in summer and descend into the plains in winter, though some are settled in the plains of Cilicia near Tarsus and Adana, the rest being semi-nomads. Reclus estimates the total number of Turks in Europe at 1,500,000 and 35,000 Tartars. For Asia Minor statistics are wanting; but P. de Tchihatchef, the chief authority for matters relating to this peninsula, thinks that 6,000,000 is a fair estimate for the total population, including Greeks, Armenians, Kurds, etc., but excluding the islands. It appears therefore necessary to reduce the already moderate number of Osmanlis given by Vambéry (10,000,000) to about 6,000,000.

**TURMERIC**, the tuberous root of *Curcuma longa*, L., an herbaceous perennial plant belonging to the natural order *Zingiberaceae*. It is a native of Southern Asia, being cultivated on a large scale both on the mainland and in the islands of the Indian Ocean. Turmeric has been used from a remote period both as a condiment and as a dye stuff, and to a more limited extent as a medicine. In Europe it is employed chiefly as a dye, also as an ingredient in curry powder and as a chemical test for alkalies. The root is prepared by cleaning it and drying it in an oven.

Turmeric has a characteristic odor and an aromatic taste. The aroma it owes to a complex essential oil, which consists principally of an alcohol called *turmerol*, which differs from carvol in being unable to combine with hydrogen sulphide; the other constituents of the oil have not been determined. The cultivation of turmeric is carried on most successfully in light, rich soil in well-watered districts. The plant is easily propagated by offsets. An acre yields about 2,000 pounds. Turmeric is said to grow in large quantities on the slopes of hills bordering the plains of the Beni in Bolivia and also in Panama.

**TURNAU**, a walled town of Bohemia, circle of Jung-Bunzlau, on the east bank of the Iser, fifty miles northeast of Prague. It has a church built in 1825, which is reckoned one of the most beautiful in Bohemia. Turnau has manufactures of cotton, woollens, and more particularly of artificial gems, which are exported in great quantities to the United States. Population, 4,900. Here was fought in July, 1866, a battle between the Prussians and Austrians, in which the former were victorious.

**TURNER, CHARLES**, an English engraver, was born at Woodstock in 1773. He entered the schools of the Royal Academy in 1795; and, engraving in stipple in the manner of Bartolozzi, he was employed by Alderman Boydell. His finest plates, however, are in mezzotint, a method in which he engraved J. M. W. Turner's *Wreck* and twenty-four subjects of his *Liber Studiorum*, Reynolds' *Marlborough Family*, and many of Raeburn's best portraits, including those of Sir Walter Scott, Lord Newton, Doctor Hamilton, Profs. Du-gald Stewart and John Robison, and Doctor Adam. In



1828 he was elected an associate engraver of the Royal Academy. He died in London on August 1, 1857.

TURNER, JOSEPH MALLOD WILLIAM, one of the greatest painters of the English school, was born in London on April 23, 1775. The earliest known drawing by Turner, a view of Margate church, dates from his ninth year. It was also about this time that he was sent to his first school at New Brentford. Of education, as the term is generally understood, he received but little. He never mastered his native tongue, nor was he able in after life to learn any foreign language. Notwithstanding this lack of scholarship, one of his strongest characteristics was a taste for associating his works with personages and places of legendary and historical interest, and certain stories of antiquity seem to have taken root in his mind very strongly. By the time Turner had completed his thirteenth year his school days were over and his choice of an artist's career settled. Part of his time was employed in making drawings at home, which he exhibited for sale in his father's shop window, two or three shillings being the usual price. He colored prints for engravers, washed in backgrounds for architects, went out sketching with Girtin, and made drawings in the evenings for Doctor Munro "for half a crown and his supper." In 1789 Turner became a student of the Royal Academy. He also worked for a short time in the house of Sir Joshua Reynolds, with the idea, apparently, of becoming a portrait painter; but, the death of Reynolds occurring shortly afterward, this intention was abandoned. In 1790 Turner's name appears for the first time in the catalogue of the Royal Academy, the title of his solitary contribution being *View of the Archbishop's Palace, Lambeth*. About 1792 he received a commission from Walker, the engraver, to make drawings for his *Copper-Plate Magazine*, and this topographical work took him to many interesting places.

Until 1792 Turner's practice had been almost exclusively confined to water colors, and his early works show how much he was indebted to some of his contemporaries. There are few of any note whose style he did not copy or adopt. His first exhibited oil picture appeared in the Academy in 1793, and during the next four years he contributed no less than thirty-nine works to the Academy.

It is not surprising that the exhibition of his works in 1798 was followed by his election to the associateship of the Royal Academy. That he should have attained to this position before completing his twenty-fourth year says much for the wisdom and discernment of that body, which further showed its recognition of his talent by electing him an Academician four years later. Turner owed much to the Academy. Mr. Ruskin says, "It taught him nothing." He enjoyed the dignity of Academician for nearly half a century, and during nearly the whole of that period he took an active share in the direction of the Academy's affairs. With his election to the associateship of the Academy in 1799, Turner's early struggles may be considered to have ended. He had emancipated himself from hack work, had given up making topographical drawings of castles and abbeys for the engravers—drawings in which mere local fidelity was the principal object—and had taken to *composing* as he drew. His pictures of 1797-99 had shown that he was a painter of no ordinary power, one having much of the poet in him, and able to give expression to the mystery, beauty, and inexhaustible fullness of nature.

Turner visited Scotland in 1800, and in 1801 or 1802 he made his first tour on the continent. In the following year, of the seven pictures he exhibited six were of foreign subjects, among them *Bonneville*, the *Festival*

*upon the Opening of the Vintage of Mâcon*, and a well-known *Calais Pier* in the National Gallery.

In 1804 Turner made a second tour on the continent, and in the following year painted the *Shipwreck* and *Fishing Boats in a Squall* (in the Ellesmere collection), seemingly in direct rivalry of Vandervelde, in 1806 the *Goddess of Discord in the Garden of the Hesperides* (in rivalry of Poussin), and in 1807 the *Sun rising through Vapor* (in rivalry of Claude). The last two are notable works, especially the *Sun*. In after years it was one of the works he left to the nation, on the special condition of its being hung beside the Claudes in the National Gallery. In this same year (1807) Turner commenced his most serious rivalry. Possibly it arose out of a desire to break down Claude worship, the then prevailing fashion, and to show the public that there was a living artist not unworthy of taking rank beside him. That the *Liber Studiorum* was suggested by the *Liber Veritatis* of Claude, and was intended as a direct challenge to that master, is beyond doubt. The first of the *Liber* drawings was made in the autumn of 1806, the others at intervals till about 1815. They are of the same size as the plates and carefully finished in sepia. About fifty of them are now to be seen in the Turner rooms of the National Gallery. The issue of the *Liber* began in 1807 and continued at irregular intervals till 1819, when it stopped at the fourteenth number.

The plates, which cost the subscribers only five shillings apiece, were so little esteemed that in the early quarter of the nineteenth century they were sometimes used for lighting fires. So much has fashion, or public taste, changed since then that a fine proof of a single plate has sold for \$1,050. The seventy plates of the *Liber* contain an almost complete epitome of Turner's art. The imaginative faculty he possessed was of the highest order, and it was further aided by a memory of the most retentive and unerring kind.

In 1813 Turner commenced the series of drawings, forty in number, for Cooke's *Southern Coast*. This work was not completed till 1826.

*Crossing the Brook* appeared in the Academy of 1815. It may be regarded as a typical example of Turner's art at this period, and marks the transition from his earlier style to that of his maturity. *Dido Building Carthage* also belongs to this period. It hangs beside the *Claudes* in the National Gallery. It pertains to the old erroneous school of historical painting. Towering masses of Claudesque architecture piled up on either side, porticoes, vestibules, and stone pines, with the sun in a yellow sky represent the Carthage of Turner's imagination. With all its faults it is still the finest work of the class he ever painted. Carthage and its fate had a strange fascination for him. He returned again to this theme in 1817, when he exhibited his *Decline of the Carthaginian Empire: Hostages Leaving Carthage for Rome*—a picture which Mr. Ruskin describes as "little more than an accumulation of academy student's outlines colored brown."

Hitherto he had painted in browns, grays, and blues, using red and yellow sparingly. He had gradually been advancing from the sober gray coloring of Vandervelde and Ruysdael to the mellow and richer tones of Claude. His works now begin to show a heightened scale of color, gradually increasing in richness and splendor and reaching its culminating point in such works as the *Ulysses*, *Childe Harold's Pilgrimage*, the *Golden Bough*, and the *Fighting Téméraire*. All these works belong to the middle period of Turner's art (1829-39), when his powers were entirely developed and entirely unabated. Much of his most beautiful work at this period is to be found in his water-color drawings.

Perhaps one of the greatest services Turner rendered



to the art of England was the education of a whole school of engravers. No better proof can be found of the immense advance made than by comparing the work of the landscape engravers of the pre-Turnerian period with the work of Miller, Goodall, Willmore, Cooke, Wallis, Lupton, C. Turner, Brandard, Cousen, and others who worked under his guidance. The art of steel engraving reached its highest development in England at this time. Rogers' *Italy* (1830) and his *Poems* (1834) contain perhaps the most beautiful and delicate of the many engravings executed after Turner's drawings.

From this period onward till about 1840 Turner's life was one of unceasing activity. Nothing is more astonishing than his prodigious fertility; he rose early, worked from morning till night, entirely absorbed in his art, and gradually became more and more solitary and isolated. Between 1829 and 1839 he sent fifty-five pictures to the Royal Academy, painted many others on private commission, made over 400 drawings for engravers, besides thousands of studies and sketches from nature. His industry accounts for the immense quantity of work he left behind him.

The first of Turner's Venetian pictures (*Bridge of Sighs, Ducal Palace and Custom House, Venice, Canaletti Painting*) appeared in the Academy in 1833. Compared with the sober, prosaic work of Canaletti, Turner's pictures of Venice appear like poetic dreams. Splendor of color and carelessness of form generally characterize them. Venice appeared to him "a city of rose and white, rising out of an emerald sea against a sky of sapphire blue." Many of these Venetian pictures belong to his later manner, and some of them, *The Sun of Venice Going to Sea* (1843), *Approach to Venice* (1844), and *Venice, Evening, Going to the Ball* (1845) to his latest. As Turner grew older his love of brilliant color and light became more and more characteristic.

*The Fighting Temeraire Tugged to her Last Berth to be Broken Up* was exhibited in the Academy of 1839. By many it is considered one of his finest works. Turner had all his life been half a sailor at heart; he loved the sea, and shipping, and sailors and their ways; many of his best pictures are sea pieces; and the old ships of Collingwood and Nelson were dear to him. Hence the pathetic feeling he throws around the *Fighting Temeraire*. *The Slave Ship*, another important sea picture, was exhibited in the following year; and in 1842 *Peace: Burial at Sea*, commemorative of Wilkie.

Turner had now reached his sixty-seventh year, but no very marked traces of declining power are to be seen in his work. Many of the water-color drawings belonging to this period are of great beauty, and, although a year or two later his other powers began to fail, his faculty for color remained unimpaired almost to the end. He paid his last visit to the Continent in 1843, wandering about from one place to another, and avoiding his own countrymen, an old and solitary man. At his house in Queen Anne street they were often ignorant of his whereabouts for months, as he seldom took the trouble to write to any one. Two years later (1845) his health gave way and with it both mind and sight began to fail.

After 1845 all the pictures shown by Turner belong to the period of decay—mere ghosts and shadows of what once had been. In 1850 he exhibited for the last time, and on December 19, 1851, he died. He was buried in St. Paul's cathedral, in deference to a wish he had himself expressed.

He left the large fortune he had amassed (about \$700,000) to found a charity for the "maintenance and support of male decayed artists, being born in England, and of English parents only, and of lawful issue." His

pictures he bequeathed to the nation, on condition that they were to be exhibited in rooms of their own, and that these rooms were to be called "Turner's Gallery."

TURNER, SHARON, the Anglo-Saxon historian, was born in London, September 25, 1768, articled attorney at the age of fifteen, and succeeded to the business before the period of his clerkship had expired. He continued, however, to gratify his literary taste and after years of hard learning, and patient collection of materials, published, 1799–1805, *The History of the Anglo-Saxons*, in three volumes, a work, with all its imperfections, that has given its author a permanent place in English literature. Other writings of Turner's are *The History of England from the Norman Conquest to 1509* (1814); *History of Henry VIII.* (1826); and *Reigns of Edward VI., Mary, and Elizabeth* (1829); all of which were subsequently republished together under the title of *History of England from the Earliest Period to the Death of Elizabeth*. He died in 1847.

TURNHOUT, a town of Belgium, in the province of Antwerp, stands in the middle of a wide plain. It is a prosperous manufacturing and commercial center, the chief industries being the weaving of cottons and linens (especially ticking), lace-making, paper-making, brick-making, dyeing, bleaching. The population of the commune is 18,000.

TURNING. See LATHE.

TURNIP. See AGRICULTURE and HORTICULTURE.

TURNIP-FLY, TURNIP-FLEA, or EARTH FLEA-BEETLE, the name applied to several species of *Haltica* which infest turnip fields and do considerable damage to crops. The genus belongs to the family *Chrysomelidae*, and includes about 100 species. The turnip-fly most usually met with, *Haltica nemorum*, is scarcely 2mm. in length and of a shining black color, with two ochreous yellow longitudinal bands running along each wing-case; the bands are slightly sinuous and bend inward at the hinder end. Of the eleven-jointed antennæ the first three segments are yellow and the remainder black. The remarkable power of jumping has given rise to the name turnip-flea.

Another species *H. concinna*, has a greenish yellow or brassy appearance, and the tibiae of the two posterior legs are armed with a thorn-like hook. A third species, *H. consobrina*, is of a dark blue color above, while another species, *H. obscurella*, often very abundant, is of a lighter blue color, and larger than those mentioned above.

The beetles begin pairing during April, and continue all through the summer. The female lays but few eggs, usually one a day. The eggs are deposited on the under surface of a leaf, close under one of the projecting veins; they possess a protective coloring. The development within the egg lasts ten days, at the end of which a small larva creeps out, and at once eats its way through the lower epidermis of the leaf into the mesophyll and there forms long winding burrows. The larva or maggot is of a yellowish color and somewhat cylindrical in form. The larval condition lasts about six days; the maggot then leaves the leaf and buries itself some one or two inches beneath the surface of the earth; here it turns into a chrysalis. From this the full-grown beetle emerges after an interval of fourteen days, and it is in this stage of its life-history that it proves most destructive to the turnip crop. Several broods may be produced each season.

TURNPIKE ROADS is the name applied to the roads which from about the year 1700 were constructed in England by private enterprise, the consideration being that a charge should be made by the lessees of the roads based upon the traffic passing over them, and that they should be secured in the same for a definite



period. Under this system thousands of miles of road were constructed in England and Wales, but the system itself possessed this disadvantage—that the toll-charges acted as a prohibition in the vicinity of cities. So far as the country districts were concerned the turnpike system was a good one, but where traffic, as in the immediate neighborhood of cities, became very great, the toll-charge became far in excess of the cost of maintaining the roads. This was especially true in regard to London and other great English cities, and about 1860 a movement for freeing all roads from tolls was inaugurated by a number of members of parliament and other well known persons. About ten years later the last of the toll-gates was removed and the turnpike system is now a thing of the past.

TURNSTONE, the name given to a shore-bird, from its habit of turning over with its bill such stones as it can to seek its food in the small crustaceans or other animals lurking beneath them. It is the *Tringa interpres* of Linnæus and *Streptilas interpres* of most later writers, and is remarkable as being perhaps the most cosmopolitan of birds; for, though properly belonging to the northern hemisphere, there is scarcely a sea-coast in the world on which it may not occur: it has been obtained from Spitzbergen to the Strait of Magellan and from Point Barrow to the Cape of Good Hope and New Zealand.

The Turnstone is about as big as an ordinary snipe; but, compared with most of its allies of the group *Limicola*, to which it belongs, its form is somewhat heavy, and its legs are short. Still it is brisk in its movements, and its variegated plumage makes it a pleasing bird. Seen in front, its white face, striped with black, and broad black gorget attract attention as it sits, often motionless, on the rocks; while in flight the white of the lower part of the back and white band across the wings are no less conspicuous even at a distance.

TURPENTINE consists of the oleo-resins which exude from certain trees, especially from some conifers and from the terebinth tree, *Pistacia Terebinthus*, L. It was to the product of the latter, now known as Chian turpentine, that the term was first applied. The tree is a native of the islands and shores of the Mediterranean, passing eastward into Central Asia; but the resinous exudation found in commerce is collected in the island of Scio. On exposure to the air it becomes dry, hard, and brittle. In their general characteristics, turpentine is soft solids or semi-fluid bodies, consisting of a mixture of one or more resins with essential oils, which, although differing in physical properties, have a composition corresponding to the formula  $C_{10}H_{16}$ . They also contain minute quantities of oxygenated oils. Formerly they had considerable reputation in medicine, and they still continue to be employed in plasters and ointments; but their great use is in the arts, for which they are separated by distillation into rosin or colophony (see ROSIN) and oil or spirit of turpentine.

Crude or common turpentine is the commercial name which embraces the oleo-resin yielded by several coniferous trees, both European and American. In the United States the turpentine-yielding pines are the swamp pine, *P. palustris*, and the loblolly, *P. Taeda*, both inhabiting North and South Carolina, Georgia, and Alabama. Venice turpentine is yielded by the larch tree, *Larix europæa*, from which it is collected principally in Tyrol. The so-called Canada balsam, from *Abies balsamea* (see BALSAM) is also a true turpentine.

Oil of turpentine as a commercial product is obtained from all or any of these oleo-resins, but on a large scale only from crude or common turpentine. The essential

oil is rectified by redistillation with water and alkaline carbonates, and the water which the oil carries over with it is removed by a further distillation over calcium chloride. Oil of turpentine is a colorless liquid of oily consistence, with a strong characteristic odor and a hot disagreeable taste. Oil of turpentine is largely used in the preparation of varnishes, and as a medium by painters in their "flat" colors.

TURPIN, archbishop of Rheims and the supposititious author of *Historia Karoli Magni et Rotholandi* is probably to be identified with Tilpin, who was archbishop of Rheims toward the end of the eighth century. This Tilpin is alluded to by Hincmar (845-882), his third successor in the see. According to Flodoard, Charles Martel drove Ragobert, bishop of Rheims, from his office, putting in his place a warrior-clerk, Milo. Tilpin was present at the synod of Rome in 769, and Pope Hadrian, at the request of Charlemagne, sent him a pallium and confirmed the rights of his church. According to Flodoard, he substituted monks for canons in the monastery of St. Remigius; and seventeenth century tradition ascribed to him an ancient *pontificale*, still extant in Marlot's days (seventeenth century). This is all that authentic history and trustworthy tradition teach about the author to whom the common voice of the Middle Ages ascribed the *Historia Caroli Magni*.

TURQUOISE, a blue or bluish green mineral valued, when cut and polished, as an ornamental stone. The finest variety occurs in Persia, whence it originally reached Western Europe by way of Turkey, and thus came to be called by the Venetians, who imported it, *turchesa*, and by the French *turquoise*. It is chemically a hydrated phosphate of aluminum, associated with a variable proportion of hydrated phosphate of copper, to which it owes much of its color. The green tints of certain varieties appear to be due to admixture with salts of iron.

The mineral has never been found crystallized, but occurs as veins, nodules, stalactitic masses, and incrustations. Large pieces are exceedingly rare. The specific gravity of turquoise is about 2.75, and its hardness below 6; it takes a fair polish and exhibits a feeble luster. It is usually cut *en cabochon* or with a low convex surface, and in the East is frequently engraved with Persian and Arabic inscriptions, generally passages from the Koran—the inc characters being in many cases gilt. Such objects are worn as amulets. The turquoise has always been associated with curious superstitions, the most common being the notion that it changes color with variations in the state of its owner's health, or even in sympathy with his affections. Persia is the chief center of the turquoise trade, where the same mines have been worked for at least eight centuries. The finest stones are found near Nishápúr in Khorásan (see PERSIA).

Turquoise is commonly imitated by enamels, but of late some ingenious counterfeiters have been made with the same chemical composition as the natural stone. To increase the deception, pieces of ocheros matter are inserted at the back of the artificial turquoise, to imitate the natural matrix.

TURRETIN, or TURRETIM. Three theologians of this name figure in the history of Genevan theology.

1. BENOIT TURRETIN, the son of Francesco Turretini, a native of Lucca, who settled in Geneva in 1579, was born in that town on November 9, 1588. He was ordained a pastor in Geneva in 1612, and became professor of theology in 1618. In 1620 he represented the Genevan Church at the national synod of Alais, and in 1621 he was sent on a successful mission to the states general of Holland, and to the authorities of the Hanseatic towns, with reference to the defense of Geneva



against the threatened attacks of the duke of Savoy. He published in 1618-20 a defense of the Genevan translation of the Bible. Benoit Turretin died at Geneva on March 4, 1631.

2. FRANÇOIS TURRETIN, son of the preceding, was born at Geneva on October 17, 1623. After studying theology in Geneva, Holland, and France, he became a pastor in Geneva in 1647; after a brief pastorate at Leyden, he again returned to Geneva as professor of theology in 1653. He was one of the most influential supporters of the *Formula Consensus Helvetica*, and of the particular type of Calvinistic theology which that symbol embodied. His *Institutio Theologiae Elencticae* has passed through frequent editions. F. Turretin died at Geneva on September 28, 1687.

3. JEAN ALPHONSE TURRETIN, son of the preceding, was born at Geneva on August 13, 1671. In 1697 he became professor of church history. During the next forty years of his life he enjoyed great influence in Geneva as the advocate of a more liberal theology than had prevailed under the preceding generation, and it was largely through his instrumentality that the use of the *Formula Consensus Helvetica* as a symbol was discontinued in 1725. He died at Geneva on May 1, 1737.

TURTLE. See TORTOISE.

TUSCANY (Ital. *Toscana*), one of the sixteen compartments of the kingdom of Italy, contains eight provinces—Arezzo, Florence, Grosseto, Leghorn, Lucca, Massa-Carrara, Pisa, and Siena—and has an area of 9,287 square miles, with a population of 2,208,869. In 1859, immediately before it united with the kingdom of Sardinia, the grand-duchy of Tuscany, exclusive of Massa-Carrara, which then belonged to Modena, but including the islands of Gorgona, Elba, Pianosa, Formica, Montecristo, Giglio, and Gianutra, as well as the duchy of Lucca (united to it in 1847), had an area 9,304 square miles, with a pop. (1901) of 2,548,154. The territory included during the later centuries within the limits of Tuscany was known in an earlier time as Etrusca, or Etruria. It was the cradle of the Etruscan race (undoubtedly of Phœnician origin), and probably the race which attained a higher civilization than any other in prehistoric times. It was the seat of a powerful and warlike nation before Rome itself was founded, and its language has been preserved almost in its native purity even to this day. Tradition tells of the deeds of the great chiefs who ruled in Etruria, who carried their conquests to the very walls of Rome, and who supported the ancient kings in their efforts to recover the supremacy which the Tarquins had forfeited.

ETRURIA (*q.v.*) was finally annexed to Rome in 351 B.C. (see ROME), and constituted the seventh of the eleven regions into which Italy was, for administrative purposes, divided by Augustus. Under Constantine it was united into one province with Umbria, an arrangement which subsisted until at least 400. After the fall of the Western empire Tuscany, with other provinces of Italy, came successively under the sway of Herulians, Ostrogoths, and Greek and Lombard dukes. The title of grand-duke of Tuscany was conferred on Cosmo de' Medici by Pius V. in 1567, and the emperor (Maximilian II.), after withholding his consent for some years, ultimately confirmed it to Cosmo's successor in 1576. In 1735, in view of the childlessness of Giovan Gastone, the last of the Medici, the succession of Francis, duke of Lorraine, afterward emperor Francis I., was arranged for by treaty. In 1765 he was succeeded as grand-duke by his second son Leopold (see LEOPOLD II.), who, on becoming emperor in 1790, handed Tuscany over to his second son Ferdinand, third grand-duke of the name. The duchy was occupied by the French in 1799, ceded

to Louis, prince of Parma, by the convention of Madrid in 1801, and annexed to the French empire in 1808. Ferdinand, however, was reinstated in 1814, and on his death in 1824 was succeeded by his son Leopold, second grand-duke of the name, who was deposed by the constituent assembly on August 16, 1860.

TUSCULUM, an ancient Latin city, situated in a commanding position on one of the eastern ridges of the Alban Hills, near the site of the modern FRASCATI, (*q.v.*) It has a very beautiful and extensive view of the Campagna, with Rome lying fifteen miles distant to the northwest, on the west the sea near Ostia, and the long range of the Sabine Hills on the northeast. According to tradition, the city was founded by Telegonus, the son of Ulysses and Circe. When Tarquinius Superbus was expelled from Rome his cause was espoused by the chief of Tusculum, Octavius Mamilius, who took a leading part in the formation of the Latin League, composed of the thirty principal cities of Latium, banded together against Rome. Mamilius commanded the Latin army at the battle of Lake Regillus. At this battle (497 B.C.) Mamilius was killed, and the predominance of Rome among the Latin cities was practically established. From that time Tusculum became an ally of Rome, and on that account frequently incurred the hostility of the other Latin cities. During the Imperial period little is recorded about Tusculum; but soon after the transference of the seat of empire to Constantinople it became a very important stronghold, and for some centuries its counts occupied a leading position in Rome, and were specially influential in the selections of the popes. During the twelfth century there were constant struggles between Rome and Tusculum, and toward the close of the century the Romans, supported by the German emperor, gained the upper hand, and the walls of Tusculum, together with the greater part of the city, were destroyed.

TUSSER, THOMAS, poet, was born about 1527. In 1543 he was elected to King's College, Cambridge, and soon afterward exchanged to Trinity Hall. On leaving the university he was for about ten years at court, probably in some musical capacity. He then settled as a farmer in Suffolk, near the river Stour, an employment which he seems to have regarded as combining the chief essentials of human felicity. Subsequently he lived successively at Ipswich, West Dereham, Norwich, and London. There he died in April, 1580.

TUTTLINGEN, a town of Wurtemberg, on the right bank of the Danube, twenty miles west-southwest of Sigmaringen. It has manufactures of knives, needles, cloth, cotton, hosiery, linen, and silk, and carries on besides some trade in corn. Population (1900), 13,530. It is historically notable as the scene of a battle in 1643, during the Thirty Years' War, in which an Austro-Bavarian force, under Hatzfeld and Mercy, defeated the French.

TUTUILA, an island in the Pacific, belonging to the group of the NAVIGATOR'S or Samoan Islands (*q.v.*), is about seventeen miles long and five miles broad, and is said to contain nearly 3,800 inhabitants. The coast is bold, and the island is traversed by sharp-peaked mountains, highly picturesque in outline, and rising from 2,500 to 3,500 feet. The harbor of Pago Pago, an ancient crater, is very deep, and completely landlocked by lofty mountains. The mountains are clothed with dense green forests, comprising the bamboo, banana, cocoa-nut tree and other palms. Between the months of November and May fearful hurricanes break over the island. The island now belongs to the United States.

TVER, a government of central Russia, on the upper Volga, bounded by Pskoff and Novgorod on the west and north. Yaroslavl and Vladimir on the east.



and Moscow and Smolensk on the south; it has an area of 25,225 square miles. Lying on the southern slope of the Valdai plateau, and intersected by deep valleys, it has the aspect of a hilly region, but is in reality a plateau ranging from 800 to 1,000 feet in height. Its highest parts are in the northwest, where the Volga, Western Dwina, and Msta rise in marshes and lakes.

Nearly the whole of Tver is watered by the upper Volga (350 miles) and its tributaries, several of which (Vazuza, Dubna, Sestra, Tvertsa, and the tributaries of the Mologa) are navigable. The Vyshnevolotsk system of canals connects the Volga (navigable some sixty miles from its source) with the Baltic, and the Tikhvin system connects the Mologa with Lake Ladoga. The Msta, which flows into Lake Ilmen, and its tributary, the Tsna, water Tver in the northwest, and the Western Dwina rises in Ostashkoff. This network of rivers highly favors navigation; as many as 3,000 boats yearly pass through the Vyshnevolotsk system, and grain, linseed, spirits, flax, hemp, timber, metals, and manufactured ware are shipped from, or brought to, the river ports of the government. The population (1,812,825 in 1898) is unequally distributed, and in the districts of Kalyazin and Kashin attains a density not much less than that of the more highly favored black-earth provinces of southeast Russia (sixteen and seventeen per square mile). Apart from some 100,000 Karelians and a few Poles and foreigners, the people are all Great Russians. The fisheries in the lakes and rivers are productive. The peasants are principally engaged in various manufactures. The chief centers of trade, besides the city of Tver, are Byezhetsk, Rzheff, Kashin, Ostashkoff, Torshok, Krasnyi Kholm, and Vesiegonsk during its fair.

TVER, capital of the above government, lies 102 miles by rail to the northwest of Moscow, on both banks of the Volga. The low right bank is protected from inundations by a dam. As a whole, the town is but poorly built. The oldest church dates from 1564, and the cathedral from 1689. An imperial palace, the courts, and the postoffice rank among its best buildings. A public garden occupies the site of the former fortress. The pop. (1898) was 53,477. The manufactures, chiefly of cotton, employ 5,900 workmen (5,710 at the cotton mills), and a number of nail-making workshops employ some 800 men.

TWEED, a river in the south of Scotland, has its rise in the southwest corner of Peeblesshire. The stream flowing from Tweed's Well, about 1,500 feet above sea-level, is generally regarded as its source, although the honor is also claimed for other streams issuing from a higher elevation. For the first thirty-six miles of its course it intersects the county of Peebles—frequently on this account called Tweeddale—in a northeasterly direction, passing between verdant hills separated by valleys watered by its numerous affluents. It crosses Selkirkshire in a southeasterly direction, and, having received the Ettrick from the south on the borders of Roxburghshire, flows northward past Abbotsford, forming for about two miles the boundary between the counties of Selkirk and Roxburgh. The last two miles of its course before reaching Berwick are in England. Though the latter part of its course is through a comparatively level country, the scenery along the river is full of charm, owing to the picturesque variety of its finely wooded banks. The associations connected with the keeps and castles of the Tweed have supplied materials for several of Sir Walter Scott's poems and romances; and its varied beauties have been sung by Hogg, Leyden, Thomson, and many others. The total area drained by it is about 1,870 square miles, and its total length is 97

miles. Next to the Tay it is the largest river in Scotland. The river is one of the best in Scotland for trout and salmon fishing.

TWEEDS. See WOOLEN AND WORSTED MANUFACTURES.

TWELVE TABLES. See ROMAN LAW and ROME.

TWENTY-FOUR PARGANAS, the metropolitan district of the lieutenant-governorship of Bengal, India, takes its name from the territory originally ceded to the East India Company, which contained twenty-four parganas or sub-districts. It has an area of 2,124 square miles, and is bounded on the north by Nadiya, on the northeast by Jessore, on the south and southeast by the Sundarbans, and on the west by the river Hugli (Hooghly). The country consists for the most part of a vast alluvial plain within the delta of the Ganges, and is everywhere watered by numerous rivers, all branches of the Hugli.

In 1901 the population of the district, exclusive of Calcutta, numbered 1,869,859 (males 975,430, females 894,429), embracing 1,153,040 Hindus, 701,306 Mohammedans, and 13,976 Christians. The ten following municipalities had each a population of upwards of 10,000—South Suburban, 51,658; Agarpara, 30,317; Barangan, 29,982; Naihati, 21,533; Nawabganj, 17,702; Basurhat, 14,843; South Dum Dum, 14,108; Baduria, 12,981; Rajpore, 10,576; and Barasat, 10,533.

TWICKENHAM, a town of Middlesex, England, is situated on the north bank of the Thames and on the London and South-Western railway, eleven and one-fourth miles southwest of London by rail. It is a straggling and irregular town, but has many fine suburban villas; and the district is noted for its sylvan beauty. Population (1901) 19,500.

TWILIGHT. The light of what is called the "sky" depends upon the scattering or reflection of direct sunlight in the earth's atmosphere, mainly if not entirely due to those fine dust particles which (as we have recently learned) form the necessary nuclei for condensation of aqueous vapor. Were it not for these particles the sky would appear by day as it does in a clear winter night, and the stars would be always visible. Alpine climbers and aeronauts, when they have left the grosser strata of the atmosphere below them, find this state of things approximated to; and even at the sea-level the blue of the sky is darker when the air contains but few motes. After the sun has set, its rays continue for a time to pass through parts of the atmosphere above the spectator's horizon, and the scattered light from these is called twilight. It is, of course, most brilliant in the quarter where the sun has set. Before sunrise we have essentially the same phenomenon, but it goes by the name of "dawn." The brilliancy of either depends upon several conditions, of which the chief is, of course, the degree by which the sun has sunk below the horizon. But the amount of dust in the air affects the phenomenon in two antagonistic ways: it diminishes the amount of sunlight which reaches the upper air after passing close to the earth and it increases the fraction of this light which is scattered to form twilight. Hence no general law can be laid down as to the duration of twilight; but it is usual to state (roughly) that it lasts until the sun is about 18° under the horizon.

TYBEE, an island and sound at the mouth of the Savannah river, Georgia. The sound is a bay of the Atlantic, extending from the Tybee Island on the south to Hilton Head on the north, opening to Point Royal entrance by Cooper's river, Wall's Cut, Lazaretto creek, and other channels. The island is six miles long by three wide, and was occupied in 1861 by General Sherman, who erected batteries for the reduction of Fort Pulaski, which capitulated April 11, 1862.



**TYBURN**, previously to 1783 the chief place of execution in London, was situated near the northeastern corner of Hyde Park, at the western extremity of Oxford street, and at the point where the Edgware and Uxbridge roads unite. It took the name from a small stream which ran from Hampstead to the Thames through St. James' Park, but which has long since disappeared. The gallows seems to have been a permanent erection, resting on three posts, whence the phrase, "Tyburn's triple tree." Wooden galleries were erected near for the accommodation of spectators. Hogarth's "Idle Apprentice" was executed at Tyburn; and the print which represents the scene gives a good idea of an execution there. The criminal was conveyed all the way from Newgate to Tyburn, a distance of about two miles, by Holborn and the Tyburn road, now Oxford street, but in the seventeenth century a "sloughy country road." As Oxford street and London generally spread westward, the long procession became inconvenient, and the place of execution was, on December 9, 1783, removed to the Old Bailey or Newgate, where it has since remained. In early times the frequency of executions rendered the office of the hangman more important than it is now. Throughout the reign of Henry VIII. (thirty-eight years) the average number of persons executed in England was about two thousand annually. In our own time, the corresponding number has sunk to twelve; formerly the hangman must have had almost daily work. This fact, taken in connection with the increase of population, and the employment of the Tyburn hangman in state executions, explains the important place he occupied in popular imagination and the frequent mention of him in contemporary literature. The first on record was "one Bull," who flourished in 1593. He was succeeded by Derrick, referred to in the *Fortunes of Nigel*, and mentioned in a political broadside as living in 1647. In the ballad of *The Penitent Tailor*, published in the same year, reference is made to his successor, Gregory Brandon—

"I had been better to have lived in beggary,  
Than to have fallen into the hands of Gregory."

In Gregory's time it became a custom to prefix "Squire" to the names of the Tyburn hangmen. This is said to have originated in a practical joke played upon the Garter King of Arms. He was induced to certify the authenticity of a coat of arms of a gentleman named Gregory Brandon, who was supposed to reside in Spain, but who turned out to be the hangman. The Garter King was committed to prison for his negligence and hence the popular error, that "an executioner who has beheaded a state prisoner becomes an esquire." Gregory was succeeded by his son Richard. "Squire Dun" followed; and after him Jack Ketch, or "Squire Ketch," first mentioned in 1678. He was the executioner who beheaded Lord Russell and the duke of Monmouth.

**TYCHO BRAHE.** See **BRAHE**.

**TYE, CHRISTOPHER**, an English musician of note of the sixteenth century. He was born at Westminster in 1500, educated at the King's Chapel, and held the office of musical instructor to Edward VI., when prince of Wales. He received the degree of Mus. Doc. from the University of Cambridge in 1545, and from Oxford in 1548. Under Elizabeth he was organist to the Chapel Royal, and produced various services and anthems, some of which are yet in repute among musicians.

**TYLDESLEY WITH SHAKERLEY**, a town of Lancashire, England, is situated 11 miles west-northwest of Manchester and 199 northwest of London. The population of the urban sanitary district (area 2,490 acres) in 1901 was 10,954.

**TYLER, JOHN**, tenth president of the United States,

was the son of Judge John Tyler, some time governor of Virginia, and was born at Greenway in that State March 29, 1790. In 1802 he entered the grammar school of William and Mary. After graduating in 1806 he entered on the study of law, and in 1809 was called to the bar, where his progress from the first was rapid. He became a member of the State legislature in December, 1811. In 1813 he raised a company in defense of Richmond. In December, 1816, he was elected to the house of representatives, where he displayed much readiness and skill in debate as an uncompromising advocate of popular rights. In 1825 he was elected governor of Virginia by a large majority, and the following year was reelected unanimously. In 1827 he was chosen a United States senator. He opposed Clay on the tariff question in 1832, delivering a speech against the protective duties which lasted three days; but he voted for Clay's Compromise Bill of 1833. He was the only senator who voted against the Force Bill on February 20th of this year, a singularity of conduct which somewhat damaged his reputation in Virginia. Although opposed to the establishment of the United States Bank, he supported the resolutions in 1835 censuring President Jackson for the removal of the deposits, on the ground that the procedure was unconstitutional. In consequence of a vote of the Virginia legislature instructing him to vote for the expurgation of these resolutions from the senate journal he resigned February 21, 1836. His action led the Whigs to bring him forward as a candidate for the vice-presidency, but he only received forty-seven electoral votes. For some time after this he ceased to take an active part in politics; removing in the end of the year from Gloucester to Williamsburg, where he had better opportunities for legal practice, he devoted his chief attention to his professional duties. At the Whig convention which met at Harrisburg, Penn., December 4, 1839, he was nominated again for the vice-presidency on the Harrison ticket, and elected in November, 1840. On the death of Harrison, soon after his inauguration in 1841, Tyler succeeded him. His elevation to the presidency was thus accidental in a double sense, for he had been nominated for the vice-presidency to reconcile the extreme faction. His policy in office (see **UNITED STATES**) was opposed to the party who nominated him and was on Democratic lines. In 1845 he was succeeded by Polk, and he spent the remainder of his life in retirement from active duties. He was nominated in 1861 for the lower house of the Confederate congress, but died at Richmond on the 18th of the following January.

**TYLER**, the county seat of Smith county, Tex., is the center of an agricultural district of large area and exceptional productivity. It is eligibly located on the Northern division of the International and Great Northern, and on the St. Louis, Arkansas and Texas railroads, 250 miles north of Galveston, and 100 miles west of south of Shreveport, La. Its desirable situation, with transportation accommodations equally desirable, and the enterprising character of the inhabitants have combined to give an impetus to the growth and prosperity of Tyler as valuable as it is permanent, and to attract thither a class of citizens both substantial and influential, with results that are readily apparent in the financial and commercial resources of the city. Tyler now contains two banks, one daily, and three weekly papers, seven churches, a court house, public library with from 10,000 to 15,000 volumes, a valuable educational system, embracing among its auxiliaries the Charnwood Institute, a number of hotels, public halls, and many stores, and mercantile ventures. There are also established two machine shops, one foundry, one



fruit cannery, together with cigar, broom, and ice factories. The population of the city, which was 2,423 in 1880, was in 1900, 8,069.

**TYMPANUM** (Lat. *a drum*), in anatomy, the middle ear. In architecture, the flat space left within the sloping and horizontal cornices of the pediment of classical architecture usually filled with sculpture; also the space between the arch and lintel of doorways in Gothic architecture, which is frequently enriched with sculpture.

**TYNDALE, WILLIAM**, translator of the New Testament and Pentateuch (see **ENGLISH BIBLE**), was born in Gloucestershire about the year 1484. About his twentieth year he went to Oxford, where tradition has it that he was entered of Magdalen Hall. He afterward resided at Cambridge. Ordained to the priesthood toward the close of 1521, he entered the household of Sir John Walsh, Little Sodbury, Gloucestershire, in the capacity of chaplain and domestic tutor. Here he spent two years, and in the course of his private studies began to contemplate seriously the work of translating the New Testament into English. Finding publication impossible in England he sailed for Hamburg in May, 1524. After visiting Luther at Wittenberg, he settled in Cologne, where he made some progress with a quarto edition of his New Testament, when the interference of the authorities of the town compelled his flight to Worms. The octavo edition was here completed in 1526. From 1530 onward he lived chiefly in Antwerp, but of his life there hardly anything is recorded. At last he was arrested and thrown into prison in the castle of Vilvorde, some six miles from Brussels, in 1535. Having been found guilty of heresy, he was put to death by strangling, and his body afterward burnt at the stake on October 6, 1536.

**TYNE**, a river in the northeast of England, is formed of two branches, the North Tyne, rising in the Cheviots on the borders of Roxburgh, and the South Tyne, rising at Tynehead Fell, at the southeastern extremity of Cumberland.

The coal trade of the Tyne is the most important in England, and for its general shipping trade the river ranks next in importance to the Thames and the Mersey. The principal ports are Newcastle and North and South Shields, but below Newcastle the river is everywhere studded with piers and jetties.

**TYNEMOUTH**, a municipal and parliamentary borough of England, in Northumberland, includes the townships of Chirton, Cullercoates, North Shields, Preston, and Tynemouth. This last, the principal watering-place on this part of the coast, is picturesquely situated on a promontory on the north side of the Tyne at its mouth. The population of the municipal and parliamentary borough of Tynemouth (incorporated in 1849; area 4,303 acres), divided into the three wards of North Shields, Percy, and Tynemouth, was 48,118 in 1901.

**TYPE-FOUNDING**. See **TYPGRAPHY**.

**TYPE-WRITING**. See **WRITING MACHINES**.

**TYPHON**, or **TYPHOEUS**, son, according to Hesiod, of the Earth and Tartarus, is described as a grisly monster with a hundred dragons' heads who was conquered and cast into Tartarus by Zeus.

**TYPHOONS** (Chinese *Tei-fun*, i.e., hot wind; the word, it may scarcely be said, has no connection with the Typhon of mythology) are violent storms which blow on the coast of Tonquin and China as far north as Ningpo, and on the southeast coasts of Japan. Varenus, in his *Geographia Naturalis*, describes them as "storms which rage with such intensity and fury that those who have never seen them can form no concep-

tion of them; one would say that heaven and earth wished to return to their original chaos." They occur from May to November; but it is during the months of July, August, and September that they are most frequent. They resemble the storms of Western Europe in their general characteristics, with this difference, that the main features are more strongly marked. There is a depression of the barometer over a space more or less circular in form, accompanying the typhoon, but it is generally more contracted in area, and deeper and more abrupt than in ordinary storms. It is not uncommon for the barometer, at the center of the depression, to read 28.3 inches, and on rare occasions to fall even as low as 27 inches; and the changes of pressure are very rapid, frequently two or three inches in an hour.

It is this enormous difference of atmospheric pressure between neighboring places, and the consequent rapidity of the fluctuations, which give to these storms their terrible destructive energy, the law regulating the strength of the wind being that it is proportioned to the difference of pressure between the place from which it comes and the place toward which it blows. The low pressure in this center is confined to a very limited space, and since all around this space the pressure is greater, it follows that the level of the sea there will be higher. Hence, a high wave is frequently found to accompany these storms, advancing inland, carrying with it ruin and destruction, and not infrequently bearing ships far over the level fields, where they are left stranded a considerable distance from the sea.

Typhoons have their origin in the ocean to the east of China, especially about Formosa, Luzon, and the islands immediately to the south. They thence proceed, in four cases out of five, from east-northeast toward west-southwest, more rarely from east-southeast to west-northwest, and scarcely ever from north to south, or from south to north; in other words, their course is generally along the coast of China. The body of the storm advances at the rate of twelve miles an hour and upward, within which the winds blow often from 80 to 100 miles an hour, whirling around the center of atmospheric depression in a direction contrary to the motion of the hands of a watch, as all storms in the northern hemisphere do. They thus rotate in a direction south, east, north, or west, and travel along the coast, so the coast feels the northern side of the storm; while at a distance from the coast the southern side is alone experienced. The southwest coast **MONSOONS** (q.v.) prevail in summer over Southern Asia, to the eastward of which are the northeast trade winds. (See **WINDS**.) Here, then, are two great aerial currents flowing contiguously, but in opposite directions, each highly charged with moisture, especially the southwest current, which they have taken up from the oceans they have traversed. It is highly probable that the typhoons take the origin from these opposing currents, as whirlpools do at the meeting of two sea currents; and their intensity is aggravated by the large quantity of heat disengaged in the condensation of the vapor of the atmosphere into the deluges of rain which fall during the storm, ten or twelve inches of rain frequently falling in one day.

Much yet remains to be done toward the examination and explanation of this remarkable class of storms, the first and essential step being the establishment of meteorological stations on the Chinese coast, in Japan, in Formosa, and in Luzon.

**TYPHUS, TYPHOID, AND RELAPSING FEVERS**. These are conveniently considered together, as they constitute the important class of continued fevers, having certain characters in common, although each is clearly distinguishable from the others. The following is a general account of the more salient features of each.



TYPHUS is a continued fever of highly contagious nature, lasting for about fourteen days and characterized mainly by great prostration of strength, severe nervous symptoms, and a peculiar eruption on the skin. It has received numerous other names, such as spotted, pestilential, putrid, jail, hospital fever, etc. It appears to have been known for many centuries as a destructive malady, frequently appearing in epidemic form in all countries in Europe. Typhus fever would seem to have been observed in almost all parts of the world; but, although not unknown in warm countries, it has most frequently prevailed in temperate or cold climates.

The causes concerned in its production include both the predisposing and the exciting. Of the former the most powerful of all are those influences which lower the health of a community, especially overcrowding and poverty. Hence this fever is most frequently found to affect the poor of large cities and towns, or to appear where large numbers of persons are living crowded together in unfavorable hygienic conditions, as has often been seen in prisons, workhouses, etc. Armies in the field are also liable to suffer from this disease; for instance, during the Crimean War it caused an enormous mortality among the French troops. This disease is now much less frequently encountered in medical practice than formerly—a fact which must mainly be ascribed to the great attention which in recent times has been directed to improvement in the sanitation of towns, especially to the opening up of crowded localities so as to allow the free circulation through them of fresh air. All ages are liable to typhus, but the young suffer less severely than the old. The disease appears to be communicated by the exhalations given off from the bodies of those suffering from the fever, and those most closely in contact with the sick are most apt to suffer. This is shown by the frequency with which nurses and physicians take typhus from cases under their care. As in all infectious maladies, there is often observed in typhus a marked proclivity to suffer in the case of individuals, and in such instances very slight exposure to the contagion may convey the disease. Typhus is highly contagious throughout its whole course and even in the early period of convalescence. The contagion, however, is rendered less active by the access of fresh air; hence this fever rarely spreads in well-aired rooms or houses where cases of the disease are under treatment. As a rule one attack of typhus confers immunity from risk of others, but numerous exceptions have been recorded.

Typhus fever may prove fatal during any stage of its progress and in the early convalescence, either from sudden failure of the heart's action—a condition which is specially apt to arise—from the supervention of some nervous symptoms, such as meningitis or of deepening coma, or from some other complication, such as bronchitis. Further, a fatal result sometimes takes place before the crisis from sheer exhaustion, particularly in the case of those whose physical or nervous energies have been lowered by hard work, inadequate nourishment and sleep, or intemperance, in all which conditions typhus fever is apt to assume an unusually serious form. The mortality from typhus fever is estimated by Murchison and others as averaging about 18 per cent. of the cases, but it varies much according to the severity of type (particularly in epidemics), the previous health and habits of the individual, and very specially the age—the proportion of deaths being in striking relation to the advance of life. Thus, while in children under fifteen the death-rate is only 5 per cent., in persons over fifty it is about 46 per cent.

The treatment of typhus fever includes the prophylactic measures of attention to the sanitation of the more

densely populated portions of towns. The opening up of cross streets intersecting those which are close-built and narrow, whereby fresh air is freely admitted, has done much to banish typhus fever from districts where previously it was endemic.

TYPHOID OR ENTERIC FEVER (*έρτερον*, the intestine) is a continued fever characterized mainly by its insidious onset, by a peculiar course of the temperature, by marked abdominal symptoms occurring in connection with a specific lesion of the bowels, by an eruption upon the skin, by its uncertain duration, and by a liability to relapses.

This fever has received various names, such as gastric fever, abdominal typhus, infantile remittent fever, slow fever, nervous fever, etc. Up till a comparatively recent period typhoid was not distinguished from typhus fever. The distinction between the two diseases appears to have been first accurately made in 1836 by Messrs. Gerhard and Pennock of Philadelphia, and still more fully demonstrated by Dr. A. P. Stewart of Glasgow (afterward of London). Subsequently all doubt upon the subject was removed by the careful clinical and pathological observations made by Sir William Jenner at the London fever hospital (1849–51). A clear distinction has been established between the two fevers, not only as regards their phenomena or morbid features, but equally as regards their origin. While typhus fever is a disease of overcrowding and poverty, typhoid may occur where such conditions are entirely excluded; and the connection of this malady with specific emanations given off from decomposing organic or faecal matters, or with contamination of food or water by the products of the disease, is now almost universally admitted. Typhoid fever is much less directly communicable from the sick to the healthy than typhus. The infective agent appears to reside in the discharges from the bowels, in which, particularly when exposed and undergoing decomposition, the contagion seems to multiply and to acquire increased potency. Thus, in sewers, drains, etc., in association with putrefying matter, it may increase indefinitely, and by the emanations given off from such decomposing material accidentally escaping into houses, or by the contamination of drinking water in places where wells or cisterns are exposed to faecal or sewage pollution, the contagion is conveyed. Of the precise nature of the contagious principle we have as yet no full information, but there appears to be strong reason for believing that a specific microbe or organism plays a part in the propagation of the disease.

Typhoid fever is most common among the young, the majority of the cases occurring between the ages of fifteen and twenty-five. But children of any age may suffer, as may also, though more rarely, persons at or beyond middle life. It is of as frequent occurrence among the well-to-do as among the poor. The greater number of cases appear to occur in autumn. In all countries this fever seems liable to prevail; and, while some of its features may be modified by climate and locality, its main characteristics and its results are essentially the same everywhere.

The symptoms characterizing the onset of typhoid fever are very much less marked than those of most other fevers, and the disease in the majority of instances sets in somewhat insidiously. Indeed, it is no uncommon thing for patients with this fever to go about for a considerable time after its action has begun. The most marked of the early symptoms are headache, lassitude, and discomfort, together with sleeplessness and feverishness, particularly at night; this last symptom is that by which the disease is most readily detected in its early stages. The peculiar course of the temperature is also one of the most important diagnostic evidences of this



fever. The pulse in an ordinary case, although more rapid than normal, is not accelerated to an extent corresponding to the height of the temperature, and is, at least in the earlier stages of the fever, rarely above 100 degrees. In severe and protracted cases, where there is evidence of extensive intestinal ulceration, the pulse becomes rapid and weak, with a dicrotic character indicative of cardiac feebleness. There is much thirst and in some cases vomiting. Splenic and hepatic enlargement may be made out. From an early period in the disease abdominal symptoms show themselves with greater or less distinctness and are frequently of highly diagnostic significance. The abdomen is somewhat distended or tumid, and pain accompanying some gurgling sounds may be elicited on light pressure about the lower part of the right side close to the groin—the region corresponding to that portion of the intestine in which the morbid changes already referred to are progressing. Diarrhea is a frequent but by no means constant symptom.

About the beginning, or during the course of the second week of the fever, an eruption frequently makes its appearance on the skin. It consists of isolated spots, oval or round in shape, of a pale pink or rose color, and of about one to one and a half lines in diameter. They are seen chiefly upon the abdomen, chest, and back, and they come out in crops, which continue for four or five days and then fade away. They do not appear to have any relation to the severity of the attack, and in a very considerable proportion of cases (particularly in children) they are entirely absent. These various symptoms persist throughout the third week, usually, however, increasing in intensity. The patient becomes prostrate and emaciated; the tongue is dry and brown, the pulse quickened and feeble, and the abdominal symptoms more marked; while nervous disturbance is exhibited in delirium, in tremors and jerking of the muscles (*subsultus tendinum*), in drowsiness, and occasionally in "coma vigil." In severe cases the exhaustion reaches an extreme degree, although even in such instances the condition is not to be regarded as hopeless. In favorable cases a change for the better may be anticipated between the twenty-first and twenty-eighth days, more usually the latter. It does not, however, take place as in typhus by a well-marked crisis, but rather by what is termed a "lysis" or gradual subsidence of the febrile symptoms, especially noticeable in the daily decline of both morning and evening temperature, the lessening of diarrhea, and improvement in pulse, tongue, etc. Convalescence proceeds slowly and is apt to be interrupted by relapses (due not infrequently to errors in diet), which are sometimes as severe and prolonged as the original attack, and are attended with equal or even greater risks. Should such relapses repeat themselves, the case may be protracted for two or three months, but this is comparatively rare.

The mortality in typhoid fever varies with the character of the outbreak, the general health and surroundings of the individuals attacked, and other conditions. At one time it was regarded as, on an average, about the same as that of typhus; but under modern methods of treatment the chances of recovery are much greater, and the death-rate may be stated as about 12 per cent., or perhaps somewhat less.

The treatment embraces those prophylactic measures which aim at preventing the escape of sewer gases into dwelling houses by careful attention to the drainage and plumber work, and also secure an abundant supply of pure water for domestic use (see HYGIENE, SEWAGE, and VENTILATION). When an outbreak of the fever occurs in a family, all such matters should be specially inquired into, and the sources of milk supply care-

fully scrutinized. The discharges from the bowels of the typhoid patient should be at once disinfected with carbolic acid or other similar agent, and the greatest care taken as to their disposal, with the view of obviating any risk of contamination of drinking water, etc. The general management is conducted upon the same principles as are observed in the case of typhus, except that in typhoid fever very special care is necessary in regard to diet.

RELAPSING FEVER is a continued fever occasionally appearing as an epidemic in communities suffering from scarcity or famine. It is characterized mainly by its sudden invasion, with violent febrile symptoms, which continue for about a week and end in a crisis, but are followed, after another week, by a return of the fever.

This disease has received many other names, the best known of which are famine fever, short fever, synocha, bilious relapsing fever, recurrent typhus, and spirillum fever. As in the case of typhoid, relapsing fever was long believed to be simply a form of typhus. The distinction between them appears to have been first clearly established in 1826, in connection with an epidemic in Ireland. Outbreaks of relapsing fever have occurred in all parts of the world at times and in places where famine has arisen; but the disease has been most closely observed and studied in epidemics in Great Britain and Ireland, Germany, Poland, Russia, America, and India. It has frequently been found to prevail along with an epidemic of typhus fever.

Relapsing fever is highly contagious, and appears, like typhus, to be readily communicated by the exhalations from the body. Relapsing fever is most commonly met with in the young. One attack does not appear to protect from others, but rather, according to some authorities, engenders liability.

The extreme contagiousness of relapsing fever has occasionally been shown by its spreading widely when introduced into a district, even among those who had not become predisposed by destitution or other depressing conditions. The contagion, like that of typhus, appears to be most active in the immediate vicinity of the patient and to be greatly lessened by the access of fresh air. It is capable of being conveyed by clothing. The incubation of the disease is about one week. The symptoms of the fever then show themselves with great abruptness and violence by a rigor, accompanied with pains in the limbs and severe headache. The febrile phenomena are very marked, and the temperature quickly rises to a high point (105°–107° Fahr.), at which it continues with little variation, while the pulse is rapid (100–140), full, and strong. There is intense thirst, a dry, brown tongue, bilious vomiting, tenderness over the liver and spleen, and occasionally jaundice. Sometimes a peculiar bronzy appearance of the skin is noticed, but there is no characteristic rash as in typhus. There is much prostration of strength. After the continuance of these symptoms for a period of from five to seven days, the temperature suddenly falls to the normal point or below it, the pulse becomes correspondingly slow, and a profuse perspiration occurs, while the severe headache disappears and the appetite returns. Except for a sense of weakness, the patient feels well and may even return to work, but in some cases there remains a condition of great debility, accompanied with rheumatic pains in the limbs. This state of freedom from fever continues for about a week, when there occurs a well-marked relapse with scarcely less abruptness and severity than in the first attack, and the whole symptoms are of the same character, but they do not, as a rule, continue so long, and they terminate in a crisis in three or four days, after which convalescence proceeds satisfactorily. Second, third,



and even fourth relapses, however, may occur in exceptional cases. The mortality in relapsing fever is comparatively small, about 5 per cent. being the average death-rate in epidemics (Murchison). The fatal cases occur mostly from the complications common to continued fevers. The treatment is essentially the same as that for typhus fever (see above).

**TYPOGRAPHY** (writing by types) is the art of printing (cast metal) movable types on paper, vellum, etc. It is quite distinct, not only from writing, but from xylography or wood engraving, *i.e.*, the art of cutting figures, letters, or words on blocks of wood and taking impressions from such blocks, by means of ink or any other fluid colored substance, on paper or vellum.

Although the art of writing and that of block-printing both differ widely from printing with movable metal types, yet this last process seems to have been such a gradual transition from block printing, and block printing in its turn to have been such a natural outcome of the many trials that were probably made to produce books in some more expeditious manner than could be done with hand writing, that a cursory glance at these two processes will not seem out of place, all the less as a discussion on the origin and progress of typography could hardly be understood without knowing the state of the literary development at the time that printing appeared.

The art of printing, *i.e.*, of impressing (by means of certain forms and colors) figures, pictures, letters, words, lines, whole pages, etc., on other objects, as also the art of engraving, which is inseparably connected with printing, existed long before the fifteenth century. Impressions from stamps are found instead of seals on charters of the fifteenth century. Manuscripts of the twelfth century show initials which, on account of their uniformity, are believed to have been impressed by means of stamps or dies. But the idea of multiplying representations from one engraved plate or block or other form was unknown to the ancients, whereas it is predominant in what we call the art of block-printing, and especially in that of typography, in which the same types can be used again and again.

Block-printing and printing with movable types seem to have been practiced in China and Japan long before they were known in Europe. It is said that in the year 175 the text of the Chinese classics was cut upon tablets, which were erected outside the university, and that impressions were taken of them, some of which are said to be still in existence. Printing from wooden blocks can be traced as far back as the sixth century, when the founder of the Suy dynasty is said to have had the remains of the classical books engraved on wood, though it was not until the tenth century that printed books became common. In Japan the earliest example of block-printing dates from the period 764-770. It is said that the Chinese printed with movable types (of clay) from the middle of the eleventh century. The authorities of the British Museum exhibit as the earliest instance of Corean books printed with movable types a work printed in 1337. To the Coreans is attributed the invention of copper types in the beginning of the fifteenth century.

From such evidence as we have it would seem that Europe is not indebted to the Chinese or Japanese for the art of block-printing, nor for that of printing with movable types.

In Europe, as late as the second half of the fourteenth century, every book (including school and prayer books), and every public and private document, proclamation, bull, letter, etc., was written by hand; all figures and pictures, even playing-cards and images of saints, were drawn with the pen or painted with a brush. In the

thirteenth century there already existed a kind of book trade. The organization of universities as well as that of large ecclesiastical establishments was at that time incomplete, especially in Italy, France, and Germany, without a staff of scribes and transcribers (*scriptores*), illuminators, lenders, sellers, and custodians of books (*stationarii librorum, librarii*), and *pergamenarii*, *i.e.*, persons who prepared and sold the vellum or parchment required for books and documents. The books supplied were for the most part legal, theological, and educational, and are calculated to have amounted to above 100 different works. As no book or document was approved unless it had some ornamented and illuminated initials or capital letters, there was no want of illuminators. The workmen scribes and transcribers were, perhaps without exception, calligraphers, and the illuminators for the most part artists. Beautifully written and richly illuminated manuscripts on vellum became objects of luxury which were eagerly bought and treasured up by princes and people of distinction.

When all this writing, transcribing, illuminating, etc., had reached their period of greatest development, the art of printing from wooden blocks (block-printing, xylography) on silk, cloth, etc., vellum, and paper made its appearance in Europe. It seems to have been practiced, so far as we have evidence, on cloth, etc., and vellum as early as the twelfth century, and on paper as far back as the second half of the fourteenth century. It is certain that in about 1400 xylography was known all over Germany, Flanders, and Holland.

In these blocks, as in wood-engraving now, the lines to be printed were in relief. The block, after the picture or the text had been engraved upon it, was first thoroughly wetted with a thin, watery, pale brown material, much resembling distemper; then a sheet of damp paper was laid upon it, and the back of the paper was carefully rubbed with some kind of dabber or burnisher, usually called a *frotton*, till an impression from the ridges of the carved block had been transferred to the paper. In this fashion a sheet could only be printed on one side (anopisthographic); and in some copies of block-books we find the sides on which there is no printing pasted together so as to give the work the appearance of an ordinary book.

Formerly it was the general opinion that playing-cards had been the first products of xylography; but the earliest that have been preserved to us are done by hand, while the printed ones date from the fifteenth century, therefore from a period in which woodcuts were already used for other purposes. It is believed that some of the wood engravings and block-books were printed in monasteries.

The earliest dated woodcut that we know of is the St. Christopher of 1423, preserved in the library of Lord Spencer at Althorp. The Mary engraving, which is preserved at Brussels and apparently bears the date mccccxviii., is now declared to be of 1468, the date having been falsified. The next date after that of the St. Christopher is 1437, found on a woodcut preserved in the imperial library at Vienna. It was discovered in 1779 in the monastery of St. Blaise in the Black Forest, and represents the martyrdom of St. Sebastian, with fourteen lines of text. The date, however, is said by others to refer to a concession of indulgences. A woodcut, preserved in the library at Vienna, which represents St. Nicholas de Tolentino, has the date 1440, but written in by hand.

Leaving out of sight the question as to when, where, and by whom the art of printing with movable metal types was invented, and taking our stand on well-authenticated dates in such printed documents as have been



preserved to us, we find that the first printed date, 1454, occurs in two different editions of the same letters of indulgence issued in that year by Pope Nicholas V. in behalf of the kingdom of Cyprus. These two editions are distinguished respectively as the 31-line and the 30-line indulgence.

On January 18, 1465, Adolph II., archbishop of Mainz, appointed "Johan Gudenberg, on account of his grateful and willing service, his servant and courtier for life, promising to supply him with clothing and each year twenty 'malter' of corn, and two 'fuder' of wine." It has always been inferred from this that Gutenberg had quitted Mainz and gone to Eltville (Eltfeld) to reside at the archbishop's court, and that, his dignity as courtier preventing him from printing himself, he passed the *Catholicon* types on to Henry Bechtermunze at Eltville. But recent researches have shown that Gutenberg remained at Mainz till his death, in 1468.

Fust and Schoeffer worked together from 1457 to 1466, starting in August, 1457, with an edition of the *Psalterium*, printed in large missal types, which, as far as we know, is the first printed book which bears a date, besides the place where it was printed and the name of the printers. It was reprinted with the same types in 1459 (the second printed book with date, place, and name of printer) in 1490, and in 1502 (the last work of Schoeffer, who had manufactured the types). In 1459 Fust and Schoeffer also published Gul. Durantus, *Rationale Divinorum Officiorum*, with the small type (usually called Durandus type) with which they continued to print long afterward. In 1460 they published the *Constitutiones* of Pope Clement V., the text printed in a type (Clement type) about a third larger than the Durandus. This type was, however, in existence in 1459, as the colophon of the Durandus is printed with it.

Having explained the early printing of Mainz, in so far as it bears upon the controversy as to where and by whom the art of printing was invented, we can follow its spread to other countries. After Mainz it was first established in 1460 at Strasburg.

Till the moment (say 1477) that printing spread to almost all the chief towns of Germany, Italy, Switzerland, France, the Netherlands, Spain, England, not a single printer carried away with him a set of types or a set of punches or molds from the master who had taught him, but, in setting up his printing office, each man cast a set of types for his own use, always imitating as closely as possible the handwriting of some particular manuscript which he or his patron desired to publish. Thus, the first printers of Subiaco, though they were Germans and had most probably learned the art of casting types and printing at Mainz, clearly cut their types after the model of some Italian MS. which was free from any Gothic influence, but written in a pure Caroline minuscule hand, differing but slightly from the Caroline minuscules which the same printers adopted two years afterward at Rome. The first Paris printers started in 1470 with a type cast in the most exact manner, on the model of the Caroline minuscule handwriting then in vogue at Paris. John de Westphalia, who introduced printing into Belgium, used from the beginning a type which he calls Venetian.

Another most important feature in the earliest books is that the printers imitated, not only the handwriting, with all its contractions, combined letters, etc., but all the other peculiarities of the MSS. they copied. There is in the first place the unevenness of the lines, which very often serves as a guide to the approximate date of a book, especially when we deal with the works of the same printer, since each commenced with uneven lines, and gradually made them less uneven, and finally even. This unevenness was unavoidable in manuscripts as well

as in block-books; but in the earliest printed books it is regarded as evidence of the inability of the printers to space out their lines. If this theory be correct, this inability was perhaps owing to the types being perforated and connected with each other by a thread, or to some other cause which has not yet been clearly ascertained.

Now that we have traced the art of printing from the moment (1454) that it made its appearance in a perfect state at Mainz, and have followed its spread to all the chief places of Europe, we must take notice of the controversy which has been carried on for nearly 400 years as to when, where, and by whom the art was invented.

We need not say much about the story of Antonio Cambruzzi, who asserted that Pamfilo Castaldi invented printing at Feltre, in Italy, in 1456, and that Fausto Comesburgo, who lived in his house in order to learn the Italian language, learned the art from him and brought it to Mainz; this story, however, has found so much credence that in 1868 a statue was erected at Feltre in honor of Castaldi. Nor need we speak of Kutenberg in Bohemia, where John Gutenberg is asserted to have been born and to have found the art of printing. We may also pass over Johann Fust, later on called Faust, as we know from the Mainz lawsuit of 1455 that he had simply assisted Gutenberg with loans of money. We may also pass over Johann Mentelin of Strasburg, only remarking here that he had already printed a Bible in 1460, and that he is mentioned in Strasburg registers as a chrysographer or gold-writer from 1447 to 1450; but of his whereabouts between 1450 and 1460 there is no record. That he had gone, or had been called, after 1450 by Gutenberg to Mainz has been asserted but not proved, and there is no reason why he should not be one of the two Johannes alluded to as the *prothocaragmatici* of Mainz in the Justinian of 1468.

In former years, when printing was believed to have been invented in 1440, the records of the Strasburg lawsuit of 1439, between Gutenberg and some Strasburg artisans about certain industrial undertakings (as the art of polishing stones, the manufacture of looking-glasses) were considered to prove the invention of printing at Strasburg, not, however, by Mentelin, as had been thought by some, but by Gutenberg. The records came to light about 1740, just when Schoepflin, the principal discoverer, had been commissioned to search for documents of this kind. Doubts may be suggested as to their genuineness, but they have all perished, partly during the revolution of 1793 and partly during the siege of Strasburg in 1870. However, nobody would now assert that printing was invented in 1439 or at Strasburg; and those who still believe that Gutenberg was the inventor of printing refer to them only as showing that he was a mechanic as early as 1439, and that he understood the art of pressing.

There is no reason whatever to discredit Zell's statement in the *Cologne Chronicle* of 1499, that the *Donatuses* printed in Holland were the models, the "beginning" of the art of printing, at Mainz, nor that of Hadrianus Junius in his *Batavia*, that printing was invented at Haarlem by Lourens Janszoon Coster. The two statements were made independently of each other. That of Zell must be regarded as a direct contradiction of the vague rumors and statements about an invention of printing at Mainz in Germany by Gutenberg, which gradually crept into print in and after 1468 in Italy and France; and which found their way into Germany about 1476, after Mainz and Germany had given the greatest publicity to the existence of the art in their midst for more than twenty-two years, but had been silent about an invention and an inventor. And, though Zell ac-



cords to Mainz the honor of having improved the art and having made it more artistic, he denies it the honor of having invented or begun it, and this latter honor was never claimed by that town before 1476. As the case stands at present, therefore, we have no choice but to say that the invention of printing with movable metal types took place at Haarlem about the year 1445 by Lourens Janszoon Coster.

Granting that the earlier works of typography preserved to us are impressions of cast-metal types, there are still differences of opinion, especially among practical printers, as to the probable methods employed to cast them. It is considered unlikely that the inventor of printing passed all at once to the perfect typography of the punch, the matrix, and the mold. Bernard considered that the types of the *Speculum* were cast in sand, as that art was certainly known to the silversmiths and trinket-makers of the fifteenth century; and he accounts for the varieties observable in the shapes of various letters on the ground that several models would probably be made of each letter, and that the types, when cast by this imperfect mode, would require some touching up or finishing by hand.

Another suggested mode is that of casting in clay molds, by a method very similar to that used in the sand process, and resulting in similar peculiarities and variations in the types.

The history and nomenclature of the earliest types are practically a continuation of the history and nomenclature of the characters figured in the earliest block-books, wood-engravings, and MSS. For instance, Gothic type was first seen about the year 1445; but it should not be forgotten that the Gothic writing, of which that type was an imitation, was already known and used about the second half of the twelfth century. Again, the pure Roman type, which appeared about 1464, is nothing but an imitation of what in paleography is called the Caroline minuscule, a handwriting which was already fully developed toward the end of the eighth century. Consequently, details as to the history and development of the various types properly belong to the study of PALEOGRAPHY, (q. v.)

Though the *Cologne Chronicle* of 1499 denies to Mainz the honor of the invention of the art of printing, it was right in asserting that, after it had been brought there from Holland, it became much more masterly and exact, and more and more artistic. During the first half century of printing a good many printers distinguished themselves by the beauty, excellence, and literary value of their productions.

Very soon the demand for books increased, and with it came a reduction in their prices. This caused a decline in the execution of printing, which begins to be appreciable about 1480 in some localities, and may be said to have become general toward the end of the fifteenth century. At all times, however, we find some printers raise their art to a great height by the beauty of their types and the literary excellence of their productions.

The Italic type is said to be an imitation of the handwriting of Petrarch, and was introduced by Aldus Manutius of Venice for the purpose of printing his projected small editions of the classics. The cutting of it was intrusted to Francesco da Bologna, an artist who is presumed to be identical with the painter Francesco Francia or Raibolini. The font is a "lower case" only, the capitals being Roman in form. It contains a large number of tied letters, to imitate handwriting, but is quite free from contractions and ligatures. It was first used in the *Virgil* of 1500. Aldus produced six different sizes between 1501 and 1558. Originally it was called Venetian or Aldine, but subsequently Italic

type, except in Germany and Holland, where it is called "cursive." In England it was first used by Wynkyn de Worde in Wakefield's *Oratio* in 1524. The character was at first intended and used for the entire text of classical works. When it became more general, it was employed to distinguish portions of a book not properly belonging to the work, such as introductions, prefaces, indexes, notes, the text itself being in Roman. Later it was used in the text for quotations, and finally served the double part of emphasizing certain words in some works, and in others, chiefly translations of the Bible, of marking words not rightly forming a part of the text.

Greek type (*minuscules*) first occurs in Cicero, *De Officiis*, printed at Mainz in 1465 by Fust and Schoeffer. The font used is rude and imperfect, many of the letters being ordinary Latin. The Dutch founders effected a gradual reduction of the Greek typographical ligatures. Early in the nineteenth century a new fashion of Greek, for which Porson was sponsor and furnished the drawings, was introduced, and has remained the prevailing form to this day.

The first Hebrew types are generally supposed to have appeared in 1475. But the Hebrew font made use of in Walton's *Polyglott* in 1657 was probably the first important font cut and cast in England, though there were as yet no matrices there for Rabbinical Hebrew. In the beginning of the eighteenth century Amsterdam was the center of the best Hebrew printing in Europe.

The first book printed in Arabic types is said to be a *Diurnale Gracorum Arabum*, printed at Fano, in Italy, in 1514.

The earliest specimen of music type occurs in Higden's *Polychronicon*, printed by De Worde at Westminster in 1495. The square notes appear to have been formed of ordinary quadrats, and the staff-lines of metal rules imperfectly joined. In Caxton's edition of the same work in 1482 the space had been left to be filled up by hand. The plain chant in the Mainz psalter of 1490, printed in two colors, was probably cut in wood. Hans Froschauer, of Augsburg, printed music from wooden blocks in 1473, and the notes in Burtius' *Opusculum Musices*, printed at Bologna in 1487, appear to have been produced in the same manner; while at Lyons the missal printed by Matthias Hus in 1485 had the staff only printed, the notes being intended to be filled in by hand. About 1500 a musical press was established at Venice by Ottavio Petrucci, at which were produced a series of mass-books with lozenge-shaped notes, each being cast complete with a staff-line.

Printing for the blind was first introduced in 1784 by Valentin Haüy, the founder of the asylum for blind children in Paris. He made use of a large script character, from which impressions were taken on a prepared paper, the impressions being so deeply sunk as to leave their marks in strong relief and legible to the touch. Haüy's pupils not only read in this way, but executed their own typography, and in 1786 printed an account of their institution and labors as a specimen of their press. The first school for the blind in England was opened in Liverpool in 1791, but printing in raised characters was not successfully accomplished till 1827, when Gall, of the Edinburgh asylum, printed the Gospel of St. John from angular types. Alston, the treasurer of the Glasgow asylum, introduced the ordinary Roman capitals in relief, and this system was subsequently improved upon by the addition of the lower-case letters by Doctor Fry, the type founder, whose specimen gained the prize of the Edinburgh Society of Arts in 1837. Several rival systems have competed in England for adoption, of which the most important are those of



Lucas, Frere, Moon, Braille, Carton, and Alton; the last named, as perfected by Doctor Fry, seems likely to become the recognized method of printing for the blind in all European countries.

Printing has been defined to be the act, art, or practice of impressing letters, characters, or figures on paper, cloth, or other material, the definition being based on the etymology (Old Fr. *empreindre*, from Lat. *imprimere*). Technically the same definition might be applied to such arts as those of calico and oilcloth printing, and even of molding, embossing, coining, and stamping; but in point of fact these are never understood when the word "printing" is employed. There is also printing without pressure, such as photographic printing. The use of a pigment or ink must be regarded as an indispensable element. The application of the term is therefore confined to the use of pressure and a pigment for literary and pictorial purposes. As thus defined, printing includes three entirely different processes—not inaptly called the polygraphic arts—viz., chalcography or copperplate printing (compare ENGRAVING, LITHOGRAPHY (*q.v.*) or chemical stone-printing, and typography or letterpress printing.

The difference between the three methods lies essentially in the nature or conformation of the surface that is inked, and which afterward gives a reproduction or image in reverse on the material to be impressed. In copperplate printing the whole of a flat surface is inked, and a portion of the ink sinks into an incision or trench, in which it still remains after the surface is cleansed. When pressure is brought to bear, this ink is transferred to the paper, giving an impression of a line. In lithographic printing the flat surface is protected except at certain places, where it is slightly coated with the ink, which practically leaves the stone quite level, but also marks a line when pressure is brought to bear. In typography the printing surface is in relief. It alone receives ink, the remainder being protected by its lower level. Any kind of printing done from a relief surface belongs to letterpress printing, such as a woodcut, a casting in metal, india-rubber, celluloid, xylonite, etc. (or "stereotype"), or a deposition by electricity (or "electrotype"). The typographic method requires a surface that is more difficult to form than either of the other two. In lithography the surface may be obtained by merely writing or drawing on the stone; in copperplate printing the line may be immediately incised into or scratched on the plate; but for letterpress printing the surface between the lines in relief has to be cut away. Hence the tediousness of wood-engraving, in which all the surface of the block has to be removed except those parts that are to be printed from and which form the black lines in the impression; and the conformation of a type surface is similar.

Typography, however, has many compensating advantages. Impressions are taken with much greater facility. The inking appliance glides over the relief lines to be printed from, whereas it would cling to the entire surface of the stone or the metal; hence much greater pressure would be required in these cases. The unprintable part of the stone in lithography has to be damped, so as to repel the ink; the same portion has to be inked and then cleaned off in copperplate printing; but in letterpress printing the ink only that has to be transferred to the paper needs to be applied to the type. When the design has been drawn on the stone or scratched into the copper, the result does not admit of any further application beyond that at first contemplated. But in letterpress printing the surface may be of a composite character. It may be formed of single pieces repre-

sented the several letters, and these, when once formed, may be employed in endless combinations. Only by such means are cheap newspapers and books possible. Before the invention of typography (as in the East to the present day), the different pages of a book were printed from wooden blocks, cut after the manner of a wood-engraving. Blocks of this kind are of no use for printing after their first purpose has been fulfilled. They must necessarily be made very slowly and with much labor. In forming a page of a book, on the other hand, by the typographic method there need (excluding necessary wear and tear) only be the cost of "composing" the types and of "distributing" them into their proper receptacles, from which they may be re-taken many times to form other compositions.

Exclusive of such printing surfaces as wood-blocks and casts, the letters, marks, and signs with which letterpress printing is executed are called *types*, a proportioned quantity of each of the letters of the alphabet in any one body or face forming a *font*. A book-work font contains single letters, diphthongs, ligatures (such as ff, fl), accented letters, figures, fractions, points, reference marks, dashes or metal rules (as —), leaders (as . . .), braces (—), and signs (as &, §). It also includes quadrats—pieces of metal of various widths, which do not print, but are used to compensate for the shortness of occasional lines, as at the close of a paragraph—and spaces, which separate words and letters. There are thus about 226 separate characters in every ordinary English book-work font.

According to the purposes for which they are used, types are divided into two classes—book type, including Roman and Italic, and job type, including a multitude of fanciful forms of letters, chiefly founded on the shape of the Roman and Italic letters, and intended to be more prominent, delicate, elegant, etc. It is impossible to enumerate all the varieties of the latter class, as additions are being constantly made and once popular styles always going out of fashion.

Large letters, such as are employed for large bills and posters, are made of wood, chiefly rock maple, sycamore, pine, and lime. These are cut up, planed to the required size, and then engraved, generally by special machinery, this being a business quite distinct from that of letter-founding. The larger letters are designated as two line, three line, four line, etc.—meaning twice, thrice, or four times the depth of face of pica or great primer, etc.

Type metal is an alloy, of which lead is the principal ingredient; but, owing to its softness, antimony and tin are added. A patent type metal (Besley's) was invented in 1855, in which the mixture consisted of lead, regulus of antimony, tin, nickel, copper, and bismuth. Nearly all type is now made with some of these metals superadded. Ductility, hardness, and toughness are the prime requisites of a type metal.

The earliest printers made their own types, and the books printed from them can now be distinguished with almost as much certainty as handwriting can be identified. The modern printer has recourse to the type-founder.

*Type-Setting or Composing.*—We may now describe the manipulation of the types in the printing office, and for the sake of conciseness reference must be made only to the operations connected with ordinary book-work. These differ in details from the methods in use in the other two departments of the printing business—news-work and job-work.

The types, received from the foundry in the packages called pages, are placed in shallow trays called *cases*. These contain compartments or *boxes*, each of which is appropriated to some particular *sort* or character. The

cases when in use stand on *frames* or sloping desks. The case at the top is the *upper case*, and that below the *lower case*. The former contains ninety-eight equal-sized boxes, appropriated principally to the capital and small capital letters; the latter has fifty-three boxes of various sizes, appropriated to the lower-case sorts. The difference in the size of the boxes corresponds to the difference of quantity of letters in a font, as already stated—the lower-case e, for instance, having the largest box. The localization of the letters, etc., is a subject on which opinions differ, the object being to bring the letters most frequently required nearest to the hand of the compositor as he stands at work. As a man picks out from the boxes seldom less than 1,500 letters per hour and distributes or replaces on the average about 5,000 per hour, it is necessary that the most economical allocation of the boxes should be adopted.

The types when taken from the cases are arranged in lines or "composed" in an instrument called a *composing stick*, made of iron, brass, or gun metal. The slide in the middle is movable so as to accommodate varying lengths of lines. In the composing room the frames are arranged in rows, supporting the cases. The compositor fixes the "copy," or document which he is to repeat in type, in a convenient place before his eye, and on some part of the case that is seldom used. In his left hand he holds the composing stick, and with the thumb and first finger of the right hand lifts the letters from the boxes, and arranges them in the composing stick, every letter, point, or sign being picked out separately. In this operation he is much assisted by the use of a *setting-rule*, a thin brass or steel plate which, being removed as successive lines are completed, keeps the type in place. When so many words and parts of words as will nearly fill the line have been composed, it is made the exact length required by inserting or diminishing the space between the several words. This is called *justifying* the line and is effected by means of the spaces already mentioned. If the work is not "solid"—that is, if the lines are not close together—the strips of metal called *leads* are used. They vary in thickness, but always form aliquot parts of pica body. A good compositor must possess intelligence and a reasonable amount of general knowledge: he must be able to read his copy with readiness, and to understand its meaning, in order to punctuate it properly. He should be able to spell correctly, as some copy is almost undecipherable in regard to separate letters, while other copy is incorrectly spelled. When the composing stick is filled, the type is lifted on to a *galley*, a shallow tray of metal, two or three sides of which are flanged, for the purpose of supporting the type, when the galley is slightly inclined. Stickful after stickful of type is placed on the galley until it is full. The matter is then fastened up, a proof taken at the proof press, and the work of the *reader* or corrector of the press—described below—begins. The proof, marked with the necessary corrections, is given back to the compositor, in order that he may make the required alterations in the type.

The type, being duly corrected, is made up into pages of the required length (unless the author has desired to see proof in *slip*). It is then *imposed*, that is, the pages are arranged in such a manner that, when printed and the sheet folded, they will fall in due numerical sequence. The impression from any arrangement of pages will be the reverse of that in which they are laid down.

When a printed book is opened, it will be found that at the foot of certain pages there is usually a letter and at the foot of another a letter and a figure, as B, B 2; further on another letter and another letter and figure. On going through the book it will be seen that the letters are in regular alphabetical order, and occur at regu-

lar intervals of eight, twelve, sixteen, etc., pages. These designate the several sheets of which the book is composed and are called *signatures*, so that a sheet may be designated B, and the pages of which are thereby sufficiently indicated.

The pages of type are arranged in proper order on a flat table, covered with stone or metal, called the *imposing stone*, and are then ready to be made into a *form*, that is, in such a state that they can be securely fastened up and moved about. The form is inclosed in an iron frame or *chase*, subdivided by a cross bar. The portions of the type are separated by *furniture*, which may be of metal or wood or both. It is of the same height as the chase, but lower than the type, and therefore does not print, but forms the margin of the printed pages. At the sides of the two sections of the forms are pieces of furniture of a tapering shape, called *side-sticks*, and at the top and bottom corresponding pieces, called *foot-sticks*. Small wedges, called *quoins*, are inserted and driven forward by a mallet and a *shooting-stick*, so that they gradually exert increasing pressure upon the type. Other mechanical means for locking up are also occasionally adopted. When sufficiently locked up, the whole is quite as firm and portable, however many thousands of pieces of metal it may consist of, as if it were a single plate. In this rapid sketch we purposely omit mention of several operations which, though important and indispensable, are only of interest to the workman.

For many years endeavors have been made to construct machines for type-setting which should obviate hand labor. Picking out the types separately from their boxes and arranging them singly in the composing stick is an irksome and monotonous operation, and one which it might be thought comparatively easy to perform by automatic machinery. But of the many different composing machines that have been invented less than half a dozen have stood the test of practical experience. These have been confined to special classes of work, and it is open to doubt whether the nimble fingers of a good compositor, aided by the brains which no machinery can supply, do not favorably compare on the ground of economy with any possible mechanical arrangement. On the other hand, employers and makers of machines allege that owing to the opposition of the men machine type-setting has not had fair play. However that may be, it is undeniable that a composing machine is still rare in printing offices, and where employed it is only as an auxiliary to the ordinary labor of the men.

For many years it was a favorite idea with inventors, especially those who were not practical printers, that great economy might be gained in composition by the use of word-characters or "logotypes," instead of single letters. The constant repetition of many words seemed to suggest that they might be cast in one piece. Combinations suitable for affixes and suffixes as ad-, ac-, in-, -ing, -ment, etc., it was also suggested, should be used instead of the single component letters. The suggestion, has, however, not been carried out, at least to any considerable extent. The chief practical objection to it is that it involves the use of cases with an inconveniently large number of boxes. The more the variety of characters is multiplied the more "travel" of the compositor's hand over the cases is necessary for picking them up, and by so much is the speed of his work retarded. Logotypes, too, are more liable to accident; when one letter is damaged the combination is rendered useless.

The correction of the type is a subject that should be understood by all who have to do with printing, as many mistakes are made on the part of authors which a little technical knowledge would prevent. In the



course of setting any copy or MS. which may be given him, the compositor unavoidably picks up some wrong letters, or mistakes the words in the copy before him, or fails to follow the style prescribed for the work. These are called *printer's errors*. When the compositor has finished his task, a first proof of the matter is taken. The proof is read through and compared with the copy by the proof-reader, or *corrector of the press*, and an assistant, the *copy-holder*, or reading-boy. The proof is then sent back to the compositor, and the latter is required to correct all inaccuracies indicated therein—in fact, to attend to all the directions given by the reader—and this has to be done at his own cost if he is working on piece—that is, paid by results according to work done—or by the employer if he is working “on establishment wages,” or paid by time. Another proof, called a *revise*, is now taken; this is carefully compared with the previous proof. If the corrections have not all been made, the revise is marked accordingly, and sent back to the compositor, who is required to remedy the imperfections. When the proof is deemed accurate, or “clean,” it is sent, generally along with the copy, to the author—being now termed an author's proof. Finally, in the printing office, the matter is carefully re-read and compared with the last author's proof by the press-reader, who signs it, and on his responsibility the type is printed off.

The operation of distributing the types is the converse of that of composing; it is de-composing the form and returning the several letters to their proper boxes in the case. The form is first washed over with an alkaline or other detergent, to remove the ink from its surface, and then laid down on the imposing surface, unlocked, and damped; this assists the cohesion of the type, after the chase, furniture, side sticks, etc., are removed. The compositor then takes in his left hand, supported by a setting rule, a portion of type in lines, and with the right hand takes a word or so between the finger and thumb, letting each letter drop separately into its proper box. There is hardly any operation which so strikes a spectator as distributing, for a competent distributor literally showers the types into their receptacles. The types are held upside down, that is, with the nicks uppermost; hence the letters of each word are read from left to right like ordinary matter when printed, but the words are, of course, dealt with in the inverse order.

The method of reproducing and multiplying letter-press printing surfaces by taking casts of them, or stereotypes, has greatly conduced to the progress of typography—much more so, indeed, than might be realized by those who are unacquainted with the practical details of the art. Stereotyping (*στέρεος*, fixed or solid; *τύπος*, type or form) is the method of taking casts from a fixed or movable form; thus, printing from stereotypes is distinguished from typography, in which impressions are taken from movable types. It does not supersede type-founding, but supplements it, for a page of reading matter requires first of all to be set up letter by letter, and then the casts or plates are taken, each of which may be printed from with nearly as much perfection as from the original form. Hence a printing surface may be reproduced to an almost infinite extent, and the means of production of impressions on the press or machine are increased in proportion to the number of casts taken. It insures an accurate copy of an original text, whereas in reproduction by resetting the movable types there is a liability to deviation. When only a cast is worked from, any accident may be repaired by taking another cast, and the cost is slight compared with that of composing over again. A smaller quantity of type may be used in an

office where this process is used; a portion of a work may be set up, a cast taken, and the types returned to the cases. The plates are more easily stored than movable forms, and are not liable to the danger, as in the latter, of types falling out. Above all, the mold may be bent to any curve required, and a circular cast obtained, which may be fastened round the cylinder of a machine (see *infra* in regard to rotary printing).

The process of stereotyping, divested of merely technical details, is as follows: From a form of matter, which may be wholly or in part composed of movable types, a matrix or mold is taken. The original is in rilievo; the mold consequently is in intaglio. From this the stereo plate is cast, and it of course is again in rilievo. This in turn may likewise become an original, and casts may be taken from a plate, or other casts from the same mold. The first books were printed from solid wooden blocks, each of which formed a page. Then came the era of typography, in which these pages were composed, mosaic-like, of movable types. Now has succeeded the period of stereotyping, in which pages formed of single blocks—but of metal, not of wood—are used. The two essential parts are, therefore, the making of the matrix and of the cast, which is composed of an alloy something like that for type metal.

In newspaper establishments where stereotyping is adopted the pages are not all made up simultaneously: some are kept open till the last for the latest telegrams. The moment a page is completed and locked up in its chase it is sent down to the foundry, and as many casts taken as there are printing machines to be set going. One page follows another with rapidity, the first being placed in position on the machine, while the later ones are in the foundry. When all the plates are finished and fixed in their places, six, eight, or ten machines may be simultaneously printing at the rate of nearly 12,000 per hour each. The enormous increase in the circulation of the great daily newspapers would have been impossible but for the extraordinary facilities for rapid production provided by stereotyping. This process is also of special utility to the newspaper printer in the case of telegrams arriving late.

Machines have been invented to do away with the use of types altogether. The principle is to punch the characters successively on some substance which will become a mold from which stereo plates may be cast.

For the reproduction of wood engravings electrotyping has nearly superseded stereotyping, as it produces much better copies. For obtaining plates of type matter it is also better than stereotyping, as many thousands of impressions may be taken without reducing the sharpness of an electro, while ordinary stereotype would be almost worn out by printing a much smaller number. This arises from the superior hardness and toughness of copper, of which the surface of the electro is formed. Electrotyping, however, is costlier and slower.

Formerly the only available method of obtaining illustrations which could be printed on the letter-press in conjunction with type was that of wood-engraving. At the present time a number of comparatively new processes are in operation, in which the engraving is done almost automatically by the adoption of chemical processes and the well-known principles of photography. Engravings of this kind are called in the trade *process* plates, zinc etchings, half-tone engravings, and photo engravings.

The characteristic of printing, as already pointed out, is that the pigment—the ink—with which the printing surface of the type is coated is transferred to the paper or other material by pressure. The manner

in which this pressure is exerted gives rise to two classes of machinery—those in which the platen and the cylinder respectively are employed. After the paper is placed on the type, in the one case a flat plate of iron moves parallel to the form and comes in contact with it, causing the impression on the paper, while in the other case a cylinder revolves over the surface, which travels in gearing with the cylinder.

Space does not permit of any sketch, however slight, of the origin and progress of type-printing machinery. In America all kinds of apparatus for printing are called "presses;" in England, however, an appliance of a more automatic character than the hand-press is usually called "a machine."

*Color Printing.*—When two colors or more have to be printed in one composition, there must be a separate type form or separate engraving, and a separate printing, for each. Many attempts have been made to print several colors simultaneously by dividing the trough or manipulating the rollers. All these have been more or less unsuccessful, with the exception of a press invented by Mr. W. Consibee, which prints from type forms in two colors. In construction it is somewhat similar to the ordinary single-cylinder machine, but is provided with two sets of inking apparatus, including ductor, wavers, and inkers, each of which acts totally independent of the rest. The cylinder is placed in the center of the machine and makes two continuous revolutions, giving an impression for each color. There are two type-forms, each containing only the lines to be worked in one of the colors. These are in two beds adjoining one another, and, the circumference of the cylinder being equal to the length of one bed, one color is printed by the first revolution and the other by the second. The sheet is thus printed twice without being released from the grippers, whereby perfect register is insured. The speed is slow, averaging 300 to 400 complete impressions per hour.

The method by which the beautiful colored supplements issued occasionally with illustrated newspapers are printed may be referred to. A copy of the artist's painting is first of all made, on a scale regulated by the size of the reproduction. This being supplied to the engraver, an outline or key block is made and proofs pulled. It is now necessary to determine the tones of color to be used—a process demanding great experience. The key block will, if printed first, afford a guide for the registration of the subsequent printings; sometimes, however, that is reserved for a later stage. The colors on which the subsequent printings are done must be of a transparent nature. The blocks are sometimes produced by the typographic etching process, which gives a softness, delicacy, and variety unattainable by the graver. The blending of the colors is the most delicate task the printer has to undertake. A large picture is often printed in ten or more workings, some of them in their turn intensifying and bringing previous color workings into stronger relief, others giving shape and form to the picture. Almost to the end of the process, however, the picture will want vitality; its outlines will be hard and bare, or vague and undefined, according to the sequence of the colors. Another working may give gray tones where wanted, and may increase the depth and transparency in various parts. A deep flesh working may have a marked effect on the development; and, near the close of the series, if the entire coloring is found to be too warm, it may be corrected by over-printing very nearly the whole subject. Chromo-typography has undoubtedly made great strides during the past twenty years, its best results being shown in the colored prints for illustrated journals. For the production of pictures for commer-

cial and artistic purposes chromo-lithography is generally resorted to on account of its relative economy. In lithography for typographic purposes the line has to be cut and the space on both sides removed so as to leave the line alone to be charged with the ink, or the white space has to be etched away with an acid. The printing of isolated points, too, is easily effected from a stone, whereas most minute labor is necessary to engrave them.

TYR. See *ÆSIR*.

TYRANT, a name given in modern times to an arbitrary and oppressive ruler, but originally applied, not necessarily to one that exercised the power badly, but merely to one that had obtained it illegally, and, therefore, equivalent to our word "usurper." The ancient Greek "republics," it must be remembered, were generally aristocratic and even oligarchic in their constitution. When the "governing families" among the Athenian or Syracusan nobles, for example, quarreled with each other, it was natural, if they could not otherwise agree, that the boldest and most reckless of the set should seek for success by allying himself with the masses of the people, should figure as their champion, promise to redress their wrongs, or increase their comforts, and, when a fitting occasion presented itself, should, by clever, if somewhat violent stratagem (*coup d'état* it is now called), deliver them from the domination of his order by himself grasping possession of absolute power and ruling without any other restraint than the necessity of retaining his popularity imposed; even this limitation being frequently absent when a body-guard of foreign mercenaries rendered it superfluous.

If the political adventurer who thus rose on the ruins of the constitution happened to be a man of sense and wisdom, and generosity, his "tyranny" might prove a blessing to the state torn by the animosities of selfish oligarchs, and be the theme of praise in after ages, as was the case with the "Tyrannies" of PISISTRATUS (*q.v.*), GELON (*q.v.*), HIERO II. (*q.v.*), and many others; but if he was insolent, rapacious, and cruel, then he sought to reduce the citizens to a worse than Egyptian bondage, and his name became infamous to all time. Such has been the fate of most of the "THIRTY TYRANTS" OF ATHENS (*q.v.*), more particularly of the blood-thirsty Critias, of Alexander of Pheræ, of Dionysius the Younger, etc. It was the method of exercising authority pursued by these and similar usurpers that latterly, even in ancient times, gave the word tyrant that evil significance it has ever since uninterruptedly retained.

TYRCONNEL, RICHARD TALBOT, DUKE AND EARL OF, was born early in the seventeenth century. In his youth, according to Lord Macaulay, he was "one of the most noted sharpers and bullies of London." Soon after the Restoration he endeavored to obtain the favor of the royal family by blackmailing the reputation of Anne Hyde, so as to furnish the Duke of York with a pretext for breaking his promise of marriage to her. Though unsuccessful in this he succeeded in gaining the favor of the Duke, and contrived to make himself welcome at the palace both as a votary of its pleasures and as a counselor in affairs of state. Immediately on the accession of James II. he was made Earl, and put in command of the troops in Ireland; and in 1687, by fawning, bullying, and bribing, he got possession of the office which had long been the object of his ambition and was appointed Lord-Deputy of Ireland. His arrival in that country spread terror and dismay through the English Protestant population, who had already suffered somewhat under his military rule. Events quickly justified their terrors. Nearly every office of dignity in the country was soon transferred to the hands of Roman Catholics; the Protestant party, so long



dominant, complained bitterly that they had become a laughing-stock even to their own servants, and that to appeal the law was vain, judgment in every case being given for the native against the Englishman. But this state of matters did not last long. The revolution of 1688 had a sudden and sobering effect upon the rule of the Lord-Deputy; and there can be little doubt that he would have submitted to William III. but the Irish people threatened that if he dared to sell them for wealth or honor they would burn the Castle and him in it, and put themselves under the protection of France. On the arrival of James in Ireland in 1689 he created the Earl, Duke of Tyrconnel. After the fatal battle of the Boyne, at which he held high command, he retired to France. In 1691 he returned to Ireland, with a view to furthering the efforts in favor of James, which were still being made by his adherents. Notwithstanding the defeat of Aughrim (July 12, 1691), and the capitulation of Galway, he made preparations for the defense of Limerick, binding himself and his countrymen by an oath not to surrender until they received permission from James, then at Saint Germain. He at the same time dispatched a letter in which he stated his conviction that all was lost. On August 11th, before an answer could arrive, he was struck with apoplexy. He died on the 14th of the same month. He has been characterized by Macaulay "as the fiercest and most uncompromising of all those who hated the religion and liberties of England."

TYRE, the ancient *ṬṬ*, Greek *Τύρος*, the most famous of Phœnician cities, is now represented by the petty town of Sûr, with about 5,000 inhabitants, built round the harbor at the north end of a peninsula, which, till the time of Alexander's siege, was an island. The mole which he constructed to reach the island city has been widened by deposits of sand, so that the ancient island is now connected with the mainland by a tongue of land a quarter of a mile broad. The greatest length of the former island, from north to south, is about five-eighths of a mile and its area about 142 acres, a small surface for so important a town. The researches of Renan seem to have completely refuted the once popular idea that a great part of the original island has disappeared by natural convulsions, though he believes that the remains of a line of submerged wall at the south end indicate that about fifteen acres more were once reclaimed from the sea and have been again lost. Confined to this narrow site—on which, moreover, place was found for the great temple of Melkarth with its courts and for all the necessities of a vast trade, for docks and warehouses, and for the great purple factories which in the Roman time were the chief source of wealth and made the town an unpleasant place of residence—Tyre was very closely built; Strabo tells us that the many-storied houses were loftier than those of Rome. In the Roman period the population overflowed its bounds and occupied a strip of the opposite mainland, including the ancient Palætyrus. Pliny gives to the whole city, continental and insular, a compass of nineteen Roman miles; but this account must be received with caution. The ancient history of Tyre has been dealt with in the article PHENICIA; the topography is still obscure owing to the paucity of Phœnician remains. The present harbor is certainly the Sidonian port, though it is not so large as it once was; the other ancient harbor (the Egyptian port) has disappeared. The most important ruins are those of the cathedral, with its magnificent monolith columns of rose-colored granite, now prostrate. The present building is assigned by De Vogué to the second half of the twelfth century, but the columns must be older and may have belonged to the fourth century church of Paulinus. Tyre was

still an important city and almost impregnable fortress under the Arab empire. From 1124 to 1291 it was a stronghold of the crusaders, and Saladin himself besieged it in vain. After the fall of Acre the Christians deserted the place, which was then destroyed by the Moslems. The present town has arisen since the Metâwila occupied the district in 1766.

TYRNAU (Magyar, *Nagy-Szombath*), a town in Hungary, on the river Tena, about thirty miles northeast of Presburg. It has so many churches and convents that it has been nicknamed "Little Rome." It carries on manufactures of cloth, linen, wood, etc., and has a tolerably lively general trade, especially in wine. From 1635 to 1774 it possessed a university, which in the latter year was transferred to Pesh. It is likewise famous for a huge cask, which can hold twice as much as the Heidelberg one. Population (1890) 10,824.

TYROL, a province of Austria, with the title of "county," is conterminous on the northwest with the Austrian province of Vorarlberg, on the north with Bavaria, on the east with Salzburg and Carinthia, on the southeast and southwest with Italy, and on the west with Switzerland. The last-named country forms in the lower Engadine an angle penetrating deeply into Tyrol. The country is entirely mountainous, being traversed by the main chain of the Alps. It may be roughly divided into the valley systems of the Lech and the Inn to the north of the chain and of the Etsch or Adige (Vintschgau) and the upper Drave (Puster valley) to the south (see ALPS). Its area is 11,324 square miles; its population in 1901 was 981,949, inclusive of Vorarlberg, its adjoining Austrian province. Of these 432,062 spoke German, 360,975 Italian or some Romance dialect, and the remainder some form of Slavonic. The tenure of property is for the most part of the nature of absolute ownership. In 1880, 100,393 persons of both sexes were returned as proprietors, 10,283 as tenants. The chief products are milk, butter and cheese. Of grain crops maize, which is largely grown in the Inn valley and Vintschgau, holds the first place. Wheat is grown in the lower valleys, barley and rye in the higher, the latter in favorable spots to a height of over 5,000 feet. Potatoes are found above 6,000 feet. In the Etsch valley, or district about Meran and Botzen, red and white wine of excellent quality is produced. Of late years the cultivation of fruit has much developed, especially in south Tyrol. Silk is also produced. Game is still plentiful in the remotest valleys. Mining occupies about one-fifth of the population. At Hall, near Innsbruck, are important salt works, and at Brixlegg, in the same valley, copper and lead are smelted. Iron is worked at Fulpmes, in the Stubai valley, and at Prad, in the Vintschgau. Zinc is found at the head of the Passeir valley. In the middle ages gold and silver were found in sufficient quantities to make it worth while to extract them. About 4,340 square miles of the country are covered with forest, chiefly pine, fir, and larch, which, however, is felled in a recklessly wasteful way. The capital of the county is INNSBRUCK, (*q.v.*)

Tyrol has more than once been the scene of sharp fighting. In 1499 the men of Graubünden or the Grisons (see SWITZERLAND) invaded the country and defeated the Tyrolese in the neighborhood of Mals. In 1703 Max Emmanuel, elector of Bavaria, penetrated the upper Inn valley, but was driven back. During the wars of the French Revolution French and Austrian armies met more than once within the limits of the province. By the treaty of Pressburg, 1805, the province was transferred to Bavaria. On the renewal of war between Bonaparte and Austria in 1809 the people rose and expelled the Bavarians, and afterward, under

the leadership of Andrew Hofer, an innkeeper of the Passeir valley, repeatedly defeated the French, Bavarian, and Saxon forces. Innsbruck was more than once taken and retaken; and on August 12th Hofer, after defeating Marshal Lefebvre, was installed in the capital as commandant. But the ill-success of the Austrian arms elsewhere prevented any support from being sent, and by the treaty of Schönbrunn in October the Tyrolese were again given up to their new rulers. Hofer, being captured through treachery, was shot at Mantua, February 20, 1810. On the fall of Bonaparte, Tyrol reverted to the house of Hapsburg.

TYRONE, an inland county of Ireland, in the province of Ulster, is bounded north and west by Donegal, northeast by Londonderry, east by Lough Neagh and Armagh, and south by Monaghan and Fermanagh. Its greatest length from north to south is forty-six miles and from east to west sixty. The total area is 806,658 acres or about 1,260 square miles. The surface is for the most part hilly, rising into mountains toward the north and south, but eastward toward Lough Neagh it declines into a level plain. The Foyle forms a small portion of the western boundary of the county, and receives the Mourne, which flows northward by Omagh and Newtown Stewart. The principal tributaries of the Mourne are the Derg, from Lough Derg, and the Owenkillow, flowing westward from Fir Mountain. The Blackwater, which is navigable by boats to Moy, rises near Five-Mile Town, and forms part of the southeastern boundary of the county with Monaghan and Armagh. With the exception of Lough Neagh, bounding the county on the east, the lakes are small, also few in number. The Tyrone coal-field (six miles long by one to two broad) extends between Lough Neagh and Dungannon, all the measures being represented. The coal-field is much broken by faults and has been worked chiefly near the surface, and generally in an unskillful manner; the principal pits are near Dungannon and at Coal Island. The coal is bituminous. There are also indications of copper, iron, and lead.

The hilly portions of the county are unsuitable for tillage; but in the lower districts the soil is remarkably fertile, and agriculture is generally practiced after improved methods, the county in this respect being in advance of most parts of Ireland. The excellent pasturage of the hilly districts affords sustenance to a large number of young cattle.

The manufacture of linens and coarse woollens (including blankets) is carried on. Brown earthenware, chemicals, whisky, soap, and candles, are also made. There are a few breweries and distilleries, and several flour and meal mills. But for the lack of enterprise the coal and iron might aid in the development of a considerable manufacturing industry.

The county comprises 8 baronies, 46 parishes, and 2,164 townlands. Formerly it returned two members to parliament, the borough of Dungannon also returning one; but in 1885 Dungannon was disfranchised and the county arranged in four divisions—east, mid, north, and south—each returning one member. From 312,956 in 1841 the population had decreased by 1861 to 238,500, by 1871 to 215,766, and by 1901 to 150,468 (74,233 males and 76,235 females). In 1901 there were 100,793 Roman Catholics (119,937 in 1871), 44,256 Protestant Episcopalians (49,201 in 1871), 38,564 Presbyterians (42,156 in 1871), 3,597 Methodists (3,115 in 1871), and 1,509 of other denominations (1,357 in 1871). The population of the principal towns was—Strabane 4,196, Omagh (the county town) 4,138, Dungannon 4,084, and Cookstown, 3,870.

Anciently Tyrone was included in the portion of Ulster made "sword-land" by the Scots. It became a

principality of one of the sons of Niall of the Nine Hostages, and from his name—Eogain—was called Tir Eogain, gradually altered to Tyrone. The earldom of Tyrone had been conferred on Con Bacagh O'Neill by Henry VIII., but he was driven into the Pale by one of his sons Shan, who, with the general consent of the people, was then proclaimed chief. From this time he maintained a contest with English authority, but his last remaining forces were completely defeated near the river Foyle in May, 1567. During the insurrection of 1641 Charlemont Fort and Dungannon were captured by Sir Phelim O'Neill, and in 1645 the Parliamentary forces under General Munro were signally defeated by Owen Roe O'Neill at Benburb. At the Revolution the county was for a long time in the possession of the forces of James II. Dungannon was the scene of the famous volunteer convention in 1782. There are still some ruins of the ancient castle of the O'Neills, near Benburb, and among other ruined old castles mention may be made of those of Newton Stewart, Dungannon, Strabane, and Ballygawley.

TYRRHENIAN SEA (Anc. *Tyrrhenum Mare*), that part of the MEDITERRANEAN SEA (*q.v.*) between the islands of Corsica, Sardinia, and Sicily on the west, and the Italian peninsula on the east.

TYRTÆUS, Greek elegiac poet, lived at Sparta about the middle of the seventh century B.C. According to the legend current in later times, he was a native of the Attic deme of Aphidnæ, and was invited to Sparta on the suggestion of the Delphic oracle, to assist the Spartans in the Second Messenian War. It is difficult, if not impossible, to determine the element of truth in this story.

We possess in all about twelve fragments of Tyrtæus' poetry, varying in length from one to forty-four lines. They are preserved by Strabo, Lycurgus, Stobæus, and others. We may divide them into two varieties, according to the meter and dialect in which they are composed. The first class consists of elegies in the Ionic dialect, written partly in praise of the Spartan constitution and King Theopompus (*Εὐνομία*), partly to stimulate the Spartan soldiers to deeds of heroism in the field (*Ἱπὼναι*—the title is, however, later than Tyrtæus). The interest of the fragments preserved from the *Εὐνομία* is mainly historical: they form our only trustworthy authority for the events of the First Messenian War.

TYTLER. The surname of three Scottish writers, principally on historical subjects.

1. ALEXANDER FRASER TYTLER, Lord Woodhouselee, Scottish judge, was the eldest son of William Tytler (see below), and was born at Edinburgh October 15, 1747. He was called to the bar in 1770. His first work, a supplement to the *Dictionary of Decisions*, undertaken on the suggestion of Lord Kames, was published in 1778, and a continuation appeared in 1796. In 1780 Tytler was appointed conjoint professor of universal history in the university of Edinburgh, becoming sole professor in 1786. In 1782 he published *Outlines* of his course of lectures, afterward extended and republished under the title of *Elements of General History*. In 1790 Tytler was appointed judge-advocate of Scotland, and while holding this office he wrote a *Treatise on the Law of Courts-Martial*. In 1801 he was raised to the bench, taking his seat (1802) in the court of session as Lord Woodhouselee. He died at Edinburgh on January 5, 1813.

2. PATRICK FRASER TYTLER, the son of Lord Woodhouselee and grandson of William Tytler, may be said to have inherited a taste for literary and historical pursuits. He was born at Edinburgh on August 30, 1791, and was educated chiefly at the High School and



university, being called to the bar in 1813. His earliest literary effort appears to have been a chapter or two contributed to Alison's *Travels in France* (1815); and his first independent essays were papers in *Blackwood's Magazine*. Inheriting the family talent for music, and with a facility in throwing off humorous little poems and songs, he made several contributions to Thomson's *Select Melodies of Scotland*, 1824. The *History of Scotland* was undertaken at the suggestion of Sir Walter Scott, and occupied Tytler for nearly twenty years, in the course of which he removed to London for convenience of research. The first volume appeared in 1828, and the ninth and last in 1843. He died at Great Malvern December 24, 1849.

3. WILLIAM TYTLER, of Woodhouselee, writer on historical and antiquarian subjects, was the son of Alexander Tytler, writer in Edinburgh, and was born in that city on October 12, 1711. He was educated at the High School and the university, and, having adopted his father's profession, was in 1744 admitted into the society of Writers to the Signet. While successfully practicing as a lawyer, he found time to devote attention to historical investigation. In 1759 he published an *Inquiry, Historical and Critical, into the Evidence against Mary Queen of Scots, and an Examination of the Histories of Doctor Robertson and Mr. Hume with respect to that Evidence*. This work, which warmly defended the character of the queen, met with great success. He died at Edinburgh on September 12, 1702.

**TYUMEN**, a district town of West Siberia, in the

government of Tobolsk, is situated at a point where the chief highway from Russia across the Urals touches the first navigable river (the Tura) of Siberia. A railway passing through Ekaterinburg and the principal ironworks on the eastern slopes of the middle Urals connects Tyumefi with Perm, the terminus of steamboat traffic on the Kama and Volga. The Tura being a tributary of the Tobol, which joins the Irtysh, a tributary of the Ob, Tyumefi has regular steam communication with Omsk and Semipalatinsk, and by the Tobol, the Irtysh, and the Ob with the Arctic Ocean and the fisheries of the lower Ob. Woolen cloth, linen, belts, and especially boots and gloves, are manufactured to a large amount (70,000 pairs of boots and 300,000 pairs of gloves annually). Tyumefi carpets, although made in the simplest way and with the plainest tools, have a wide renown in Russia and Siberia, and recently have appeared in the markets of western Europe as of Oriental origin. All kinds of metal wares are made in small workshops, and the leather prepared at the tanneries (100 in number) is extensively sold all over Siberia, the Kirghiz steppe, and Bokhara. The trade of Tyumefi is exceeded only by that of Irkutsk and of Tomsk. In addition to its primary schools Tyumefi has a "real" school. The population, which is of a fluctuating character in summer, was estimated in 1898 at 29,588.

**TZARSKOYE SELO**. See **TSARSKOYE SELO**.

**TZETZES, JOANNES**, a voluminous Byzantine writer of the twelfth century. (See **GREECE**.)

## U.

**U** holds the twenty-first place in our alphabet. The corresponding place in the Greek alphabets was occupied by **Υ** (with some slight variations of form). The form in the Italian alphabets was generally **V**. These three are only modifications of one original; but they are independent symbols with us, though **Υ** does not represent any sound otherwise unrepresented. It will be most convenient to describe the three forms once for all.

With **T** we reach the end of the original Phœnician alphabet. The remaining symbols—no fewer than six with us, four in the completed Latin alphabet—are accretions, either modifications of old symbols for greater exactness or old symbols themselves which had fallen out of their proper place and were added again. The first new symbol was needed to represent the important vowel sound *u*. We have already seen that the Greeks employed the Phœnician symbols for the breaths which they did not want as symbols for the vowels which they did want. Thus we should have expected that the Phœnician *vau* would have been used for *u*. But *vau* was already employed for *w*, which was a living sound in early Greek; the form used was **F** (the so-called digamma), the origin of our **F**.

At Rome the single form **V** denoted both the vowel *u* and also the consonantal *w*. **F** retained its place as sixth in the alphabet, but with the value of *f*, which was unknown to the Greeks; a peculiar form, **C**, in which the middle stroke has gone to the bottom, seems to have been affected by its neighbor **E**; this is found in Etruscan, Umbrian, and Samnite inscriptions; it has, however, the value of *w*; while a curious symbol **8** appears at the end of the Etruscan alphabet, and is also used in the Eugubine tables with the value of *f*; the origin of this is uncertain. It may be a rounded form of the second symbol in the digraph **FB** (i.e., **FH**) by which the sound **F** is indicated in a very old inscription (see *Rhein. Mus.*, xlii. 317); if this is so, the Latin alphabet has the first member of the digraph, the Etruscan has the second. Next, the symbol **Y** was added (together with **Z**) in the first century B.C. to represent more exactly, in borrowed words, the sound of Greek *upsilon*.

Lastly, the form **U** was differentiated from **V**. It is the uncial form, and so belongs to the general transition from the pointed to the rounded character which conduced to greater convenience of writing.

The sound which **U** denotes is produced by "rounding" the lips to the furthest extent consistent with a clear vowel-sound, and by raising the back of the tongue higher than for any other rounded sound. It has two varieties (like all other vowels) according as the position of the tongue is more or less tense, producing thereby a narrower or a wider aperture for the voice to pass through; whence the sounds are technically called "narrow" and "wide" respectively. The narrow sound is heard in English only when the vowel is long, as in "book," "rule," but in northern English (Scotch) "book" may be heard short. The wide sound

is heard in "full," "good." The digraph *oo* is commonly used for the *u* sound, and attests the fact that the original sound of *ō* has frequently passed into *ū*, as in "good," "food," etc., written "gode," "fode" in Middle English; sometimes, however, the *oo* has come by analogy into words where *ū* is the original sound, as in "room," M.E. "roum," O.E. "rūm." Original *ū* has commonly passed into the *au* sound, spelled in English *ou* or *ow*, as in "how," "house," "mouse," "bower," for O.E. "hū," "hūs," "mūs," and "būr."

**UBÉDA**, a town of Spain, head of an administrative subdivision in the province of Jaen, about twenty-two miles to the east of the Menjibar station on the railway from Madrid to Cordova. Under the Moorish rule it was a place of considerable consequence, its population being said to have at one time numbered 70,000. Some portions of the old walls, with towers and gates, still remain, but none of the public buildings are of great age, the oldest church, that of San Salvador, dating from 1540-56. The population within the municipal boundaries is 18,149.

**UCAYALI**, a great river of South America, one of the chief head-waters of the Amazon. It joins the Amazon from the south, in S. latitude 4° 40' and W. longitude 73° 30', opposite the town of Nauta in Ecuador; but the whole course of the river is in Peru. It is the largest river that joins the Amazon above the Brazilian territory, and on account of its length has been regarded by some as the main stream of the Amazon, but at its mouth it is not above half the width of the Amazon. The Marañon and Hullaça from the south, with many smaller but still large rivers from the north, have united to form the Amazon. The sources of the Ucayali are in the Andes, Cusco being situated on one of its feeders, which rises considerably further south; while another had its rise on the western side of the Andes, to the northwest of Lima, and after flowing southward for about 150 miles, makes its way through a cross valley, and takes a northward course.

Attention has of late been very strongly directed to this river as affording means of communication between the western parts of Peru and the Atlantic Ocean. It was partially explored by the Count de Castelnau and others in 1846, by Lieutenant Herndon, and Mr. Gibbon of the United States navy in 1851, and more recently by an expedition sent out by the Peruvian government. It has been found to be navigable by steamers from its mouth to the towns not far distant from Lima.

**UDAIPUR** [OODEYPUR], or MEWÁR, a native state in Rajputana, India, with an area of 12,753 square miles. It is bounded on the north by the British territory of Ajmere; on the east by the native states of Bundi, Gwalior, Tonk, and Partágarh; on the south by Banswára, Dungarpur, and Mahi Kántha; and on the west by the Aravalli Mountains, separating it from Marwar and Sirohi. The greater part of the country is level plain. A section of the Aravalli Mountains extends over the southwestern and southern portions, and is rich in minerals, but the mines have been long



closed. In 1901 the population, exclusive of 51,076 Bhils, was 1,863,126 (males 998,796, females 864,330): Hiindus numbered 1,321,521, Mohammedans 43,322, Jains 78,171, and Christians 130. The only town with over 10,000 inhabitants is Udaipur, the capital (45,214).

UDAL (Danish *odel*) is a kind of right still existing in Orkney and Shetland, and supposed to be a relic of the old allodial mode of landholding existing antecedently to the growth of feudalism in Scotland. The udal tenant holds without charter by uninterrupted possession on payment to the crown, the kirk, or a grantee from the crown of a tribute called *scat* (Danish *skat*), or without such payment, the latter right being more strictly the udal right. Udal lands descend to all the children equally. They are convertible into fens at the option of the udallers.

UDALL, NICHOLAS, author of the earliest extant regular English comedy. Udall was a typical man of the Renaissance in England, a schoolmaster by profession, a classical scholar, a translator of Terence and Erasmus, and a writer of pageants and interludes. He was high in favor at court, wrote verses for the city pageant exhibited at Anne Boleyn's coronation in 1533, and was honored by Mary in 1554. The severity of his discipline at Eton, where he was headmaster, has been immortalized by the quaint lines of one of his pupils, Thomas Tusser. The exact history of the production of his comedy, *Ralph Royster Doyster*, is not known. He was born about 1505, and died in 1556.

UDINE, a town of Italy, in the province of Udine, in a wide plain near the foot of the Carnic Alps, on the Roja, eighty-four miles by rail northeast from Venice and forty-nine miles northwest from Trieste. It is inclosed by an imposing wall of considerable antiquity, some four or five miles in circumference, and fortified with towers. On the principal square stands the town-hall, built in 1457 in the Venetian-Gothic style, and skillfully restored since a fire in 1876; opposite is a clock tower resembling that of the Piazza di San Marco at Venice. The archiepiscopal palace and Museo Civico, as well as the municipal buildings, have some valuable paintings. The leading industry of Udine is silk-spinning, but it also possesses manufactures of linen, cotton, hats, and paper, tanneries, and sugar refineries, and has a considerable trade. The population in 1901 was 37,933.

UEBERWEG, FRIEDRICH, best known by his *History of Philosophy*, was born on January 22, 1826, at Lechlingen, in Rhenish Prussia, where his father was a Lutheran pastor. Ueberweg passed through the gymnasium at Elberfeld, and studied at the universities of Göttingen and Berlin. In 1852 he qualified himself at Bonn as privat-docent in philosophy. His *System of Logic*, published in 1857 (English translation, 1871), and his essay *On the Authenticity and the Order of the Platonic Writings*, crowned by the Imperial Academy of Vienna (published 1861), contributed to draw attention to him as at once a scholar and a thinker. In 1862 he was called to Königsberg as extraordinary professor, and in 1867 he was advanced to the ordinary grade. He married in 1863, and on June 9, 1871, he died prematurely.

UFA, a government of southeastern Russia, on the western slope of the Urals, has Vyatka and Perm on the north, Orenburg on the east and south, Samara and Kazan on the west, and comprises an area of 47,112 square miles. Several craggy and densely wooded ridges, running from southwest to northeast parallel to the main chain of the southern Urals, occupy its eastern part. They are separated by broad and long longitudinal valleys, and rise to altitudes of from 2,500 to 3,500 feet above the sea; their highest peaks—Iremel (5,040

feet), Nurgush, Urenga, and Taganai (3,950 feet)—are above the limits of tree-vegetation, but in no case reach those of perpetual snow. The high longitudinal valleys of the Urals are the seat of an important mining industry.

The population of Ufa in 1898 was 2,220,497. Only one-third of the whole is Russian, the remainder being chiefly Bashkirs (50 per cent., including Mescheriaks and Tepters), Tartars (8.4 per cent.), Tcheremisses, Tchuvas, Mordvinians, and Votiaks. In the south the Bashkirs, Tartars, and other Ural-Altaians constitute two-thirds of the population. Among the Russians two distinct elements must be distinguished—some 100,000 peasants, who formerly were mining serfs, and now support themselves chiefly by work in or for the mines, and nearly 620,000 agriculturists, for the most part more recent immigrants. Mining industry is advancing, notwithstanding many obstacles; the iron-works of Zlatoust especially have a wide reputation. Flour-mills, distilleries, and tanneries come next in importance. The exports of corn, linseed, timber, wooden wares, metals, tallow, hides, and cattle are considerable, and trade is active, especially at the fairs of Menzelinsk, Ufa, and Zlatoust.

There are six administrative districts, the chief towns of which (with population in 1898) are—Ufa (49,961), Belebei (4,200), Birsik (8,000), Menzelinsk (6,100), Sterlitamak (8,940), and Zlatoust (18,990). The leading places Tchelný and Berezovka on the Kama, and several iron and copper works (Satkinsk, Yurezañ, Katav-Ivanovsk, about 6,000 inhabitants each) ought also to be mentioned.

UFA, capital of the above government, is situated at the confluence of the Ufa with the Byelaya.

Owing to the fertility of the neighboring regions, and the position of the town at the junction of two important rivers, the Ufa merchants carry on a brisk export trade. The population has rapidly increased of late, reaching 50,000 in 1900.

UGANDA, a country of eastern Central Africa, to the northwest of the Victoria Nyanza. It has an area of about 140,000 square miles, extending from 1° N. latitude to the Kitangule river, and from 31° E. longitude to the Nile. The country bordering the lake and to the northwest is mountainous, the mountains being arranged in low parallel chains. The climate is mild, and the temperature remarkably uniform throughout the year; the thermometric range is from 50° to 90° Fahr.; but the mean annual variation is only 20°. The annual rainfall is fifty inches, the greatest amount of rain occurring in March, April, May, and September, October, and November, when rain falls nearly every day, thunderstorms being frequent.

The population of Uganda is about 4,000,000. The men are tall and well-built, and have good features and dark chocolate-colored skin, with woolly hair. The women in their youth are good looking. The country is divided into three provinces—Uddu in the south, Singo in the west, and Changwe in the east, to which must be added about 400 islands in the lake. The government of the country is feudal, the king being nominally supreme. Succession to the throne is hereditary, but the successor is usually a minor chosen by three hereditary chiefs, who, with the young king's mother, carries on the government until he is of age. The reigning family in Uganda is descended from the Wahuma tribe; the late king Mtesa professed to trace back his descent to Kintu (or Ham), the founder of the dynasty. The country is ruled by the king, three hereditary chiefs, and a council of minor chiefs—two hereditary chiefs and a certain proportion of the others being continually in residence at Rubaga, the capital of the country. Game is very plentiful: elephants, buffaloes, zebras, rhinoceroses.



wild boars, twelve species of antelopes, lions, leopards, jackals, foxes, hyenas, hares, chimpanzees, and several species of monkeys inhabit the forest. Snakes are numerous; hippopotami, crocodiles, and otters abound in the lake and in the Nile, as also many water-rats. The principal birds are parrots, guinea-fowl, owls, vultures, adjutants, goatsuckers, kites, eagles, ducks, geese, storks, cranes, herons, gulls, scarlet flamingos, darters, the sacred and glossy ibis, and brilliantly colored honeybirds. The principal insects are mosquitoes, fleas, locusts, white and driver ants, and butterflies of many species. The domestic animals are cows, goats, and a few sheep and dogs. The language spoken in Uganda belongs to the great Bantu family, and is very rich in words. The Waganda are courteous, cleanly, given to hospitality, but drunken, and to a certain extent indolent. Their standard of morality, even judged by that of the surrounding tribes, is not high. Human life is little respected; they are untruthful and indecent. Unless moved by passion, they are not cruel; passionate, they are not revengeful. Children are well treated, as are the aged men. On account of the extensive prevalence of polygamy, women occupy a somewhat low social grade.

Uganda was first visited by Speke and Grant in 1860, and the country has since been visited by numerous Europeans, chiefly missionaries. The Church Missionary Society and the Roman Catholics have mission stations in the country. In 1886 some forty of their converts were burnt at the stake, and in the same year Bishop Hannington was murdered on the borders of the country by the orders of King Mwanga.

UGLITCH, a district town of Russia, in the government of Yaroslavl, is situated on the upper Volga, principally on its right bank, sixty-seven miles to the west of the capital of the province. Its historical remains are mostly associated with the prince Dmitri. Uglitch has now become a commercial and industrial city with 11,930 inhabitants, and has an important trade, being one of the chief loading places on the upper Volga.

UGOLINO. See GHERARDESCA and PISA.

UGRIANS. See FINLAND.

UHLAND, JOHANN LUDWIG, German poet, was born at Tübingen, on April 26, 1787. He studied at the university of his native place, taking jurisprudence as his special subject, but also devoting much time to literature. Having graduated as a doctor of laws in 1810, he went for some months to Paris; and from 1812 to 1814 he worked at his profession in Stuttgart, in the bureau of the minister of justice. He had begun his career as a poet in 1807 and 1808 by contributing ballads and lyrics to Seckendorf's *Musenalmanach*; and in 1812 and 1813 he wrote poems for the *Poetischer Almanach* and for the *Deutscher Dichterwald*. In 1815 he collected his poems in a volume entitled *Gedichte*, which almost immediately secured a wide circle of readers, and gives him his place in German literature. To every new edition he added some fresh poems; and the sixtieth edition, published in 1875, included a number of pieces found among his papers. He wrote two dramatic works—*Ernst, Herzog von Schwaben* and *Ludwig, der Baiern*—the former published in 1817, the latter in 1819.

In 1829 Uhlend was made a professor, at Tübingen university, of German literature and the German language, but he resigned this appointment in 1833, when it was found to be incompatible with his political duties. In 1848 he became a member of the Frankfort parliament, in which he sat as one of the most respected members of the liberal party. He died on November 13, 1862.

UIST, North and South, two islands of the Outer Hebrides, are situated from fifteen to eighteen miles west of the Isle of Skye, from which they are separated

by the Little Minch. Unlike the other islands of the Hebrides, the east coast of the North and South Uist are much and deeply indented, while the west coasts are, as a rule, almost unbroken; North Uist, between which and South Uist the island of Benbecula intervenes, is eighteen miles long from west to east, and from three to ten miles in breadth. The eastern half of it is so cut up by lochs and water courses as to have the appearance of an archipelago. This region is a brown, peaty, dreary bog, partly relieved, however, by a line of low hills running along the coast, at the distance of about two and one-half miles. In the west part, which, as a rule, is hilly, there is a tract of uneven low land, exceedingly beautiful in certain seasons, rendered fertile by the drifting of shell-sand from the coast, and producing good clover and grain crops. Population (1889) 3,371. South Uist is twenty miles long, and seven miles broad. Its east coast is much indented by lochs. The eastern district is upland; the western is alluvial and productive under proper treatment: population (1889) 3,825, engaged in fishing and agriculture.

UJJI, a town of eastern Central Africa, of considerable importance, also known by the name of KAVELE, is situated on the eastern shores of Lake Tanganyika. It is the chief town on that lake, and is the center of a brisk trade in ivory. Formerly it was a great slave-market. The town is of a straggling character, Arab houses of sun-dried bricks being mingled with native huts. The population, which fluctuates considerably, is very mixed, being composed of Arabs and the representatives of numerous Central African tribes. Ujji has been visited by various European travelers, who have made it their headquarters, and it was here that Stanley found Livingstone, on October 28, 1871.

UJJAIN, or OJJEIN, a town in the native state of Gwalior, central India, situated on the right bank of the Sipra. In ancient times Ujjain was the great and famous capital of Málwá, one of the seven sacred cities of the Hindus, and the spot which marked the first meridian of Hindu geographers. Though much decayed, it is still a large and populous city, with considerable commerce. In 1898 the population of the town numbered 35,932.

UKASE, or UKAS (Russian, *ukasat*, to speak), a term applied in Russia to all the orders or edicts, legislative or administrative, emanating from the government. Ukases either proceed directly from the emperor, and are then called *imenny-ukas*, or are published as decisions of a directing senate. Both have the force of laws till they are annulled by subsequent decisions. Many ukases are issued in the course of one reign; and as an immense chaos of ukases had accumulated since 1649 (the date of the last codification of laws), the Czar Nicholas ordered (1827) that a collation of them should be made. The result was a collection of laws in forty-eight volumes, which has been supplemented year by year by volumes of new ukases, and which, after the elimination of such ukases as are unimportant or of temporary authority, constitutes the present legal code (*svod*) of the Russian Empire. *The prikases* are imperial "orders of the day," or military orders given during a campaign.

UKRAINE ("frontier"), the name formerly given to a district of European Russia, now comprising the governments of KHARKOFF, KIEFF, PODOLIA, and POLTAVA, (*q.v.*)

ULCER. See SURGERY.

ULEABORG, a seaport of Russian Finland, capital of the government of the same name, stands on the south bank of the Ulea, on the eastern shore and near the head of the Gulf of Bothnia. It was founded in 1605, and the privileges of a court were granted to it in



1715. In 1822 it suffered severely from fire. The harbor has of late years become so shallow, that vessels are obliged to unload in the roadstead, four miles from the town. Population (1898) 11,705, who are engaged in the dock yards, saw mills, and breweries of the town. In 1854 an English flotilla burnt the government property in the place.

ULFILAS, the apostle of Christianity to the Gothic race, and, through his translation of the scriptures into Gothic, the father of Teutonic literature, was born among the Goths of the trans-Danubian provinces in the year 311. There is a tradition that his ancestors were Christian captives from Sadagolthina in Cappadocia, who had been carried off to the lands beyond the Danube in the Gothic raid of 267; but the evidence on which this rests is inadequate. For some time before 341 he worked as a "lector" or reader of the Scriptures, probably among his own countrymen in Constantinople, or among those attached as *federati* to the imperial armies in Asia Minor. From this work he was called to return as missionary bishop to his own country, being ordained by Eusebius of Nicomedia and "the bishops who were with him" in 341.

The life of Ulfilas during the following thirty-three years is marked only by one recorded incident, his visit to Constantinople in 360, to attend the council convened by the Arian or Homoian party. He died in 381.

ULLSWATER, after Windermere the largest of the English lakes, lies between the counties of Cumberland and Westmoreland, ten miles east of Keswick. Its length is nine miles, and its breadth one mile. Its scenery has none of the soft beauty of that of Windermere, but is rugged and grand. One of the chief features of the landscape is the lofty mountain Helvellyn, which rises from the southwest extremity of the lake.

ULM, an ancient and important commercial town in Württemberg, and an imperial fortress of the first class, is situated on the left bank of the Danube, in a fertile plain at the foot of the Swabian Alps, forty-five miles to the southeast of Stuttgart and sixty-three miles to the northwest of Munich. The town, quaintly built with narrow and confined streets, still preserves the dignified and old-fashioned appearance of an ancient imperial town, and contains many mediæval buildings, both of historic and of artistic interest. By far the most important and conspicuous building in Ulm is the magnificent early Gothic cathedral, next to the cathedral of Cologne the largest church in Germany, and capable of containing 30,000 people. Begun in 1377, and carried on at intervals till the sixteenth century, the building was long left unfinished; but in 1844 the work of restoration and completion was undertaken, and has steadily progressed ever since. It contains some fine stained glass, the largest organ in Germany (1856), and a number of interesting old paintings and carvings by Syrlin, Engelberger, and other masters of the Swabian school. The cathedral belongs to the Protestant Church. Ulm is famous for its vegetables (especially asparagus), barley, beer, pipe-bowls, and sweet-cakes (Ulmer Zückerbrot). Bleaching, brewing, and brass-founding are carried on, as well as a large miscellany of manufactures, including hats, metal goods, agricultural implements, tobacco and cigars, cement, paper, and chemicals. The population in 1901 was 42,985.

ULPIANUS, DOMITIUS, a Roman jurist, was of Tyrian ancestry, but the time and place of his birth are unknown. He made his first appearance in public life as assessor in the *auditorium* of Papinian and member of the council of Septimius Severus; under Caracalla he was master of the requests. Elagabalus deprived him of his functions, and banished him from Rome, but on the accession of Alexander (222) he was

at once recalled and reinstated, and finally became the emperor's chief adviser and *præfectus prætorio*. His curtailment of the privileges granted to the prætorian guard by Elagabalus provoked their enmity, and several times he only narrowly escaped their vengeance; ultimately, in 228, he was murdered in the palace, in the course of a riot between the soldiers and the mob.

Ulpian's period of literary activity extended from about 211 to 222 A.D. His works include *Ad Sabinum*, a commentary on the *jus civile*, in over fifty books; *Ad Edictum*, a commentary on the Edict, in eighty-three books. His writings together have supplied to Justinian's *Digest* about a third of its contents, and his commentary on the Edict alone about a fifth. As an author he is characterized by doctrinal exposition of a high order, judiciousness of criticism, and lucidity of arrangement, style and language.

ULRIC, ST., Bishop of Augsburg, and venerated as one of the fathers of the German Church, was born at Augsburg, about the year 800. His father, Hupald, was one of those counts of Dillingen who played so important a part in mediæval German history. He himself owed part at least of the extraordinary influence which he exercised in his time to the distinguished rank of his family. He was educated in the celebrated Benedictine monastery of St. GALL (*q.v.*), in Switzerland; but his later life, and the character of his mind, as well as the tendency of his religious views, appear to have been influenced less by his monastic instructors, than by the counsels of a remarkable female recluse named Wiborada, whose cell was in the vicinity of St. Gall, and with whom he formed a close association. It was by her counsel that, instead of adopting the Benedictine habit at St. Gall, he devoted himself to the secular ministry, and returned to his native diocese of Augsburg, where he received holy orders. In accordance with the usage of his time he made a pilgrimage to Rome, and soon after his return, was consecrated Bishop of Augsburg, on the death of Hilte in the year 923. The details of his history as administrator of this church, which had suffered serious disorganization through the Magyar invasion and other wars, would be out of place here; but they are related with much circumstantiality by his contemporary biographer; and they throw so much light as well on the externals of the religious life of the time, as on the moral and spiritual character of the people, laity as well as clergy, as to merit the consideration of every student of mediæval history.

ULRICI, HERMANN, one of the most active philosophical writers in Germany since Hegel's death, was born at Pforten, Prussia, on March 23, 1806. Educated for the law, he gave up his profession upon the death of his father, in 1829, and after four years of further study, devoted to literature, philosophy, and science, qualified as a university lecturer. In 1834 he was called to a professorship at Halle, where he remained till his death, on January 11, 1884. His first works were in the domain of literary criticism. His treatise *On Shakespeare's Dramatic Art* (1839) has been translated into English. His later works, dealing with perennial problems of philosophy, have found a more extended circle of readers. Such are *Glauben und Wissen* (1858), *Gott und die Natur* (1862), *Gott und der Mensch* (two vols., 1866-73). From 1847 onward Ulrici was associated with the younger Fichte in the editorship of the *Zeitschrift für Philosophie*.

ULSTER. See IRELAND.

ULTIMATUM, in diplomacy, the final conditions or terms offered by one government for the settlement of its disputes with another; the most favorable terms which a negotiator is prepared to offer, whose re-

jection will generally be considered to put an end to negotiation.

**ULTRAMARINE**, a magnificent blue pigment, which occurs in nature as a proximate component of **LAPIS LAZULI**, (*q. v.*) Lapis lazuli has long been known as a precious stone, and highly valued as such, and as early at least as the eleventh century the art of extracting a blue pigment from it was practiced. From the beginning of the sixteenth century this pigment began to be imported into Europe as *azurum ultramarinum*. To extract it, the stone, after having been powdered coarsely, is heated to redness and thrown into cold water to facilitate its conversion into a very fine powder, which is next treated with dilute acetic acid to remove the carbonate of lime which is present in almost all specimens. The insoluble blue residue is mixed up into a "dough" with a composition of resin, pitch, and linseed oil, and this dough is then kneaded under water, which is renewed as long as it runs off with a blue color. The blue liquor, when allowed to stand, deposits a fine precipitate, which is collected, washed, dried, and sold as ultramarine. As the yield amounts to only 2 to 3 per cent. of the mineral used, it is not surprising to learn that the pigment used to be weighed up with gold. It was valued chiefly on account of its brilliancy of tone and its inertness in opposition to sunlight, oil, and slaked lime (in fresco-painting).

In 1814 Tassaer observed the spontaneous formation of a blue compound, very similar to ultramarine, if not identical with it, in a soda-furnace at St. Gobain, which caused the "Société pour l'Encouragement d'Industrie" to offer a prize for the artificial production of the precious color. The problem was solved almost simultaneously by Guimet and by Christian Gmelin, then professor of chemistry in Tübingen; but while Guimet kept his process a secret (it has indeed never become known) Gmelin published his, and thus became the originator of an industry which flourishes to this day chiefly in Germany. There are very few ultramarine works in other countries, and none, as far as we know, in Great Britain. The raw materials used in the manufacture are—(1) iron-free kaolin, or some other kind of pure clay; (2) anhydrous sulphate of soda; (3) anhydrous carbonate of soda; (4) sulphur (in the state of powder); and (5) powdered charcoal or relatively ash-free coal, or colophony in lumps. The numerous modes of manufacture may be viewed as modifications or combinations of three processes.

In the *Nuremberg process* the soda is used as sulphate, or partly as such and partly as carbonate. The following recipe gives an idea of the proportions in which the materials are used:—kaolin (calculated as anhydrous matter) 100 parts; calcined sulphate of soda 83 to 100 (or 41 of sulphate and 41 of carbonate); charcoal 17; powdered sulphur 13. These ingredients are mixed most intimately; they are then rammed tight into fire-clay crucibles and kept at a nearly white heat for seven to ten hours, access of air being prevented as far as possible. The product obtained is a grayish or yellowish green mass, which is soaked in and washed with water; the porous residue is ground very fine in mills, again washed, dried, and again ground in the dry state and passed through sieves. The product at this stage has a green color, and is sometimes sold as "green ultramarine," although it has not a high standing among green pigments. For its conversion into blue ultramarine it is heated with sulphur in the presence of air to a relatively low temperature.

In the *carbonate of soda process* the soda is used solely, or at least principally, in the carbonate form. The following is one of many recipes:—kaolin (calcu-

lated as anhydrous matter) 100; carbonate of soda 100; charcoal 12; sulphur 60. The mixture is heated in a reverberatory furnace to form in the first instance a white mass, which is so porous that it readily passes, by oxidation, into green and partly even into blue ultramarine.

*Silica ultramarine* is soda-ash ultramarine in whose preparation a quantity of finely divided silica, equal to 5 to 10 per cent. of the weight of the kaolin, has been added. It is distinguished by a reddish tinge, which is the more fully developed the greater the proportion of added silica. It is more highly proof against the action of alum solution than non-siliceous ultramarines.

**ULTRAMONTANE** (Latin, beyond the mountains—the Alps in relation to France), that part in the Church of Rome which assigns the greatest weight to papal prerogative. The pope, according to this doctrine, is superior to general councils, and independent of their decrees; he is considered to be the source of all jurisdiction in the church; and it is through him, and not directly in virtue of their episcopal offices that the bishops derive their powers of "jurisdiction" as distinguished from "order." The Ultramontane school has been the opponent of those doctrines and views which favor the right of self-government by national churches.

**ULUGH BEG**, MIRZA MOHAMMED BEN SHAH ROK, astronomer, grandson of TIMUR (*q. v.*), succeeded his father as prince of Samarkand in 1447, after having for years taken part in the government, and was murdered in 1449 by his eldest son. He occupied himself with astronomical pursuits, and erected an observatory at Samarkand, from which were issued tables of the sun, moon, and planets, with an interesting introduction, which throws much light on the trigonometry and astronomical methods then in use (*Prolegomenes des Tables Astronomiques d'Ouloug Beg*, ed. by Sédillot, Paris, 1847, and translated by the same, 1853). The serious errors which he found in the Arabian star catalogues (which were simply copied from Ptolemy, adding the effect of precession to the longitudes) induced him to redetermine the positions of 992 fixed stars, to which he added twenty-seven stars from Al Sûfi's catalogue, which were too far south to be observed at Samarkand.

**ULVERSTON**, a market-town in the northwest of Lancashire, England, is picturesquely situated near Morecambe Bay, on the borders of the Lake district, 9 miles northeast of Barrow-in-Furness, and 256 northwest of London. The town bears small evidence of its great antiquity. The principal streets branch from the market-place, and the houses built of stone are generally rough-cast and whitened. A rivulet flows through the town. After the destruction of Furness Abbey, Ulverston succeeded Dalton as the most important town in Furness, but the rapid rise of Barrow within recent years has relegated it to quite a secondary place. Formerly it had a considerable trade in linens, checks, and gingham, but this has greatly fallen off. It possesses, however, large iron and steel works (North Lonsdale Iron and Steel Company), a large chemical works, an extensive paper manufactory, a bolt manufactory, breweries, tanyards, and wooden hoop manufactories. The population of the urban sanitary district (area 3,120 acres) in 1871 was 7,607, and in 1901 it was 12,008.

**ULWAR**, an alternative form of **ALWAR**, (*q. v.*)

**ULYSSES**. See **ODYSSEUS**.

**UMAN**, a district town of Russia, in the south of the government of Kieff, is now (1898) an industrial and trading town, with 28,628 inhabitants, many of whom are Jews, who carry on an active trade in the export of corn, spirits, etc. It has a remarkable park (290



acres), planted in 1796 by the orders of Count Potocki, in connection with which a gardening school is maintained.

UMBALLA, an alternative form of AMBALÁ, (*q.v.*)  
 UMBER. See PIGMENTS.

UMBILICAL CORD, or NAEL STRING, the bond of communication between the foetus (which it enters at the umbilicus or navel) and the placenta, which is attached to the inner surface of the maternal womb. It consists of the umbilical vein lying in the center, and the two umbilical arteries winding from left to right around the vein. Contrary to the usual course, the vein conveys arterial blood to the foetus, and the arteries return venous blood to the placenta. These vessels are imbedded in a yellow gelatinous matter, known from the first describer as Wharton's gelatine. Nervous filaments have been traced into the cord; but the presence of lymphatics is doubtful. The whole is invested by a membrane (the amnion) and its ordinary length is about twenty inches. As soon as a child is born, and its respiration fairly established, the umbilical cord is tied, and divided near the navel, which spontaneously closes, the fragment of attached cord dying away.

UMBILICUS is the anatomical term for the navel.

UMBRELLA now means a portable protector from rain, while the name parasol is given to the generally smaller, lighter, and more fanciful article carried by ladies as a sun-shade. But, primarily, the umbrella (*ombrella*, Ital. dim. from Lat. *umbra*, shade), was a sun-shade alone—its original home having been in hot, brilliant climates. In Eastern countries, from the earliest times, the umbrella was one of the insignia of royalty and power. On the sculptured remains of ancient Nineveh and Egypt there are representations of kings, and sometimes of lesser potentates, going in procession with an umbrella carried over their heads; and throughout Asia the umbrella had, and still has, something of the same significance.

Among the Greeks and Romans the umbrella (*βραδεί, βραδείον, umbraculum umbella*) was used by ladies, while the carrying of it by men was regarded as a sign of effeminacy. Probably in these southern climes it never went out of use, and we find from allusions by Montaigne that in his day its employment as a sun-shade was quite common in Italy. The umbrella was not unknown in England in the seventeenth century, and was already used as a rain protector.

The umbrella as at first used, based on its Eastern prototype, was a heavy ungainly article which did not hold well together, and no little ingenuity has been exercised to bring it into the elegant, compact, and strong form which is now quite common. The early umbrella had a long handle, with ribs of whalebone or cane, very rarely of metal, and stretchers of cane. The jointing of the ribs and stretchers to the stick and to each other was very rough and imperfect. The covering material consisted of oiled silk or cotton, heavy in substance, and liable to stick together in the folds. Gingham soon came to be substituted for the oiled cloth, and in 1848 William Sangster patented the use of alpaca as an umbrella covering material. One of the most notable inventions for combining lightness, strength, and elasticity in the ribs of umbrellas was the "Paragon" rib patented by Samuel Fox in 1852. It is formed of a thin strip of steel rolled into a U or trough section, a form which gives great strength for the weight of metal. The use of such ribs, combined with the notched rings and runners which give a separate hinge and joint to each rib and stretcher, and with the thin but tough covering materials now in use, has principally contributed to the strength, lightness and elegance which ordinary umbrellas now present. Umbrella silk is principally made

at Lyons and Crefeld; but much of it is so loaded in dyeing that it cuts readily at the folds. Textures of pure silk or of silk and alpaca mixed have better wear-resisting properties.

UMBRIA (*Ὀμβρική, Ὀμβρικοί, Ὀμβροί, UMBRI*). The early Greeks applied the name *Ὀμβροί* to all central and northern Italy. Herodotus (iv. 49) speaks of it somewhat vaguely, as if it extended up to the Alps. The Umbrians probably extended across central Italy from sea to sea down as far as Latium. Pliny (iii. 13, 19) tells us that the Umbri were considered the most ancient nation of Italy (*antiquissima gens Italiæ*), by which he probably means, of the Italian stock. The Greek writers included under the name of Umbria the district known in later times as Picenum. Pseudo-Scylax makes Umbria march with Samnium, and describes Ancona as a city of Umbria. The Umbrians seem to have found the Siculi and Liburni in occupation of the land into which they advanced, the former holding the parts lying toward the interior, the latter people the district along the Adriatic. The Umbrians were one of the chief peoples of that branch of the Indo-European family which had entered Italy from the north and driven out and absorbed the older inhabitants. They were more closely connected with the Samnites and Oscans than with the Latin stock, as is shown by their language. Their possession of the fertile regions of upper Italy exposed them to the constant assaults of fresh bodies of invaders, pressing on over the Alps, and perhaps likewise from the seaboard. Their force was extended over a wide area, and thus too weak to withstand the attacks from various sides to which they were exposed. Thus their extensive territory was gradually reduced by the successive encroachments of other peoples. First came the Etruscans, who, according to Herodotus (i. 94), were Lydians, who established themselves in the land of the Umbrians. From which side of Italy they made their invasion, whether from the mouth of the Po or from the western coast of what later became Etruria, or whether from both, we have no means of determining. That the Umbrians did not yield without a struggle we cannot doubt. It was only after 300 of their towns had been captured by the Etruscans that they succumbed. Nevertheless they still retained considerable influence in upper Italy, which, according to Strabo, continued down to the time of the Roman conquest.

At this time Umbria as a state consisted of the region bounded on the west by the Tiber, on the south by the Sabines, on the east by Picenum and the Adriatic, while on the north it extended close up to the southern or Spinetic mouth of the Po. How much farther south the Etruscan sway had once reached we cannot determine, but that they had once held this region, as far as Ravenna at least, is rendered probable by the tradition that Ravenna had been founded by a colony of Thessalians who, not brooking the insulting treatment which they received from the Etruscans, gladly admitted some Umbrians, who thus became the possessors of the city. When the great Gaulish inroad took place at the beginning of the fourth century B.C. Etruscans and Umbrians alike suffered severely. Some of the Celtic tribes crossed the Po and formed permanent settlements. The Ananes settled in the Apennines, the Boii between the former and the Adriatic; next came the Lingones; and finally the Senones occupied the seaboard of the Adriatic as far as the Rubicon. The early Greeks had included under the name of Umbria the district along the Adriatic, afterward known as Picenum. This consisted of a fertile region, extending from beyond Ancona to the river Matrino. Thus, by the advance of the Gauls



from the north and the Picentes from the south, the Umbrians were shut off from the seaboard, and confined to the district known as Umbria in historical times. When Rome began the consolidating of Italy, Umbria consisted of the region bounded by the Ager Gallicus on the north, by Etruria (the Tiber) on the west, by Picenum on the east, and by the Sabines on the south. The Umbrians kept a desperate hold of this district, which lies between the two arms of the Apennines. Thenceforward they play but an insignificant part in Italian history. This is explained by the physical formation of their country. It is an extremely mountainous region, with a few small plains between, which were noted for their fertility. Hence arose a number of small but thriving communities, none of which had the capacity of developing into a leading state such as Rome became for the Latins. Their want of seaports likewise excluded them from trade, the mouths of all the rivers which flowed from their country being in the hands of their enemies.

Of the Umbrians' political and municipal organization little is known. In addition to the city (*tota*) they seem to have had a larger territorial division in the *tribus* (tribu, acc.) as we gather from Livy (xxi. 2, per Umbriam quam tribum Sapiniam vocant; cf. xxxiii. 37) and from the Eugubine Tables (trifor Tarsinates, vi. B. 54). From the fertility of their land their communities were very prosperous. The olive and vine flourished in their valleys; they grew spelt abundantly; and the boars of Umbria were famous. Ancient authors describe the Umbrians as leading effeminate lives, and as closely resembling their Etruscan enemies in their habits. The alphabet consists of nineteen letters. The Umbrians counted their day from noon to noon. But whether they borrowed this likewise from the Etruscans we do not know (Pliny, ii. 77). In their measuring of land they employed the *vorsus*, a measure common to them and the Oscans (Frontinus, *De Limit.* p. 30), three and one-third of which went to the Roman *jugerum*. When the Romans undertook the conquest of Italy, the most feeble resistance of all was offered them by the Umbrians. In the great struggle between the Samnite confederacy and Rome, Umbria played an insignificant part. It is probable that all through the Second Samnite War their sympathies were altogether on the side of their Samnite kinsmen, and that some assistance was afforded by individual communities. It is not unlikely therefore that it was with a view to keep the Umbrians in check that the Romans planted a colony at Nequinum on the Nar, whose inhabitants were known as Nartes Interamnates, and who are included with the Etruscans, Iapydes, and Tadinates in the list of persons who were forbidden to be present at the sacred rites of Iguvium. At length, in 308 B.C., the Umbrians made a vigorous effort to aid the Samnites, which, had it taken place earlier in the war, might have had the most important influence on the issue of the struggle. As it was, it came too late; the Etruscans had already laid down their arms. When the battle of Sentinum (295) finally crushed the Samnites and Etruscans, Umbria remained in the hands of the Romans. Thenceforward the process of Latinizing went on steadily, for by the first century B.C. we find them employing the Latin alphabet in copies of the ancient sacerdotal ritual of Iguvium (see EUGUBINE TABLES). We know that the Oscan language only finally expired in the first century of our era, and there is no reason for believing that the Umbrian had disappeared much earlier. When the Romans conquered the Senones, 280 B.C., the Ager Gallicus was restored to Umbria, and both together formed under the empire the sixth region of Italy.

UMMERAPOORA, another form of AMARAPURA (q. v.).

UMPIRE is a third arbitrator appointed by two arbitrators in the event of their differing in opinion; and when the reference or arbitration has devolved upon the umpire, his award or umpirage becomes final and binding on the parties. In certain cases the umpire is appointed by the contesting parties, without the intervention of arbitrators.

UMROHAH, a town of British India, in the district of Moradabad, N. W. Provinces, 80 miles E.N.E. of Delhi. Population 32,314.

UNALASKA, an island in the North Pacific, belongs to the Fox group of the Aleutian Islands, in latitude 55° 52' N., and 166° 32' W. It is 75 miles long, and in some parts 20 miles broad, has a rugged mountainous surface, and is thinly peopled. Ships are here supplied with all necessities except wood.

UNAO, a British district in the Lucknow division of Oudh, India, under the jurisdiction of the lieutenant-governor of the North-Western Provinces. The area of the district is 1,768 square miles, and it is bounded on the north by Hardoi, east by Lucknow, south by Rai Bareilly, and west by the Ganges. Unao is very flat, and has no features of particular interest. Rich and fertile tracts, studded with groves, alternate with stretches of waste land and plains of barren *usar*, the whole being intersected with small streams, the water from which is extensively used for irrigation. The Ganges is the only navigable river in the district. The temperature varies from about 75° to 103° in the hot weather, and from 46° to 79° in the cold season. The average annual rainfall is about 34 inches.

In 1899 the population was 899,069; of these 830,342 were Hindus, 68,677 Mohammedans, and 49 Christians. Unao, the capital and administrative headquarters, nine miles northeast of Cawnpore, had 9,509 inhabitants. The cultivated area of Unao amounted in 1885-86 to 598,131 acres, and 289,356 acres were returned as cultivable. The principal crops are rice, wheat, and other food grains, cotton, sugar-cane, and indigo. The cultivation is mainly dependent on irrigation. The principal exports are grain of all kinds, gür, ghi, tobacco, and a little indigo and saltpeter; and the chief imports are piece goods, salt, iron, cotton, spices, etc. The gross revenue of the district in 1885-86 amounted to \$915,415, the land yielding \$724,570. During the mutiny of 1857-58 Unao was the scene of several severe engagements between General Havelock's little army and the rebels.

UNCIAL LETTERS—so called as being an inch (Lat. *uncia*) long—characters of a large and round form, used in some ancient MSS. The earliest form of an alphabet is its capitals, and the oldest Greek and Latin MSS. are written entirely in capitals. Uncial letters, which began to take the place of capitals in the middle of the fifth century, differ from them in being composed of rounded and not straight lines, and exhibiting a tendency toward greater expedition in style. Uncial writing arose as writing on papyrus or vellum became common, the necessity for more rapid execution leading to the practice of curving the lines. It being more easily learned than the cursive style, was probably the cause of its becoming the favorite mode of writing books of importance among the monkish scribes; while legal instruments, which required greater dispatch, were executed by professional scribes in a corrupted form of the Roman cursive hand. Uncial writing prevailed from the sixth to the eighth, or even to the tenth century.

UNDERGRADUATE, a student of a university or college who has not yet taken his first degree.



**UNDINES** (perhaps from *unda*, a wave), the name given in the fanciful system of the Paracelsists to the elementary spirits of the water. They are of the female sex. Among all the different orders of elementary spirits, they intermarry most readily with human beings, and the Undine who gives birth to a child under such a union, receives with her babe a human soul. But the man who takes an Undine to wife must be careful not to go on the water with her, or at least not to anger her while there, for in that case she will return to her original element. Should this happen, the Undine is not supposed to consider her marriage dissolved; she will rather seek to destroy her husband should he venture on a second marriage. Baron de la Motte Fouque has made this Paracelsist fancy the basis of an exquisite tale, entitled *Undine*.

**UNDULATORY THEORY.** See **OPTICS** and **WAVE THEORY**.

**UNGVÁR**, chief town of the county Ung, in the northeast of Hungary, stands on the river Ung. It is the seat of the bishop of Munkács, and has a fine Greek cathedral, an episcopal seminary, a lyceum, a gymnasium, and also a teachers' college, a county hall, and an interesting ancient castle. The town and district produce good wine in large quantity, and abound in mineral springs. There is a good trade in timber and china clay. The population in 1896 was 15,460.

**UNICORN**, an animal with one horn. The name is applicable and has sometimes been applied to the rhinoceros, which is, for example, the Sumatran unicorn of Marco Polo. But the figure usually associated with the name is the well-known heraldic one of an animal with the form of a horse or ass, save that a long straight horn with spiral twistings, like the tusk of the narwhal, projects from its forehead. The belief in the existence of a one-horned animal of this kind goes back to Aristotle. Later descriptions of the Indian unicorn, *e.g.*, that of Ælian (*Nat. An.*, xvi. 20), are plainly influenced to some extent by accounts of the rhinoceros, but the authority of Aristotle determined the general form ascribed to the animal. The twisted horn, of which Ælian already speaks, seems to have been got by referring to Aristotle's unicorn actual specimens taken from the narwhal; see Yule's *Marco Polo*, ii. 273. The ancient and mediæval lore of the subject may be seen in Bochart *Hierozoicon*, iii. 26. The familiar legend that the unicorn could be taken only by the aid of a virgin obtained currency through the *Physiologus*. The English Bible, following the Septuagint (*μονόκερως*), renders the Hebrew *rēm* (רֵמ) by "unicorn." But two horns are ascribed to the *rēm* in Deut. xxxiii. 17, and the Hebrew word reappears in Arabic as the name of the larger antelopes, probably the *Antilope leucoryx*, while in Assyrian the *rimu* appears to be the wild ox.

**UNIGENITUS, BULL**, one of the most important documents in the history of Jansenism. It was occasioned by the publication of the *Réflexions Morales* of Quesnel, in which all the essential principles of Jansenism were revived, and, although cautiously, yet systematically explained, so far to form the basis of the practical, moral, and religious teaching which it is the object of the *Réflexions Morales* to convey. The book was at first simply prohibited by a brief of Pope Innocent XI., in the year 1708; but, as it found many patrons, and especially the Archbishop of Paris, Cardinal de Noailles, it was deemed necessary to subject it to a more detailed examination, the result of which was that 101 propositions were extracted from it, and formally condemned in 1713 by a bull commencing with the word "Unigenitus." The mode of condemning the propositions was peculiar, being that which is technically called

*Damnatio in globo*. The whole body of propositions were condemned as "heretical," "false," "rash," "scandalous," "offensive to pious ears," etc., without, at the same time, any particular propositions being pointed out as deriving any of these specific forms of censure. This circumstance, with others, gave rise to much controversy, and to a prolonged opposition to the bull. DeNoailles and other bishops refused to accept it unless with certain qualifications; on the contrary, Louis XIV. insisted on unconditional acceptance; but, on the death of Louis, the Regent, the Duke of Orleans, having given his countenance to the opponents of the bull, the resistance was persisted in, and eventually a declaration was put forth in 1718 by certain bishops, four in number, appealing from the Pope to a general council. This appeal was condemned by the Pope, nor was it countenanced even by the Regent, but a more modified appeal, "from the pope ill-informed to the pope better informed," was afterward published by De Noailles, which obtained many adherents, and by which the opposition was kept alive to the end of the pontificate of Clement XI., in 1721, and even under his successors, Innocent XIII. and Benedict XIII. It was not till the year 1730, that, after the formal registration on the Bull Unigenitus by the parliament of Paris, the party thus created in France, and known under the name of "Appellants," received its final condemnation from the civil authority, after which it gradually died out, although some relics of it are traceable, even after all the storms of the Revolution, in the so-called "Petite Eglise."

**UNION.** The crowns of England and Scotland were united under one sovereign on the accession of James VI. of Scotland to the English throne as James I. in 1603; but for above a century longer each country continued to be ruled by its respective parliament, the interest of the one often coming into collision with that of the other. After various fruitless proposals for a closer connection of the countries, the Scotch were, in 1702, prevailed upon to send twenty commissioners to London, who, with twenty-three English commissioners, should deliberate on the terms of the union. Their proceedings, after being broken off, were resumed in 1706. The Scottish commissioners were at first disposed to a mere federal union, and objected to the proposed assimilation of customs, excise, and regulations of trade: but a majority were at last brought over to the views of the English commissioners; and the minority, with one exception, yielded. The union, though popular in England, was the subject of great dissatisfaction in Scotland, being regarded by the bulk of the community as a surrender of national independence to a powerful rival. Addresses against it were presented from all quarters, and in some places the people rose in arms, forming regiments of horse and foot to oppose it. The treaty was, however, after strenuous opposition, ratified by the Scottish as well as by the English parliament, and ultimately completed on May 1, 1707. Its principal conditions were the incorporation of England and Scotland into the United Kingdom of Great Britain, the succession of whose monarchs was to be the same as that of England. There was to be one parliament, in which the peers of Scotland would be represented by sixteen of their number elected each parliament, and forty-five Scotch members were to sit in the House of Commons. All rights and privileges were to be common between the subjects of both kingdoms, unless when otherwise agreed. The Episcopal Church was confirmed in England, and the Presbyterian in Scotland.

The laws of trade, customs, and excise of Scotland were to be assimilated to those of England, and the coinage, weights and measures of the two countries



were to follow a uniform standard. In other matters the laws of Scotland were to remain in force, but might be altered by the parliament of Great Britain. The separate Privy Council of Scotland, which the Act of Union left untouched, was abolished the following year.

Ireland remained a distinct kingdom till the year 1801, when it was united with Great Britain, into the United Kingdom of Great Britain and Ireland. By the terms of the union, the separate parliament of Ireland was done away with, and Ireland was represented in the parliament of the United Kingdom by 4 lords spiritual and 28 lords temporal in the House of Lords and 120 members of the House of Commons. Power was reserved to the sovereign to create one peer of Ireland for every three extinct peerages and when the peerage of Ireland became reduced to 100 to create one peerage for each one that became extinct, so as to keep the peerage of Ireland up to 100, over and above those Irish peers who are also peers of England and Great Britain. The churches of England and Ireland were united into one Protestant Episcopal Church. The subjects of Ireland were placed on the same footing as those of Great Britain in respect of trade and navigation, and in all treaties with foreign powers; and the law courts of Ireland were to continue, subject to the regulations of parliament; writs of error and appeals being decided by the House of Lords of the United Kingdom. The Anglican church in Ireland was disestablished and disendowed in 1868. Ireland has always opposed the Union, which was obtained by bribery and fraud, and this gives point to the Home Rule agitation.

UNION COLLEGE, a seat of learning at Schenectady, N. Y., incorporated in 1795, chiefly by the efforts of Gen. Philip Schuyler, a distinguished officer of the American Revolution. It was named Union from its being established by the coöperation of several religious denominations. Its first president was John Blair Smith of Philadelphia, who was succeeded in 1799 by Jonathan Edwards, the younger; but its great prosperity and usefulness were secured under the presidency of Rev. Eliphalet Nott, from 1804 until his death in 1865. By his zeal and enterprise it was endowed and equipped with buildings, library, and natural history cabinets. In 1873 a school of engineering, a medical college, and a law school were associated with the Union College, now known as the Union University.

UNION JACK (from the jacque, or surcoat, charged with a red cross, anciently worn by the English soldiers), the national banner of the United Kingdom of Great Britain and Ireland, formed out of the combination of the crosses of St. George, of St. Andrew, and of St. Patrick, these three crosses being the national banners of England, Scotland, and Ireland, respectively. The first Union Jack, which was introduced by a royal proclamation in 1606, three years after the union of the Scottish with the English crown, combined only the crosses of St. George and St. Andrew. This combination was by royal proclamation of date July 28, 1707, constituted the national flag of Great Britain. On the union with Ireland, a new union ensign was devised, in which the cross of St. Patrick was introduced, with its four limbs edged with white on one side. This awkward specimen of heraldry forms the second and now existing union ensign.

UNIONTOWN, the capital of Fayette county, Penn., and one of the many handsome cities met with at brief intervals throughout the interior of the State, is pleasantly situated on the Fayette county branch of the Baltimore and Ohio railroad and on the Pennsylvania Central, seventy miles southeast of Pittsburgh. It was one of the most prominent points on the National road, at a period in the early history of the nation when that

public improvement was the highway of emigration from the Alleghenies to the Missouri river, and is today of equal importance as a receiving and shipping point on two of the leading lines of railway in the country. Besides being the depot and distributing center for an immense area of agricultural territory, Uniontown also handles very large quantities of coke and iron, in the production of which heavy outlays are made annually. The city contains one savings and two national banks, a court-house, four weekly papers, ten churches, the Madison college, a high school, soldiers' orphans' school, several hotels and a large number of stores. Manufactures embrace coke, glass, machinery, flour, carriages, cigars, and iron. The population has been increased from 3,265 in 1880 to 7,344 in 1900.

UNITARIANISM. The term Unitarianism in its widest sense includes certain lines of the great religious and theological movement or revolution of the Reformation in the sixteenth century, when this is regarded as the commencement of the process of the humanization of theology and ethics on the basis of the autonomy of the human mind. In another sense the term stands for a set of theological opinions, more or less variable, and yet in their general drift connected, some of them as old as Christianity, and one section of which only is indicated by the term when used as synonymous with Antitrinitarianism. Poland, Transylvania, England, and America are the only countries in which Unitarian congregations have existed in any numbers or for any length of time. Elsewhere, either the law of the land has rendered their existence impossible, or they have been unnecessary in consequence of the substantial adoption by the existing churches of their principles and doctrines. The former was the case in Italy, Switzerland, Germany, and England in the sixteenth and seventeenth centuries, the latter to a certain extent in England in the eighteenth century, still more in Germany in the eighteenth and nineteenth centuries, and in Holland in the present century, as also to a large extent in France in the Reformed Church.

The Unitarians in Poland under the names of Arians, Samosatenians, Pincowians, were formed into a separate church in 1565 by their exclusion as Antitrinitarians from the synods of the Trinitarian Protestants. Very early in the progress of the Reformation in Poland individuals had arrived at heterodox opinions on baptism and the Trinity, very much under the influence of the heterodox Italian refugees in Switzerland, some of whom visited Poland. Gonesius and Gregory Pauli were the first to openly preach Antitrinitarian doctrine. After their separation from the orthodox, the Polish Unitarians developed divergent views as to the nature of Christ, as to the lawfulness of paying divine worship to Him, as to the subjects of baptism (infants or adults), and as to the relation of Christians to the state. On the first point some were Arians and others Humanitarians, while those who claimed divine worship for Christ were called *Adorantes* and those of the opposite view *Non-adorantes*. An epoch in the history of the party was made by the arrival of Fausto Sozzini at Cracow in 1597 (see SOCINUS). He succeeded in converting the great majority of the churches to his views and in silencing the dissentients. Henceforth the Polish Unitarians adopted the Socinian practice of paying worship to Christ, the Socinian view of the necessity of baptism and of the Christian's duty toward the state. They rapidly became a numerous and powerful body in Poland, distinguished by the rank of their adherents, the ability and learning of their scholars, the excellence of their schools, and the superiority and wide circulation of their theological literature. Racow, the theological center of the Socinians, with its school and printing presses, obtained



a world-wide fame. But before the death of Fausto Sozzini (1604) the situation of the Unitarians became more difficult, and in 1611 the Jesuits obtained their first open triumph over them. The final blow to the whole body followed in 1658, when all adherents of "the Arian and Anabaptist sect" were commanded to quit the kingdom within two years. A few renounced their faith, but the large majority fled into Transylvania, Prussia, Silesia, Holland, and England.

Next to Poland Transylvania was the most important seat of Unitarianism. It is generally considered that the Italian refugee, Biandrata, was the founder of Transylvanian Unitarianism, but the present representatives of the body claim for it a nobler and domestic origin. Biandrata attended John Sigismund as a physician in 1563, and under his influence Unitarianism made rapid progress. In 1568 its professors, favored by the king and many magnates, after separating from the orthodox church, constituted themselves a distinct body under the distinguished man, Francis David, who is now regarded as the apostle of true Transylvanian Unitarianism. Their principal center was Klausenburg (Kolozsvár), where they had a large church, a college, and a printing-press. But the same conflict between a more radical and a more conservative tendency which appeared among the Unitarians of Poland greatly disturbed the churches of Transylvania, particularly with regard to the worship of Christ. Gradually the Socinian view prevailed, though in 1618 an old order to worship Christ required reinforcement. In the latter half of the eighteenth century the more logical view of David entirely disappeared. Under the Austrian dynasty the Unitarians were often exposed to great trials, until Joseph II. secured to them their rights and privileges. But of late years the Transylvanian Unitarians have been in close relation with their co-religionists in England and America, some of the ministers having been educated at Manchester New College, and in consequence their theology is becoming essentially modern. The number of members was 32,000 in 1789, and in 1847 40,000, distributed in 104 parishes with 120 pastors. Their present number is 53,539 in 106 parishes. Their chief centers are Kolozsvár, Thorda, and Keresztur, where they have excellent schools.

For two and a half centuries previous to the rise of organized Unitarianism in England, opinions commonly called by this name found numerous individual advocates and some martyrs. John Bidle (1615-62) published catechisms of Unitarian doctrine, translated Socinian works, and publicly discussed and preached an English form of Socinianism. But the severity of the law against Antitrinitarians, coupled with the gradual growth of free opinion in the Established Church and among the Presbyterian congregations, made the formation of separate Unitarian churches impossible, and, as was felt, less necessary for another hundred years. In the year 1791 was formed the Unitarian Book Society for the distribution of literature, and several provincial associations originated about the same time. In 1806 the Unitarian Fund Society was established, with the object of promoting Unitarian Christianity by direct mission work. In 1818 arose another society for protecting the civil rights of Unitarians. These various societies were consolidated in 1825 under the name of the British and Foreign Unitarian Association, which has now its headquarters in the building formerly used as Lindsey's chapel and residence in Essex street, London. The penal laws against Antitrinitarianism, which had long been obsolete, were repealed in 1813, and in 1844 the right of Unitarians to the chapels which they held in succession from their

Presbyterian forefathers was legally secured to them by the Dissenters' Chapels Act without altering their undogmatic trust-deeds. With the rise of a more spiritual philosophy in Germany, which bore fruit in England and America before the close of the second decade of the century, the theology of English Unitarianism underwent a radical change, very much in the first instance under the influence of Doctor Channing's writings.

English Unitarian theology was thereby brought into close sympathy with modern scientific theology in Germany and elsewhere. This great and saving transformation was mainly due directly to James Martineau, J. J. Tayler, and J. H. Thom, aided by the writings of Channing and then of Theodore Parker. The number of congregations in England and Wales generally described as Unitarian is about 300, nearly half of which date from between 1662 and 1750, and nearly all of which have undogmatic trust-deeds. Their constitution is purely congregational. For the education of their ministers they have Manchester New College, London (strictly undenominational), the Unitarian Home Missionary Board, Manchester, and Carmarthen College, supported and managed by the Presbyterian Board in London, but practically Independent and Unitarian. The organs of the body are *The Inquirer*, *The Christian Life*, *The Unitarian Herald* (weeklies), and *The Christian Reformer* (monthly). In Scotland there are seven Unitarian congregations and two Universalists, the latter being, as in America, Unitarian in doctrine. In Ireland the number is about forty, being nearly all Presbyterian in constitution. They are much stronger in the north than in the south of Ireland. In the north Antitrinitarian views began to spread about 1750; but the first congregation at Dublin traces its Unitarianism back to Thomas Emlyn, who was imprisoned for his Arian opinions in 1702 at the instigation of orthodox Dissenters.

In the United States Unitarianism had no organized existence previous to 1815, and as in England at the present time the name has always covered great differences of opinion within a common outline of belief or common drift of religious thought. Historical American Unitarianism represents "the liberal wing of the Congregational body." Of the existing 370 churches 120 or more were originally the parish churches founded by the Puritan Congregationalists, which, like the Presbyterian congregations in England, passed gradually from Calvinism through Arminianism to Unitarianism, of which Harvard College became the spiritual center. In 1812 there was but one church in America professedly Unitarian (that of King's Chapel, Boston), though the ministers of Boston generally held Unitarian views. In 1815 Belsham's account of the "State of the Unitarian Churches in America" (in his *Life of Lindsey*, London, 1812) led to a controversy, the issue of which was the distinct avowal of Unitarian principles on the part of the liberal clergy of New England. Dr. Channing came forward as the prophet and champion of American Unitarianism, though the older he grew the more emphatically he repudiated sectarianism in every form. The Congregational body was thereby split into two sections, one of which styled themselves Unitarian Congregationalists. In 1825 the American Unitarian Association was formed, mainly for the diffusion of Unitarian literature and the support of poor congregations. At that time the Unitarian churches numbered about 122. Twenty years later they were some 280, while now they are about 370. The theological colleges of the body are the Divinity School of Harvard University, which is, like Manchester New College, undenominational, and the Theological School of Meadville. From 1815 to about 1836 a Biblical, semi-rationalistic, semi-



supernaturalistic theology prevailed, in the heart of which Channing's elevated ethical ideas were fermenting and slowly preparing a new birth. From 1836 forces such as Biblical criticism, Carlyle and Emerson's "transcendentalism," and Theodore Parker's "absolute religion" opened the era of modern theology, bringing American Unitarianism into living touch with the philosophy and theology of Germany. An effort in 1865 to bring the right and left wings of the body into a closer confederation with a more pronounced profession of Christianity led to the formation of a Free Religious Association on the broad basis of the love of truth and goodness. In the Western States the same controversy as to the basis of religious association has been raging for more than ten years. In May, 1886, a resolution was passed by the Western Unitarian Conference by a majority of more than three-fourths adopting a purely ethical and non-theological basis. This led to a split in the body, and the formation of a new Western Association on a distinctly Christian platform. The left wing of American Unitarians show greater sympathy with recent scientific speculation and less fear of pantheistic theories than is the case with English Unitarians. The organs of the body are *The Unitarian Review* (Boston), *The Christian Register* (Boston), and *The Unity* (Chicago).

In 1901 there were about 72,000 Unitarians in the United States and Canada, 550 ministers, and 450 houses of worship. The receipts for the year were \$79,221, and the expenditures were \$103,989, showing a deficiency of \$24,775, which had to be withdrawn from the general fund; the latter, after accounting for the addition of \$69,000, and for the amounts which had been withdrawn from it, aggregated \$139,609.

UNITAS FRATRUM. See MORAVIAN BRETHREN.

UNITED BRETHREN IN CHRIST, a body of Protestant Christians in the United States of America, which, in 1901, included 4,229 organized churches (4,078 in 1877), 243,841 members (143,881 in 1877), 1,897 itinerant ministers, 890 local preachers, 3,169 Sunday schools, with 28,547 teachers and 179,729 scholars. The total value of church property held by the denomination was \$3,345,064; the sum raised for salaries, church building expenses, colleges, missions, and the like made a total of \$842,700. The organization of the church is Episcopal (six bishops, two of them missionary), but its polity combines features of the Methodist, Congregational, and Presbyterian systems. The creed may be described as Arminian. The members are prohibited from joining secret societies, and from using alcohol or engaging in its manufacture or sale. In connection with the denomination are a theological institution, ten colleges, and nine academies, or seminaries, of a higher grade, with sixty-two professors, sixty-four other teachers, and 2,486 students. There are forty-nine annual conferences, forty-six of them in the United States. Two missions in the Sherbro country, in West Africa, have six American missionaries, nine churches, and 2,631 members; in Germany there are ten German missionaries, with twenty churches and 615 members.

The denomination originated in the labors of P. W. Otterbein (1726-1813), a native of Germany, who came as a missionary to Lancaster, Pa., in 1752, and settled at Baltimore in 1774. He became associated with Martin Boehm, a Mennonite preacher, and also coöperated with the Methodist preachers when they came to Pennsylvania. The first annual conference was held in 1800.

UNITED KINGDOM, THE, OF GREAT BRITAIN AND IRELAND, is the official title, adopted in 1801, now

applied to England, Scotland, and Ireland (see GREAT BRITAIN). The total area is returned as 77,657,065 acres, or 120,979 square miles—England and Wales embracing 37,370,041 acres (whereof Wales 4,721,633), Scotland 19,467,077, and Ireland 20,819,947. The population of the counties according to the census of 1901 was 41,605,323, and their parliamentary representation as determined by the Redistribution Act of 1885 was 661. In the enumeration of the Scottish members of parliament, groups of burghs are included in the counties containing the burghs whence they are respectively named, while it may be said in passing that Kinross county is united with Clackmannan, Nairn with Elgin, and Selkirk with Peebles. The addition of the nine university representatives (England, 5; Scotland, 2; Ireland, 2) brings the total membership of the House of Commons to 670.

For the Islands in the British Seas the figures are as follows: Isle of Man—141,263 acres, population, 54,758; Channel Islands—48,322 acres, population, 95,841.

UNITED PRESBYTERIAN CHURCH, THE, in point of numbers the third of the Presbyterian organizations of Scotland, was formed 1847 by the union of the United Secession and Relief Churches. The doctrinal standards are those of the other Presbyterian churches of Scotland, and the formula employed at the ordination of ministers is similar to that of the Established and Free Churches; but adherence to the doctrinal standards is professed in view of the Declaratory Act of 1879, according to which signatories "are not required to approve of anything in the standards of the church which teaches or is supposed to teach compulsory or persecuting and intolerant principles in religion," and are allowed freedom of opinion on all points which, in the judgment of the church, do not enter into the substance of the faith. The denomination in 1901 consisted of thirty-two presbyteries and 911 congregations (518 in 1847), with a total membership of 115,901 (175,066 in 1878; 178,195 in 1883), thus representing about fourteen per cent. of the population of Scotland. The number of baptisms in 1886 was 9,894; there were 887 Sunday schools, with 11,994 teachers and 97,535 scholars, besides 788 advanced Bible classes, with 30,535 scholars. The total income of the church in 1886 was \$1,867,720 (average for ten years from 1877 to 1886, \$1,878,300); of this total \$1,686,500 was ordinary congregational income, and \$681,225 missionary and benevolent income. The average stipend paid to each minister was \$1,295. There is a divinity hall in Edinburgh with four professors and (session 1887-88) 114 students. The term of study is three years. The United Presbyterian Church has missions in Jamaica (a synod with four presbyteries), Trinidad, Kaffraria, Old Calabar, India, China, Japan, and Spain. The mission staff consists of sixty ordained Europeans, twenty-two ordained natives, eight medical missionaries, three European evangelists, and nineteen female missionaries. Under these are 502 native evangelists, teachers and other helpers. In 1886 the membership of the native congregations was 13,214 (10,215 in 1881). In Jamaica there is a theological institution. At the end of 1875 the denomination had 620 congregations, with 190,242 members, but in June, 1876, 98 of its congregations in England, with 20,207 members, were incorporated with the English Presbyterian Church.

The general causes which led to the first great secession from the Church of Scotland as by law established in 1688 have already been briefly indicated under PRESBYTERIANISM; compare also SCOTLAND, CHURCH OF. Its immediate occasion rose out of an Act of Assembly of 1732, which abolished the last remnant of popular election by enacting that, in cases where patrons might









neglect or decline to exercise their right of presentation, the minister was to be chosen, not by the congregation, but only by the elders and Protestant heritors.

In the following October Ebenezer ERSKINE (*q.v.*), minister of Stirling, who happened to be moderator of the synod of Perth and Stirling, preached a synod sermon, in the course of which he took occasion to refer to the Act in question as in his opinion unscriptural and unconstitutional. Some of his expressions were objected to by members of synod because "tending to disquiet the peace of the church and impugning several Acts of Assembly and proceedings of church judicatories," and after long and keen debate it was resolved that he should be censured for them. This judgment, on appeal, was affirmed by the Assembly in May, 1733, whereupon Erskine protested to the effect that he held himself still at liberty to teach the same truths and to testify against the same or similar evils on every proper occasion. This protest, in which he was joined by William Wilson, Alexander Moncrief, and James Fisher, ministers at Perth, Abernethy, and Kinclaven respectively, was regarded by the Assembly as contumacious, and the commission of Assembly was ordered to procure its retraction or to proceed to higher censures. In November, accordingly, the protesting ministers were severed from their charges, their churches declared vacant, and all ministers of the church prohibited from employing them in any ministerial function. They replied by protesting that they still adhered to the principles of the church, though now obliged to "make a secession from the prevailing party in ecclesiastical courts," maintaining their continued right to discharge all the duties of the ministerial and pastoral office "according to the word of God, the Confession of Faith, and the constitution of the church," and appealing to the "first free, faithful, and reforming General Assembly of the Church of Scotland."

In December, 1733, they formally constituted themselves into a presbytery, but for some time their meetings were devoted almost entirely to prayer and religious conference. In 1734 they published their first "testimony," with a statement of the grounds of their secession, which made prominent reference to the doctrinal laxity of previous General Assemblies. In 1736 they proceeded to exercise "judicial powers" as a church court, published a "judicial testimony," and began to organize churches in various parts of the country. Having been joined by four other ministers, including the well-known Ralph Erskine, they appointed Mr. Wilson professor of divinity. For these acts proceedings were again instituted against them in the Assembly, with the result that, having disowned the authority of that body in an "act of declinature," they were, in 1740, all deposed and ordered to be ejected from their churches. A violent controversy arose in 1745 respecting the religious clause of the oath taken by burgesses in Edinburgh, Glasgow, and Perth, and resulted, in April, 1747, in a "breach," when two bodies were formed, each claiming to be the "Associate Synod;" those who condemned the swearing of the burgess oath as sinful came to be popularly known as "Antiburghers," while the other party, who contended that abstinence from it should not be made a term of communion, were designated "Burghers."

The Associate (Antiburgher) Synod held its first meeting in Edinburgh in the house of Adam GIB (*q.v.*) on April 10, 1747. It grew with considerable rapidity, and in 1788 had ninety-four settled charges in Great Britain and nineteen in Ireland, besides a presbytery in America. For purposes of organization it was formed in that year into four provincial synods, and took the name of "The General Associate Synod." The "new

light" controversies as to the province of the civil magistrate in matters of religion led to the publication of a revised testimony in the "voluntary" sense in 1804, and in consequence M'Crie, the historian of Knox, with three other brethren, withdrew to form the Constitutional Associate presbytery. The Associate (Burgher) Synod held its first meeting at Stirling on June 16, 1747. The number of congregations under its charge rapidly increased, and within thirty years there were presbyteries in connection with it in Ireland and North America, as well as throughout Scotland. In 1782 the American presbyteries took the designation of the Associate Reformed Church in America. About the year 1795 the "voluntary" controversy respecting the power of the civil magistrate in matters of religion arose within this synod also, and a large majority was found to have adopted "new light" views. This led in 1799 to the secession of the "Associate Presbytery," which in 1805 took the designation of the Associated Synod or Original Burgher Synod. In 1820 the General Associate or Antiburgher Synod (to the number of 129 congregations) united with the 154 congregations of the Associate or Burgher synod. The body thus constituted "The United Secession Church," had increased by 1847 to 400 congregations, the whole of which united in that year with the Relief Synod to form the United Presbyterian Church.

The Presbytery of Relief was constituted in 1761 by three ministers of the Church of Scotland, one of whom was Thomas GILLESPIE, (*q.v.*) The number of congregations under its charge increased with considerable rapidity, and a relief Synod was formed in 1773, which in 1847 had under its jurisdiction 136 congregations; of these 118 united with the United Secession Church in that year. The Relief Church issued no distinctive "testimonies," and a certain breadth of view was shown in the formal declaration of their terms of communion, first made in 1773, which allowed occasional communion with those of the Episcopal and Independent persuasion who are "visible saints." A relief theological hall was instituted in 1824.

UNITED PROVINCES. See HOLLAND.

\*UNITED STATES OF AMERICA, THE, a Federal Republic, occupying the southern part of the North American continent and some Pacific islands; the largest republic and largest highly civilized nation in the world; consisting of forty-five States, one Federal District, and four organized and two partly organized Territories; with various outlying and detached territorial possessions. The geographical range of the United States proper, exclusive of the detached Territories and other possessions, is from 24° 20' to 49° (at one point 49° 20' for a few miles) north latitude, and from 66° 48' to 124° 32' longitude west from Greenwich. Its greatest extension is thus about 3,100 miles east and west, and 1,780 miles north and south. Its area is 55,370 square miles of water and 2,970,230 square miles of land, not including Alaska and Hawaii. The population in 1900, exclusive of Alaska, Hawaii and the Indian Territory, was 75,693,734.

#### HISTORY.

Consideration of so vast and complex a subject as that of the United States naturally begins with its historical phases. The history of the United States is largely the history of North America, and indeed of the entire western world. It was upon the shores of this country that the earliest landings of Europeans in America were made. That was in the latter part of the tenth century. A Norse sea

rover, from Norway by way of Iceland, either in some daring wanderings or driven out of his way by storms, reached the coast of Greenland, thence crossed to Labrador, and skirted the coast as far as Long Island Sound and New York Bay. At least one colony was planted by the Norsemen, on the shores of Narragansett Bay, in the present State of Rhode Island, to which the name of Vinland was given. But it was short-lived, and by the beginning of the fifteenth century the very memory of it had perished, save in some hero-sagas of the north.

When Christopher Columbus, therefore, formed his project of a western voyage of discovery, the existence of unknown lands beyond the Atlantic was unsuspected. The latter part of the fifteenth century was a period of extraordinary enterprise and restlessness among the chief nations of Europe. Men were fascinated especially by maritime adventure, learning for the first time something of the true shape of the earth, dispelling the fables that had covered the distant seas with impenetrable darkness and encircled the tropics with a zone of fire; and searching out convenient routes to the Indies, a region of romance and mystery which, in the popular imagination, offered inexhaustible wealth of gold, jewels, silks, spices, and all else that was rarest, most precious, and most beautiful. Columbus, who was a Genoese sea captain, had been a careful student of geography, correcting the scanty knowledge of the time by whatever he could learn from the reports of the most adventurous sailors. If any vague rumor of islands in the West reached him he seems to have put no faith in it. Satisfied that the earth was round, but greatly underestimating its size, he believed that he could reach the Indies by sailing due west from Europe, a distance of not more than 2,400 miles; and the fantastic dangers with which scholars and navigators argued that such a route into the void must be beset he knew had no existence. His theory, therefore, embraced an error of no great consequence, with a truth of the first value to civilization. The discovery of America was not an accident, but something reasoned out. As Humboldt says, it was "a conquest of reflection." Columbus spent many years vainly urging his scheme at various European courts. He was listened to at last by the Spanish sovereigns, Ferdinand and Isabella, the queen espousing his cause with especial generosity; and on the 3d of August, 1492, he was enabled to set sail with three small vessels from the port of Palos, in Andalusia. The voyage was long, and the crews, some of whom had been impressed, were in almost open mutiny, when land was made out on the morning of October 12th, and the adventurers went ashore upon a small green island, of which they took possession in the name of Ferdinand and Isabella. This island, called by Columbus San Salvador, was one of the group now known as the Bahamas, perhaps either the present San Salvador, or the neighboring Watling's Island; but the most careful investigation has failed to identify it positively. Columbus spent three months among the islands, visiting Cuba and Hayti, and returning to Palos in triumph, persuaded that he had reached the Indies and that Cuba was a part of the Asiatic continent. He made four voyages to the new world, discovering the South American continent in 1498, and exploring part of Central

America in 1502, but he never became aware of his mistake. Slandered by disappointed adventurers, and grossly ill-treated by Ferdinand, he died in poverty and disgrace.

The Spaniards pushed their explorations with energy. They overran the islands and the neighboring parts of Central and South America. Balboa crossed the isthmus of Darien and waded into the Pacific, the long-sought South Sea (1513). Cortez conquered the rich Indian empire of Mexico (1519-21), and Pizarro overthrew the civilization of Peru (1531-36). Everywhere the Spaniards ravaged the land for gold. They built towns, established vice-regal governments, founded military colonies, drove the Indians to work in the mines, and in less than half a century raised upon lust, murder, avarice, slavery, and pillage, a New Spain, which poured uncrowned millions into the treasury of the King. They crossed into the countries now forming the United States, where Ponce de Leon (1512) sought the fountain of perpetual youth in Florida. Panfilo de Narvaez wandered for six years (1528-34) between Florida and Mexico. Hernando de Soto, setting out from Florida on an errand of rapine and slaughter, discovered the Mississippi (1541) and was buried in its waters. Ayllon went as far north as Maryland, and expeditions from Mexico entered New Mexico and California. The Spaniards made the first permanent settlement in the United States at St. Augustine (1565), and the second at Santa Fe (1582). For a century after the discovery they were by far the most redoubtable and most enterprising of the adventurers in the New World, and if the United States had yielded the gold of which they were in search it seems likely that they would have possessed the whole country. Fortunately the wealth of California was not revealed until the Spanish power had recoiled before a higher civilization.

Other nations had not been entirely indifferent to the wonderful things happening across the ocean, but it was long before they realized their opportunity. John Cabot, a Venetian in the service of Henry VII. of England, discovered the North American continent (1497) a year before the mainland of South America was seen by Columbus. He coasted from Labrador (probably) to Virginia, and his son, Sebastian, the next year cruised between Newfoundland and Hatteras. Upon these voyages the English subsequently founded their claims to the country, but at the time no attempt was made to occupy it. Equally barren was the expedition of the Portuguese Cortereal (1500 or 1501), who reached the mouth of the St. Lawrence. Verrazzano, an Italian in the French service, coasting from North Carolina to Maine (1523), was the first to learn that America is not a part of the Indies. The French were more alert than the English, and more moderate in their ambition than the Spaniards. They engaged in the Newfoundland fisheries in the first years of the sixteenth century, and as early as 1534 they attempted the colonization of Newfoundland and Canada. The three expeditions which they dispatched under Cartier between 1534 and 1541 were not successful; but in the combination of missionary and trading enterprise these ventures exhibited the plan of action which the French afterward followed with great profit. Their policy was to secure the traffic in furs by establishing inti-



mate relations with the Indian tribes, and they secured their ascendancy more by the influence of the priests than by the show of force. It was not until the beginning of the seventeenth century, however, when Champlain came out with a colony (1605), and the Jesuits established villages of Christian Indians in New England and New York, that the French settlements began to prosper. Quebec was founded in 1608. Champlain discovered the lake which bears his name in 1609.

By this time England also had begun to compete in earnest for the great prize. Henry VIII., Edward, and Mary were too busy at home to trouble themselves with American affairs; but in the reign of Elizabeth the whole nation stirred with a bold and adventurous life. Froisher and Davis, searching for a passage to India, discovered the straits now called by their names; and Sir Francis Drake, half hero, half pirate, circumnavigated the globe (1577-80), pillaging the Spanish settlements of Chili and Peru, and taking formal possession of California. The first attempt by Englishmen to colonize any part of North America was made in 1583 by Sir Humphrey Gilbert and his half brother, the brilliant Sir Walter Raleigh. Gilbert sailed in command of a fleet, and took nominal possession of Newfoundland where many others were before him; but the colonists, after collecting some worthless mineral supposed to be silver, became disheartened and abandoned the enterprise. Gilbert perished at sea on the way home. Raleigh was not discouraged. He sent out two ships under Philip Amidas and Arthur Barlow to explore further. They brought back so fair a report of the country about Roanoke Island, N. C., that the next year (1585) Ralph Lane was dispatched with a hundred men to plant a colony there, and Raleigh called the new land Virginia, in honor of the "Virgin Queen." Reduced almost to starvation by their own folly and misconduct, and involved in hostility with the Indians, the settlers were glad of the chance offered them the next season to go home with Sir Francis Drake. A second colony brought out to Roanoke by Sir Francis Grenville (1586) and a third led by John White (1587) totally disappeared, and no trace of their fate has ever been discovered. Raleigh could do no more.

The voyage of Bartholomew Gosnold, who discovered Cape Cod in 1602, and made an unsuccessful attempt to plant a colony on Cuttyhunk Island, in Buzzard's Bay, drew fresh attention to the New England coast, though Gosnold himself afterwards gave his service to Virginia. Merchants of London and the west of England embarked in American ventures as a joint-stock enterprise, and James I. granted letters patent to two companies, with privileges of trade and settlement in all the territory between Cape Fear and the Bay of Fundy, or from the Spanish posts to the French. To the Plymouth Company, whose members were chiefly men of Plymouth, Bristol, and other ports of the West, was assigned all the coast north of latitude 38°. To the London Company, so named because its shareholders were mostly men of London, was allotted all the coast south of latitude 41°. Thus their grants overlapped, the middle portion, from Long Island to the Chesapeake, being a common ground which either might occupy. Before either could avail

itself of this privilege, however, a new competitor appeared, dividing the domains of New England and Virginia by a barrier more substantial than a royal patent.

In 1609 Captain Henry Hudson, an Englishman in the service of the Dutch East India Company, searching for a passage to India, entered the Bay of New York, discovered the river which bears his name, and ascended beyond the present site of Albany. The Dutch based extensive claims to the coast upon his voyage. A very small part of their pretensions was ever recognized, but they promptly settled down to their fur trade on the Hudson, and built a temporary fort on the site of the present city of New York in 1613, and a permanent one near Albany in 1614. With their coming the occupation of the coast may be said to have become complete, and the eastern part of America was divided into five regions, known then or soon afterwards as New France, New England, New Netherland, Virginia, and Florida. They were separated from one another by undefined and disputed limits, and on the west they had no boundaries at all.

#### SETTLEMENT OF VIRGINIA.

It was the London Company which made the first permanent English settlement in America. The partners sent out three small vessels commanded by Captain Christopher Newport, and carrying 105 emigrants. They arrived in Chesapeake Bay in April, 1607, and the building of Jamestown, on James River, was begun the next month. The government of the colony was lodged in a council named by the King, and the councilors elected a president. The choice of officers was not fortunate, and the settlers, though there were some good men among them, were mostly of the refuse material always abundant in such new ventures. There were only twenty mechanics, with a mob of vagabond gentlemen, servants, soldiers, and idlers. Quarrelsome, mutinous, and improvident, they were kept in something like order solely by the personal influence of Captain John Smith, an adventurer of the best type, who had passed through some strange experiences in the wars against the Turks, and who brought to this Virginia undertaking a knowledge of men, a capacity to command, the daring of an explorer, and the plain sense of a practical colonist. From the first he was the real leader of the community, so far as they consented to have any. He saved them from starvation by getting corn from the savages; he staved off hostilities with the natives; and on several occasions, when he fell into the hands of hostile Indians, he escaped death by his tact and ingenuity.

The legend of his rescue by Pocahontas, the daughter of the powerful chief Powhatan, and of the romantic attachment which the young girl afterwards showed for him, was long a favorite chapter of American history. Late research has thrown much doubt upon the dramatic incidents of this story; but it is certain that Pocahontas showed great friendship for the whites, serving them bravely in their greatest need, bringing them food, and once averting a general massacre by hurrying to the settlement at night and giving warning of the intended attack. After Smith had left the country, the ungrateful

colonists took her prisoner by treachery, and held her for ransom. In her captivity she embraced Christianity, was baptized by the name of Rebecca, and, marrying one of the emigrants named John Rolfe, went with him to England, where she was presented at court and gravely recognized as a princess. She died in England, as she was on the point of returning to America.

Even Smith's energy and ingenuity could not save the colonists from themselves. More than half of them perished the first year; and although three parties of recruits were sent out in 1608-9, they were of the same wretched quality as the original shipment. Instead of tilling the ground, they searched for channels to the unknown South Sea, and loaded their ships with useless dirt which they supposed to contain gold. Smith had been elected president in 1608, but the next year he was injured by an accidental explosion of gunpowder, and went to England for surgical aid. His departure, destined to be final, nearly proved the ruin of the colony. He left 490 persons in the settlement, and in six months they were all dead but sixty, most of them by famine.

The survivors built small vessels in which they hoped to reach the English fishermen off Newfoundland, and abandoning Jamestown in June, 1610, they set out upon their melancholy voyage. But in the James River they met an English fleet coming to their aid. It brought a large party of settlers and abundant supplies, and at the head of the expedition was Lord De la Warr, with a commission as governor for life. The deserted houses of Jamestown were now reoccupied; hope was restored; more profitable industries than gold-hunting were encouraged; food was easily raised on the fertile Virginia lands; valuable crops of tobacco were shipped to England; and before long, respectable young women began to emigrate to a country where the planters wanted nothing, perhaps, so much as wives. The improved state of things was owing in no small measure to the wiser policy of the London Company, which had been reorganized, and had received a new patent. The proprietors now began to put away the delusion that Virginia was the gateway of the gorgeous East, and to learn that it offered wealth only as the reward of industry and prudent enterprise.

Lord De la Warr did not remain long in America, and his wise and firm administration was not always imitated by his successors. The Company, moreover, was slow to understand that thrifty and well-ordered communities were not likely to be created in Virginia by men who were too shiftless or vicious to live in England. Yet, by degrees, the better class of emigrants took control; many of the lazy gentlemen learned to work; and new settlements were established on the James River. The terms upon which the Company granted lands favored the formation of large plantations, and the English practice of selling convicts into servitude in Virginia for a period of years gave the rich proprietors a supply of labor. Prisoners of this class were not always felons, many being transported for political offences during the Scottish and civil wars, and on the expiration of their service they enjoyed the same rights as other colonists. African slaves were first brought in by a Dutch vessel in 1619, and this was the beginning of negro slavery in the United States,

though the number of slaves for many years was very small. The growth of a Virginian aristocracy, under all the conditions of the colony, was almost inevitable, and from an early date the division of classes was well marked, and the landed gentry followed as far as they could the social customs of the Old Country.

In 1619 the Company made an important innovation by instructing Governor Yeardley to summon a representative assembly, the first legislature ever chosen in America; and two years later they granted to the Virginia colony a written constitution, by which authority was confided to a governor and council appointed by the Company, and an Assembly, consisting of the council and a house of burgesses, elected by the people. Bills passed by the Assembly, however, required the assent of the governor and the Company. This fell far short of popular self-government, but it was an advance upon the ideas of colonial management current at that time, and a good beginning for the development of political liberties. It is to the credit of the London Company that they so soon perceived the truth which the whole later history of North American colonization has demonstrated—that there is no stability or principle of growth in communities which are not taught to depend upon themselves. The policy of the Company, nevertheless, was little to the taste of King James I., and after futile efforts to obtain from the colonists a surrender of their privileges, he canceled the charter in 1624. But beyond the substitution of a royal governor for one appointed by the Company, there was no immediate change in the administration of the province. The dissolution of the trading corporation which had thus far maintained a more or less restrictive proprietorship over Virginia, rather helped the colonists in taking their interests into their own hands. Under Charles I. they practically ruled themselves, and were allowed to levy their own taxes. Under the Commonwealth they secured the right of electing their governor, although they were conspicuous for their fidelity to the House of Stuart. An aristocratic party obtained the upper hand after the Restoration, kept the Assembly in power beyond the term for which it had been elected, imposed severe taxes, and restricted the suffrage to landowners; but this was a reactionary movement within the colony itself, and not the only instance in our history in which popular government has taken the freak of abridging popular liberties.

Three times in the first half century after the establishment of the Virginia Legislature, the prosperity of the thriving colony received a severe check. Powhatan was always a friend to the whites from the time of the marriage of Pocahontas. After his death, his brother and successor, Opeacananough, comprehending better what the steady encroachments of the settlers foreboded, planned a general massacre, and on the 22d of March, 1622, the savages suddenly attacked the plantations and killed 350 persons. The colonists gathered in fortified towns, and a bloody war followed. In a few days the number of settlements in Virginia was reduced from eighty to eight. The savages suffered severely, as well as the English; yet in 1644 they rose again, killing several hundred of the colonists, and establishing a condition of more or less active hostility, which did not cease until



they had been gradually expelled from the fertile coast region.

An Indian war on the border of Maryland (1675) brought on the third crisis in the history of the young colony. Intense dissatisfaction had been excited among the population by the exactions and usurpations of the aristocratic party in the local government and the oppressive policy of the Parliament at home. The plan of compelling the colonies to pay tribute to British traders, which was destined a century later to cost the crown so dear, had already been established, and the navigation laws of 1660 and 1663 forbade the Americans to buy or sell in any country except England, or to ship their produce in any except English vessels. The laws bore severely upon a planting colony like Virginia, and were harshly enforced. So serious was the disaffection that when a popular young planter named Bacon raised an armed force to repel the Indian forays, the governor, Sir William Berkeley, distrusting his ultimate intentions, declared him a rebel and attempted to disperse his followers. Whatever may have been Bacon's designs, this was enough to insure an insurrection. The volunteers first attacked and beat the Indians and then marched against Jamestown, which they burned to the ground (Sept., 1676); but Bacon died of fever in the midst of his triumphs, and the rebellion was thereafter easily suppressed, without having clearly shown its character. After hanging twenty-two of the insurgents Berkeley returned to England, where his conduct was severely condemned. "The old fool," said Charles II., "has taken away more lives in that naked country than I did here for the murder of my father."

The colony, often hampered but rarely controlled by the home government, grew steadily, and developed from its internal forces a type of civilization to which other southern colonies afterwards conformed. The heads of society and leaders in politics were the great landowners, whose estates sometimes reached the dimensions of a principality; and the centres of life were the country mansions, where the planters maintained a lordly and somewhat barbarous state, surrounded by hundreds of slaves. They shipped their tobacco and other crops directly from their wharves on the river to England; they received in the same way their fine clothing, their wines, their furniture, their carriages, and whatever manufactured articles could not be produced by the negro mechanics on the plantation. The class next below them in rank consisted largely of white bondsmen who had served their time, or descendants of the original adventurers cursed with hereditary unsuccessfulness. Although emancipated servants were denied no civil rights, the upper walks of life were closed to them, and many of them became the progenitors of those "poor whites" upon whom the South learned to look with especial contempt. The towns of Virginia were few and poor; the shops and workshops were inconsiderable; there was little trade; none of the conditions favored a prosperous middle class; African slavery, putting a stigma upon manual labor, fostered idleness, poverty, and ignorance in the very rank which ought to constitute the chief strength of the state. There were hardly any schools; planters' sons went to England for an education, or studied at home with pri-

vate tutors. The Church of England was established by law and sustained from the taxes, and all other denominations were prohibited. The clergy were largely drawn from the failures of the profession—jovial, fox-hunting parsons who sat long over the bottle and kept religion as a gentlemanly exercise, for Sunday exclusively.

Yet, in spite of all drawbacks, the Virginia colonists became distinguished for noble characteristics. They were hospitable, generous, chivalrous, and brave. They were ardent lovers of personal freedom. They were full of a manly independence, which gave them a foremost place among the patriots of the revolutionary period, and they had a military aptitude of which Great Britain was to witness impressive proofs.

#### SETTLEMENT OF MASSACHUSETTS.

The settlement of New England under the auspices of the Plymouth Company, although it was attempted even earlier than the foundation of Virginia, was not accomplished until some years after Jamestown had passed through its worst trials. Captain John Smith made a successful trading and fishing voyage to the territory of the Plymouth Company in 1614, drew a map of the coast, and gave the country the name of New England; and his published reports did something towards stimulating adventure; but the first permanent English colony within the limits of the Plymouth grant was made by accident, and without the Company's knowledge.

The Puritans, separatists from the English church, who fled to Holland rather than submit to what they believed to be popish forms of worship, dissatisfied with their hard life in a foreign country and among people who spoke another tongue, turned their attention toward America, as a land where they could worship in their own way, and listen to the preaching of their own doctrines with neighbors of their own race. After sundry negotiations with the Dutch and other proprietors, they obtained a patent from the London Company for a settlement in Virginia, and then formed a joint-stock partnership with certain London merchants for trading, fishing, and planting, the merchants to furnish money for the outfit, the labor of every adult emigrant to be reckoned equivalent to one share of £10, and the whole property to be divided at the end of seven years. Crossing from Delft Haven to England, the Pilgrims, as they were afterwards called, sailed from Plymouth, September 6, 1620, in the ship *Mayflower*, one hundred and two men, women, and children, under the leadership of Elder William Brewster. On the 11th of November they cast anchor in what is now the harbor of Provincetown, on Cape Cod. This was outside the limits of the Virginia Company, and their patent was consequently of no use to them; but on ship-board, in order to provide for the emergency, they drew up a schedule of government, "covenanting and combining themselves together into a civil body politic," and chose John Carver as governor. This has been regarded as an important precedent in popular government, but to the Pilgrims it was only a temporary device, and the next ship from England brought them a patent from the Council of New England (1621). After exploring the sandy peninsula and the op-

posite shore of the mainland, they chose a site for their settlement and called it New Plymouth. The 22d of December is observed as the anniversary of their landing, on a rock still shown as one of the most precious of American relics. In fact, however, it was on the 21st of December (new style, or 11th, old style) that they selected Plymouth for their new home, and it was not until the 25th (old style) that they actually debarked.

They were wretchedly provided for a winter in the wilderness. Scanty and irregular supplies of fish constituted almost their only food; water was their only drink; at one time the stock of corn being divided gave five kernels to each person. About half the company perished during the winter, and Governor Carver died in the spring. The little band, however, was stout-hearted. William Bradford was elected governor in the place of Carver, and to Miles Standish, who had been a soldier in the Low Countries, was committed the military defence. By tact and boldness all serious trouble with the Indians was averted. A treaty of friendship was made with the powerful Massasoit, chief of the Wampanoags; and Canonius, chief of the Narragansetts, was driven to ask for peace by Bradford's defiant reply to a hostile message. Food became abundant in the summer; reinforcements arrived in the autumn; and a year later (1622) a day of public prayer and praise was appointed in gratitude for a good harvest — the first celebration of the New England festival of Thanksgiving.

Having left England to get rid of the established church, the Pilgrims had no idea of tolerating the introduction of that hated institution into their new home. They banished a preacher named Lyford for holding worship according to the forms of the Church of England; and with Oldham, an exile in the same cause, he settled at Nantasket, now Hull. Thomas Morton, a rollicking free-liver at Mount Wollaston (Quincy), surrounded himself with noisy adventurers, who carried their disorder so far as to set up a May-pole; whereupon the new Plymouth people sent out an expedition, dispersed the settlement, cut down the pole, and shipped Morton to England. So much religious zeal was little to the taste of the London partners, who had gone into the enterprise as a matter of business. A quarrel followed, and as a result the colonists bought out the other shareholders, and divided the property. They were now no longer a trading company, even in name, but a self-governing "body politic," which, though it never became numerous, maintained a virtual independence until it was absorbed into the greater colony of Massachusetts Bay.

Two months after the Pilgrims left England, the Plymouth Company obtained from King James I. a new concession, afterwards known as "The Great Patent," under which forty persons were incorporated as the Council for New England, with large powers of government, and privileges of trade between lat. 40° and lat. 48° (1620). This is the body from which the Pilgrims obtained their patent in 1621. It was eight years, however, before the Council accomplished any important new enterprise. Then (1628) they allotted to John Endicott and five associates the territory from three miles south of the Charles to three miles north of the Merrimac (that is, from Boston to New Hampshire), and the next

year a charter was obtained for the colony in the name of the Governor and Company of Massachusetts Bay, in New England. Endicott went out at once as governor, and settled at Salem. Chartered only as a trading corporation, the chief purpose of the associates was nevertheless the same as that of the Plymouth Pilgrims — to establish Puritan communities secure from interference by the established church or the crown. With this end in view they made haste to remove the governing power under the charter from England to America, by choosing officers from those stockholders who proposed to emigrate, a device which soon made a clear separation of the interests of the colonists from those of the parent organization. Settlers now came out in great numbers, drawn almost entirely from the Puritan party. Whole congregations sometimes removed, with the minister at their head. As a rule they still professed fidelity to the Church of England, whose abuses of ritual and government they deplored; but by degrees the divergence became as marked in doctrines as in forms, and the Puritans adopted a severe Calvinism. Most of the emigrants belonged to the substantial middle class; many were gentlemen of education, means, and social position. Never, perhaps, has the settlement of a new country been undertaken by such wholesale transfer of a thrifty, energetic, intelligent, and well-ordered population. In 1630 a party of about 1,000 came out, with John Winthrop as governor, and founded Boston, naming it after the town of Boston in Lincolnshire, to which many of them belonged. In this party there were four ministers.

Toleration was not one of the virtues of that age, and the Puritans of Massachusetts Bay were even more exclusive than the Pilgrims of New Plymouth. They proceeded at once to build their civil government upon the church. Congregations were organized in every settlement, and only those who had been admitted to church membership were allowed the privileges of citizenship. Membership was not easily granted. It required a public avowal of religious experience to which not everybody would submit, and the ministers rejected candidates whose conduct they disapproved or whose opinions they distrusted. Not more than a fourth part of the adult population ever was admitted to church membership under Puritan rule, and the proportion of qualified voters to the adult males was usually much less than a fourth. Besides practically determining who should vote, the clergy had an extensive authority in all secular affairs; while the civic magistrates, on the other hand, were required to enforce religious observances and punish dissent. This stern theocracy, armed with the scourge, the branding iron, and the halter, and exerting the gloomiest, though not the severest, despotism to which an English community ever submitted, has been much denounced as a usurpation. Technically it was such; but it seems to have been maintained with the cordial assent of the great majority of the population, who, indeed, might have put an end to it at any time had they so pleased. When it was finally overthrown, it was not by the people, but by the crown. In all the Puritan communities the introduction of the Church of England was an object of especial dread, and "prelatists" were punished, or expelled as unfit to inhabit the colony. The



ferocity of the persecution of the Quakers is not readily understood, even if we remember that leaders of that denomination, in the Massachusetts of the seventeenth century, were sometimes exasperating disturbers. They were imprisoned in chains, seared with hot irons, whipped at the cart's tail—both men and women—from town to town, ruined by fires, shipped to England or Barbadoes. Four were hanged, including a woman, Mary Dyer. The maltreatment of the Quakers was at last made one of the reasons for annulling the charter. Roger Williams was banished for denying the authority of civil magistrates in matters of religion. Mrs. Anne Hutchinson, who instituted meetings of women to discuss theology, and taught that all believers were inspired by the Holy Ghost, was banished (1637), and her adherents were disarmed, lest some direct revelation should instruct them to rise in rebellion.

A belief in witchcraft was almost a natural consequence of the Puritan conception of the spiritual life. Executions for witchcraft took place as early as 1648. In 1688 the fear of witches became a terrible popular delusion, breaking out first in Boston, where an old Irish woman was hanged, mainly on testimony that she spoke her own language, and could not say the Lord's Prayer in English. The panic owed its intensity and duration largely to the sermons and writings of the Rev. Cotton Mather, a mighty divine whose credulity was on a par with his violence. The disorder reached its height in Salem (1692), where a special court was ordered for the trial of witches, and scores of persons were thrown into prison on the word of frightened children or the tattle of ill-natured gossips. In one year twenty persons were put to death; and when the inevitable reaction set in, eight were under capital sentence, one hundred and fifty were in jail, and many of the suspected had fled the country.

Morose, superstitious, bigoted, severe, the Puritans nevertheless exhibited from the first some of the highest qualities of the founders of a free state. They represent, with the Virginians, the chief sources of the national life. Nothing could be more striking or more picturesque than the contrast between the two classes of pioneers. But they had many things in common, especially a brave and self-reliant spirit. The Puritans had less sense of personal freedom than their Southern brethren, but a keener desire for political independence. Their civil government being founded on the churches, and the churches having adopted the Congregational practice, every settlement enjoyed a large measure of home rule, and the development of the autonomy of the towns, so characteristic of the New England system, was easy and rapid. The jealousy of English interference, which sprang from special circumstances, ripened into an ardent attachment to the principles of political liberty. The Puritans, moreover, were industrious, enterprising, and full of resources. In spite of the navigation laws, which they evaded when they could, they practiced trades and built ships. They opened schools. They founded Harvard College as early as 1638, and the next year they set up the first printing press in the English-American colonies.

#### OTHER NEW ENGLAND COLONIES.

Maine and New Hampshire were settled under a grant from the Council for New England (1622) to John Mason

and Sir Ferdinando Gorges, the latter of whom especially was long active in American adventures. The patentees named their territory Laconia. It lay between the Merrimac and Kennebec rivers. Settlements were attempted at once, Little Harbor (Portsmouth) and Dover being occupied as early as 1623, but for several years only a few weak fishing stations represented English enterprise on this part of the coast. Gorges and Mason afterwards divided their grant, Gorges taking the eastern part and giving it the name of New Somerset, changed to Maine in 1635, and Mason the western, which became New Hampshire. Both were claimed by Massachusetts as lying within her jurisdiction, and after complicated disputes, her authority was acknowledged by the New Hampshire towns, while she secured Maine by buying out the Gorges heirs. In 1680 New Hampshire was made a separate royal province; Maine was not detached from Massachusetts until 1820.

Rhode Island was the consequence of the persecution of Roger Williams. Driven from Boston and from Salem, and threatened with transportation to England, the young preacher fled to the wilderness in the depth of winter, and found hospitality with Massasoit. He founded the town of Providence in 1636, collecting there the first congregation of Baptists in America. At the beginning his colony was a simple democracy in which everything was decided by vote of the whole people; but a royal charter was obtained in 1643. The rule of toleration in religion, adopted by Roger Williams as the foundation of his community, is justly regarded as a chief glory of Rhode Island. But while the magistrates were forbidden to molest any one on account of religion, toleration did not necessarily imply equality of political privileges. A law of Rhode Island, purporting to have been passed in 1683, provided that only Protestant Christians should be admitted freemen and have liberty to vote and hold office. There is dispute as to the source and date of this restriction; but whatever its origin, it was several times re-enacted and was long in force. Jews were refused naturalization under it so late as 1762, and the exclusion of Roman Catholics, common to nearly all the colonies, was not repealed until 1783. Nevertheless, in recognizing the right of dissent, Roger Williams was far in advance of his generation, and after the principle had been admitted the full logical consequences could not be long delayed.

The first settlement in Connecticut was made by the Dutch. One of their captains, Adrian Block, discovered the Connecticut and Housatonic rivers in 1614, and their traders soon established a commerce with the Indians along the shore of Long Island Sound. In 1633 the Dutch Fort Good Hope was built on the Connecticut river, near the present site of Hartford. The English, claiming all this region, and never acquiescing in the Dutch occupation, tried to crowd out their thrifty neighbors. They settled just above Fort Good Hope, and commanded the river by building Fort Saybrook at its mouth. This latter enterprise was the result of a grant to Lord Say and Sele, Lord Brooke, John Hampden, John Pym, and others in England, of the whole coast of Connecticut and half that of Rhode Island. The settlement, named from the two principal proprietors, was

afterwards incorporated with the colony of Connecticut. It was a Plymouth party which had established itself near the Dutch fort, but it was not until emigrants from Massachusetts Bay poured in that "the river towns," as they are called, were firmly planted. The movement was a systematic transfer of the churches of Dorchester, Watertown, and Newtown (Cambridge), with their ministers at their head, the largest party coming from Newtown, under Hooker and Stone (1636), and founding Hartford, while the Dorchester and Plymouth people founded Windsor, and those of Watertown settled at Wethersfield. Bringing with them an organization of government both ecclesiastical and civil, the towns began as independent political communities, the authority of a commission from Massachusetts, under which they acted for a year, being little more than nominal. In 1639 they met in mass convention at Hartford and adopted a constitution, the first example in history of a written instrument creating a government and limiting its powers by authority of the people themselves. The towns were recognized as existing political units, with self-derived powers, and the colony of Connecticut, as it was now called, was formed by a union in which the towns reserved certain important rights, such as the regulation of the franchise. The Hartford constitution was a remarkable foreshadowing of the American democratic and federative principles; but like the Mayflower compact, it was, perhaps, an arrangement of immediate convenience rather than the deliberate adoption of a political theory, for the colonists afterwards begged the royal sanction for their government, with apologies for not asking it sooner, and thankfully accepted a charter from Charles II. (1662). Their system of rule, preserved under the charter, was modeled upon that of Massachusetts, except that they did not require freemen to be church members.

Theocracy was rigidly maintained, however, in the colony of New Haven, founded in 1638, by the Rev. John Davenport and a party of English Puritans. They had no patent or other external authorization, and their only title to the land was derived from the Indians. The government which they set up, therefore, in 1639, a few months after the Hartford confederation, was purely democratic in its source; but by their own votes the settlers decreed almost unanimously that the franchise should be limited to members of the church. They even surpassed the people of Massachusetts in the severity of their Puritanism, adopting the Scriptures as the law of the land, applicable to all cases, and carrying magisterial meddling with private conduct to a length never before imagined. They were united with Connecticut by the charter of 1662, much against their will.

#### OTHER COLONIES.

The Dutch trading posts on the Hudson river grew slowly, the proprietors in Holland caring much more for the immediate traffic in beaver skins than for the possible advantages of colonization. After the incorporation of the Dutch West India Company (1621), however, more attention was paid to emigration. Thirty families of Walloons (Belgian and Flemish Protestants) were sent

out in 1623, and a relic of their settlement is found in the name of Wallabout Bay on Long Island; Albany was begun; Manhattan Island was bought of the Indians for a sum equivalent to \$24; Fort Amsterdam was built (1626), on the present site of the Battery; and under its protection grew up the town of New Amsterdam, which was made the capital of the colony. The colony itself was given the name of New Netherland. Extraordinary privileges were granted by the Company to those of its members who were willing to plant settlements at their own expense; and under this system vast estates were allotted on the Hudson to semi-feudal proprietors, known as "patroons." A colony of Swedes established themselves on the Delaware at the present site of Wilmington, but they were compelled a few years later to submit to the Dutch. In spite of a severe Indian war, precipitated by the violence of the colonists under the governorship of William Kieft (1643) New Netherland prospered, and fifty years after its foundation the colony had 10,000 inhabitants, while New Amsterdam counted about 1,500. Both in the capital town and in the outlying settlements there were many English, including sectaries of various sorts who had fled from the intolerance of the English colonies.

England had never ceased to assert her claim to the territory occupied by Dutch enterprise; but there had been no threat of a resort to force, when, in 1664, an English fleet entered the Bay of New York and demanded the surrender of the colony. Gov. Peter Stuyvesant had no means of resistance, and New Netherland passed peaceably to the possession of the Duke of York (afterwards James II.), to whom it had already been granted by his brother, Charles II. The name was now changed, and the administration was assumed by the Duke's appointee, Colonel Nicholls. In the course of the wars which followed between England and Holland, the Dutch recovered the colony as easily as they had lost it (1673), but it was finally restored to the English by treaty the next year. All these changes were accomplished without violence or popular disturbance. The inhabitants, drawn from many nationalities and religions, and occupied with a thriving trade, were ready to acquiesce in almost any tolerable government.

The grant to the Duke of York included what is now New Jersey. This territory the duke conveyed to Lord Berkeley and Sir George Carteret (1664), and it was named from the island of Jersey, in the English Channel, of which Carteret had been governor. There were already some small Dutch settlements in the territory, and under the new rule a number of Quakers soon came out, the rights of Lord Berkeley having been purchased by members of that persecuted sect. When the Jerseys were divided, in 1676, the Quakers were mostly settled in West Jersey; and although the share of Carteret was afterwards purchased by a partnership, in which William Penn, Robert Barclay, and other distinguished Friends were interested, and the prosperity of both colonies was largely owing to Quaker thrift and order, the prevailing influences in East Jersey continued to be Puritan.

George Calvert, first Lord Baltimore, a Roman Catholic, obtained from Charles I. a grant of territory north of the Potomac, which he named Maryland, in honor of



Queen Henrietta Maria. It was the first proprietary province in America, and the lord proprietor possessed large powers; but in the charter, drawn up by Lord Baltimore, it was stipulated that no laws should be valid without the consent of the freemen of the colony, or their representatives in Assembly—an admission of the right of the people to a share in legislation not found in any previous instrument. The settlers were also exempt from taxation by the crown, and the right of originating laws was soon conceded to them. Lord Baltimore's principal object was to establish an asylum for Roman Catholics. He died before the charter passed the great seal, and it was issued to his son Cæcilius, second Lord Baltimore (1632), under whose direction the first party of colonists sailed the next year, with Leonard Calvert, brother of the proprietor, as governor. They comprised about twenty "gentlemen adventurers," and over two hundred laborers and servants, most of the latter class being Protestants. Two English Jesuit priests and two lay brothers accompanied them. Landing on an island in Chesapeake Bay, March 25, 1634, they chose a place for their settlement on a small tributary of the Potomac, and called it St. Mary's. There was an Indian village on the spot, and the settlers established the most cordial relations with the red men, buying not only their land but their wigwams, in which they sheltered themselves until they could build houses. They prospered from the first.

Open protection for Catholicism would have been impossible at that day. Lord Baltimore's plan for securing the free exercise of his own religion was to grant complete toleration and equality to all denominations of Christians, and from this policy, in which he anticipated Roger Williams by four years, neither he nor his successors ever departed. The act of toleration passed at his instance in 1649 was the legal ratification of a rule which had been very strictly enforced in the colony from the outset. Lord Baltimore's motives in taking this wise and liberal course have been attacked; but whatever alloy of selfishness may have been mixed with them, the fact remains that Maryland became a refuge for oppressed churchmen from New England and Puritans from Virginia, as well as for Catholics from home. Naturally, in such a gathering of exiles, there were many turbulent spirits who could not be at rest even in a sanctuary. When Clayborne, a Virginia trader on Kent Island in Chesapeake Bay, refused to recognize Calvert's authority and raised an insurrection, a number of Puritan refugees joined him, and Calvert was driven for a time from the province (1644). After the execution of Charles I., Clayborne was one of the Parliament commissioners appointed to look after the plantations within Chesapeake Bay. With the aid of the Puritan settlers, the proprietary authority was overthrown (1655), and a new government excluded "papists and prelatists" from the benefits of the act of toleration. On the Restoration, the lord proprietor was reinstated and the act of toleration was revived; but when Maryland was made a royal province under William and Mary (1691) the Catholics were again disfranchised, and they remained for three-quarters of a century under heavier exactions and more offensive disabilities in their own colony than anywhere else in America.

Quieter fortunes befell another colony, founded like Maryland and Rhode Island upon the principle of religious freedom. William Penn obtained from Charles II., in 1681, in satisfaction of a debt, a grant of territory west of the Delaware, to which was given the name of Pennsylvania; the present state of Delaware was added to it the next year. The domain was constituted a proprietary province, Penn being the absolute owner and lord of the soil, and the charter was copied in part from that of Maryland. The chief object of the founder was to provide an asylum for Quakers, and most of the early emigrants were of that denomination, including some from Germany and Holland. The first party sailed in 1681; Penn followed in 1682; and in two years the population was about 7,000. It is an impressive commentary upon the Puritan hatred of Quakers that the so-called pernicious sect established the most orderly and peaceful of all the colonies. Soon after his landing Penn concluded a treaty of friendship with a large gathering of Indians, and near the site of the conference he founded the same year the city of Philadelphia. Before his return to England (1684) he established a form of government, with a representative assembly. Freedom of conscience and worship was strictly observed, and no religious test was required for the franchise except a belief in Christianity. For two years (1692-94) Pennsylvania was attached to the royal province of New York; but at the end of that time the rights of the proprietor were restored, and they subsisted in the family until the State of Pennsylvania extinguished them by purchase in 1779. Penn made a second visit to America, and granted his colonists a new charter, enlarging their political privileges.

Between Virginia and the Spanish settlements in Florida still remained a large territory which both England and Spain claimed, but neither had seriously attempted to occupy. A few English Quakers and other adventurous pioneers had straggled into the northern parts of this tract, and Spanish missionaries had been busy among the Indians; but colonization practically began under a grant made by Charles II. in 1663 to Lord Clarendon, General Monk, Lord Ashley Cooper (afterwards Earl of Shaftesbury), Berkeley and Carteret (proprietors of New Jersey), Sir William Berkeley (governor of Virginia), Lord Craven, and Sir John Colleton. The province was called Carolina, and embraced the present States of North and South Carolina, Georgia, Alabama, and part of Florida. At the request of Shaftesbury, John Locke, the famous English philosopher, drew up for the proprietors a complicated scheme of government, providing for a feudal nobility, an established church, and various Utopian institutions grotesquely unsuited to settlers in a distant wilderness; and the attempt to force the vagaries of a theorist upon a somewhat indocile people kept the province in a turmoil for many years. The first settlements were made on the Chowan and Cape Fear rivers, and were known as the Albemarle and Clarendon colonies; the latter (1664) was the beginning of the town of Wilmington. Six years later the Carteret colony was established on the Ashley river, whence it was soon removed to a better situation at the junction of the Ashley and the Cooper; and this became the city of Charleston. Negroes were introduced from the West Indies in 1671,

and South Carolina became almost at the outset a community of planters depending upon slave labor. Both the Carolinas were in frequent revolt against the proprietors; at last, in 1729, Parliament purchased the rights of those personages, and the province became the two crown colonies of North and South Carolina.

Shortly after this change, settlements began in what is now the State of Georgia. General Oglethorpe, an English member of Parliament, formed the design of establishing a colony in America, where persons who had been imprisoned for debt, and others of broken fortunes, might begin a new life. At the same time he hoped to interpose a barrier between the weak Carolina colonies and the Spanish power in Florida. Receiving a patent (1732) for all that neglected region south of the Savannah river (Georgia and Alabama), he sailed the same year with 135 persons, and founded Savannah in 1733. The first settlers did not all belong to the unfortunate classes for whom he was especially concerned. They included parties of Jews, Moravians, Scotch Highlanders, and German Protestants, with a great many random adventurers, ill suited to a pioneer enterprise. The colony suffered much both from internal troubles and from Spanish hostilities before it was firmly established. It became a royal province in 1752. Alabama was not detached until after the Revolution.

The settlers of New England were never tender in their dealings with the red men, and their first Indian war was the result of a series of raids and murders in which the savagery was not all on one side. The Pequots, a warlike confederacy whose principal seat was on the river now known as the Thames, in Connecticut, planned a general massacre of the whites, in which they desired the Narragansetts to join them. But this tribe was induced by the persuasion of Roger Williams to side with the colonists, and to furnish more than half the force which, in the spring of 1637, marched against the Pequot strongholds. The Narragansetts were led by their chief, Miantonomoh; there were some Mohegans under Uncas; and Connecticut and Massachusetts sent about 100 soldiers under Captains Mason and Underhill. A fortified Pequot village was surprised at early dawn and set on fire; no quarter was given even to women or children; but the Indians who did not perish in the flames were killed as they tried to break out. Two weeks later a second crushing defeat was inflicted upon the Pequots; some hundreds were made prisoners and sold into slavery, and the confederacy was permanently broken up.

It was principally for the sake of better protection against the Indians that a confederation of "The United Colonies of New England" was formed in 1643. Delegates from Massachusetts, Plymouth, Connecticut, and New Haven met in each colony by turns, to consult for their common interests. Maine and Rhode Island were excluded on account of heterodox opinions. The confederation was important as a first step towards union, but its immediate results were slight, and before the next general outbreak of the savages it had fallen to pieces. The war with King Philip, chief of the Wampanoags or Pokanokets, on the east side of Narragansett Bay, and son of the early friend of the settlers, Massasoit, began

from trivial causes. Driven from his villages and followed into the swamps in the summer of 1675, Philip broke through the lines of his assailants, joined the Nipmucks in the interior of Massachusetts, and roused the whole country. Everywhere the smaller tribes took up arms, and they were far more dangerous than in former years, because now they were supplied with muskets. Towns were attacked and burned. Remote settlers were massacred. Military detachments were decoyed into ambush and destroyed. The Narragansetts had taken no part in the rising, but the colonists distrusted them, and dispatched an expedition under Josiah Winslow, governor of Plymouth, to crush them, as a measure of precaution. "The Swamp Fight," in what is now the town of South Kingston, Rhode Island, repeated the horrors of the Pequot affair, many of the Indians perishing in their burning wigwams; but on this occasion the whites also suffered severely, their losses amounting to about 240 men—a quarter of their whole number. The war was now waged with increased barbarity. Warwick was burned. Providence was partly ruined. The whole of the Plymouth colony was overrun. Towns were deserted. Settlers were murdered. Hostilities lasted until Philip was killed by a deserter from his tribe (1676), and Witamo, the female sachem of Pocasset, who had lately been his chief supporter, was drowned in trying to escape from an attack by Major Church. The heads of Witamo and Philip were set up on poles to celebrate the triumph of the settlers. Prisoners were hanged, or sold into the West Indies, or retained as slaves in New England. The tribes were crushed forever, and from this time fast dwindled away. The colonists, on the other hand, lost six hundred men in battle besides the victims of massacre in the settlements, and twelve or thirteen of their towns were entirely destroyed.

#### THE COLONIES AND THE CROWN.

The independent spirit of Massachusetts showed itself at a very early day; for when, in answer to repeated complaints of the rigorous proceedings of the colonial magistrates, a royal commission was appointed by Charles I. to revise the laws of the American plantations (1634), and even the Council for New England appealed to the crown against settlers who sought "to make themselves absolute masters of the country," the General Court hastened to fortify the port of Boston and take other measures for military defence. A demand for the delivery of the charter was refused. Charles I. was soon too busy with other affairs to pay much attention to New England, and the matter was allowed to drop, until the restoration of Charles II. brought it again into prominence. But in the intervening quarter of a century all the colonies had gained the habit of self-reliance, grown accustomed to democratic principles and learned to make sharp distinctions between their own interests and those of the mother country. In New England—in Massachusetts especially—the jealousy of English interference sometimes amounted to positive enmity. At the Restoration the Massachusetts General Court ordered a public thanksgiving; but it also took that occasion to make a declaration of rights, which left hardly any perceptible



power either to Parliament or the King, and yet probably did not go much beyond the uniform practice of the colony since its foundation.

Charles II. did not propose at first to revoke the charter, but he required the colony to administer justice in his name, to tolerate the Church of England, and to admit others than church members to the franchise. To these demands the General Court returned evasive answers. When royal commissioners were sent out to investigate complaints and settle boundary disputes, the General Court denied their authority (1664). When a royal commissioner of customs appeared at Boston, empowered to enforce the oppressive laws of trade, of whose violation the English merchants were complaining, the magistrates tore down the notice of his appointment posted on the exchange and the Court created a naval office of its own to supersede him (1680). But Charles, committed now to the high prerogative policy, was no longer in the mood to trifle with the pretensions of the colonists. Under a writ of *quo warranto* the charter of Massachusetts was declared forfeited, and the settlements became a royal province (1684). This was virtually the end of the Puritan theocracy. Before any important change could be made in the administration of the government the King died.

It fell to James II. to carry out the purpose of his brother of consolidating the colonies under royal authority, and checking the rapid development of popular liberties. James was already in possession of the province of New York, where the rule of his deputies, although arbitrary, was not usually harsh. Under Gov. Thomas Dongan (1683), an Assembly was summoned, which framed a declaration of rights and settled the important point of the illegality of taxes imposed without the consent of the representatives of the people. When James became King, however, his policy changed. Sir Edmund Andros was sent to America with a commission as captain-general and governor of all New England (1686), and instructions to set aside the existing charters. New York and New Jersey were presently added to his jurisdiction and included under the name of New England. His appointment was resented, but resistance seemed to be futile. Plymouth had no charter and was easily subdued. Rhode Island yielded after a brief opposition. New Hampshire was already a crown province. Maine was a part of Massachusetts. In Connecticut the popular spirit was so menacing that Andros marched to Hartford with troops to compel obedience. He appeared at an evening session of the Assembly and demanded the production of the charter. It was laid upon the table; but suddenly the lights were extinguished and the precious instrument, spirited away by some patriotic hand, was hidden in a hollow oak (1687). Its disappearance did not prevent Andros, however, from declaring the charter government at an end. In Massachusetts, where affairs had been administered under temporary devices since the forfeiting of the charter in 1684, the hostility to Andros and the royal chief justice, Dudley, was especially resolute. No measure of the new rule, perhaps, was more angrily resented than the declaration of indulgence, which gave complete toleration to Episcopalians, Quakers, and all other denominations; but the colonists

had much more substantial grounds of complaint in the arbitrary taxation, the interference with land titles, and the tyrannical restrictions upon personal freedom.

On the news of the landing of William of Orange at Torbay, the colonists of New England rose at once. Andros and Dudley were imprisoned. The old governments quietly resumed their functions, as far as possible with the old officers. The Council of Virginia tardily proclaimed William and Mary, after threats of a popular revolt. In Maryland a no-papery insurrection, under an agitator named Coode, deposed Lord Baltimore. In New York a more formidable rebellion, ostensibly "for the preservation of the Protestant religion," was led by a militia captain named Jacob Leisler (1689-91), who, with his son-in-law and secretary, Milbourne, was finally hanged for treason. The new King gave the colonists no cause to distrust his Protestant zeal; but his views of the royal prerogative, so far as it concerned America, were not materially different from those of James. To the colonial bills of rights and habeas-corpus acts he returned decided negatives, and he continued the prohibition of printing. For a while, however, the attention of the Americans was diverted to foreign dangers.

#### THE WARS WITH FRANCE.

Since the beginning of the seventeenth century the French had been steadily extending their power through the region of the St. Lawrence, the Great Lakes, and the Mississippi. They were in conflict with the English in Maine, where so early as 1613, one of their mission stations on Mount Desert Island was violently broken up by an expedition from Virginia. They disputed the English claims on the East. They contended for the possession of Northern New York. In their service the priest and the fur-trader penetrated the Northwest. The Jesuit Marquette founded Sault Sainte Marie and was the first to reach the upper waters of the Mississippi (1675). La Salle, the adventurous explorer, sent out by the Governor-General of Canada, navigated the great river to its mouth (1682) and in the name of Louis XIV. took possession of the region thereafter styled Louisiana. Often tortured, burned, or hacked to pieces at the stake, the missionaries nevertheless obtained a strong influence over the savages; and at the end of the century it might have seemed doubtful whether France, with her Indian allies and her chain of colonies and outposts extending from New Brunswick through Canada and the Mississippi Valley, was not destined to be the ruling power on this continent.

When war broke out between France and England (1689), in consequence of the dethroning of James II., the northern colonies were promptly involved in it, New York and New England fighting willingly as for their own existence. In King William's War, as it is called, the English government paid little attention to its American subjects, but left them to defend themselves by their own resources, at their own cost, and in their own way. Both sides made use of the Indians—a practice not then regarded with the horror which it inspired in the authors of the Declaration of Independence—and the campaigns were marked by terrible brutalities. Many of the settle-

ments of Maine and New Hampshire were ravaged, burned, or deserted, and for the disasters here Colonel Church afterwards took a bloody revenge. The Canadian Governor-General, Frontenac, sent out war parties of French and Indians, which surprised Schenectady, N. Y., and Salmon Falls, N. H. (1690), and captured Casco, Me. New York and New England dispatched an expedition of whites and Mohawks to attack Montreal, but Frontenac beat it off. A Massachusetts fleet, in the meantime, under Sir William Phips, devastated the French settlements on the coast of Acadia (Nova Scotia), and then sailed for Quebec, where Frontenac, fresh from his victory at Montreal, baffled their attack. When the treaty of Ryswick brought peace (1697), French and English colonies alike had suffered severely, and neither had gained anything.

In Queen Anne's War (1702-13), springing like the previous contest from quarrels with which the colonists had no direct concern, France was not only much stronger in Northern New York and the West than before, and more definite and earnest in her ambition of American empire, but she was now in alliance with Spain. Hostilities began in Florida, where Governor Moore, of South Carolina, captured St. Augustine, only to retreat on the approach of Spanish vessels of war. Later, with a thousand savages, he fell upon the semi-civilized communities of Christian Indians in Middle Florida and entirely destroyed them. A combined French and Spanish attack upon Charleston (1706) was defeated, and a French frigate captured. In the North the worst excesses of Indian warfare were felt in Massachusetts, where Deerfield and Haverhill—the latter hardly recovered from pillage and burning in King William's War—were scenes of dreadful massacres. In 1710, however, a colonial expedition captured Port Royal, in Acadia. The following year the home government tardily resolved upon an expedition against Canada, sending out a fleet of fifteen ships of war and five of Marlborough's veteran regiments, to which New York, Massachusetts, and Pennsylvania added a large number of men and liberal supplies of money. But the campaign came to nothing. Losing part of his fleet and a thousand men, by wreck in the St. Lawrence, the English admiral abandoned the enterprise and sailed for home, and the advance of the land forces was thereupon cut short. In her European campaigns, England had been more fortunate than in America, and by the treaty of Utrecht she acquired Newfoundland and Acadia, the latter known henceforth as Nova Scotia.

Thirty years of general prosperity followed, broken by Indian troubles in the Carolinas and Maine, by controversies between the colonists and the home government, and by hostilities between England and Spain, in which colonial troops bore an arduous part. Then came King George's War (1744-48), the most important incident of which was the capture of the strong fortress of Louisburg (1745), constructed by the French on the Island of Cape Breton after their expulsion from Acadia. This exploit was almost wholly a colonial enterprise, the principal part of the force being furnished by Massachusetts, and the commander being William Pepperell, of Maine. The exultant Americans now meditated the conquest of

Canada and were eager to raise a colonial army, which the British minister, however, would not permit, lest the provinces should grow too independent. The colonists were only allowed to menace Montreal while a British expedition should attack Quebec. But the British expedition never came; the costly preparations of the provincials went for nothing; a French fleet, on the other hand, alarmed the coasts until it was disabled by fever and dispersed by storms; the frontiers were harassed by Canadians and Indians; and finally the peace of Aix-la-Chapelle (1748) restored Louisburg to France, and gave her also the Islands of St. Pierre and Miquelon off the coast of Newfoundland.

Thus far the colonial wars with France had all sprung from the contests of the European powers. The decisive struggle, known as the French and Indian War, began with the clashing interests of the settlers themselves. At the middle of the eighteenth century the French, although their colonies increased very slowly in population, were steadily strengthening their position on the route from Canada through the Mississippi Valley. They commanded the lakes at Niagara and Detroit; they had founded New Orleans (1718) and made it the capital of Louisiana; and they began to press upon the English frontiers in Western Virginia and Pennsylvania, where pioneers from the tide-water settlements were now crossing the Blue Ridge and the Alleghanies, and turning their attention to the rich valley of the Ohio. Resolved to hold this country, the French built forts at Presque Isle, Le Boeuf, and Venango (Erie, Waterford, and Franklin, Penn.), roused the Indians, and seized English traders. The governors of Virginia and Pennsylvania received orders from England to expel the French wherever they were found within the limits of those provinces. A mission of remonstrance and inquiry from Lieutenant-Governor Dinwiddie, of Virginia, to the French at Fort Le Boeuf (1753), first brought George Washington into public notice. He was in his twenty-second year when he undertook this dangerous winter journey, a dignified, high-minded, truthful, well-bred gentleman, used to a vigorous out-of-door life, knowing so much of the profession of arms as could be learned by militia service, and, for his time and circumstances, a very respectable scholar. He discharged his errand with great discretion, bringing back clear evidence of the French intentions, and recommending the immediate construction of a fort at the junction of the Alleghany and Monongahela rivers, the present site of Pittsburg. The work was begun by a small advance party, but the French drove them out and finished it for themselves, calling it Fort Du Quesne. An expedition of Virginia, New York, and South Carolina troops, was disconcerted by this misfortune; but Washington, succeeding to the command of the Virginia regiment on the death of his superior officer, distinguished himself alike in action and in a judicious and orderly retreat to the Upper Potomac.

There had been no declaration of war between France and England, but the British ministry advised the colonists to hold a convention of delegates from the several Assemblies to provide for the general defence. Representatives New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, and Mary-



land accordingly met at Albany in June, 1754, and going somewhat beyond the advice of the ministers, proposed on the 4th of July a scheme of confederation which may be called the germ of the present Constitution. Its author was Benjamin Franklin, then deputy postmaster-general for America. He was forty-eight years of age, distinguished for the vigor and effectiveness of his writings on public affairs, the strength of his attachment to the popular cause, the sagacity of his political and economical teachings, and his acquirements in natural science. The plan of confederation, however, was rejected by the colonies because it left too much power to the crown, and disapproved by the crown because it gave too much authority to the people.

A more practical measure of the ministry was the dispatch to America of two regiments of regular troops, to co-operate with which the provincial Assemblies voted seven or eight thousand men. The British general, Braddock, appointed commander-in-chief, undertook an expedition against Fort Du Quesne with the regulars and a detachment of Virginians, and the provincials were to operate in the North and East. British regular officers knew little of the conditions of campaigning in America. Braddock was unable to move until Franklin, on his own pecuniary responsibility, collected horses and wagons for him from the farmers of Pennsylvania; and when at last on the march, the General haughtily rejected the advice of Washington, who accompanied him as aide-de-camp, that the Virginia rangers should scour the woods in advance. The consequence was an ambuscade, near Fort Du Quesne, July 9, 1755, in which Braddock was mortally wounded, and the British lost more than half their men and all their guns and baggage. Only the gallantry and skill of Washington and the firmness of the provincials saved the remnant. The expedition was abandoned and Washington found full occupation in defending the frontier against the Indians, and organizing new levies.

The chief command, after the death of Braddock, devolved upon Governor Shirley, of Massachusetts. He made an attempt upon Fort Niagara, but accomplished nothing. Gen. William Johnson, superintendent of the Indians of New York, was a little more fortunate, for being dispatched against Crown Point on Lake Champlain, where the Canadians had established themselves over twenty years before, he defeated the French general, Dieskau, in the battle of Lake George, September 5, 1755, and built Fort William Henry at the head of the lake. Still he was not able to reach Crown Point, or even to prevent the French from fortifying Ticonderoga.

The one entire success of the campaign was the expulsion of the French neutrals from Nova Scotia. These people, remnants and descendants of the Acadians of the last generation, had always remained French in language, religion, and sympathy. Simple, industrious, and peaceable, their neutrality was mainly an affair of sentiment, and the persistent efforts of Canadian agents to rouse them into active hostilities against their English conquerors seem to have met with no response. The English, however, resolved, as a measure of precaution, to remove them from their homes and scatter them among the provinces. An expedition of provincials and regulars, under General John Winslow of Massachusetts, and

Colonel Monckton, easily reduced the military posts on the French side of the Bay of Fundy (June, 1755), and then, assembling the Acadians by stratagem in their parish churches, hurried them on shipboard. About 6,000 were deported by this ruthless means; families were separated; the houses, lands, cattle, and crops of the exiles were confiscated; every colony received some of the destitute and heart-broken victims.

War between France and England was declared in May, 1756, and the British government, sending a large body of troops to America, promised a vigorous campaign. The incapacity of the commander-in-chief, Lord Loudon, and the arrogant reluctance of the regulars to co-operate with provincials, defeated almost every plan. In strong contrast with Loudon's weakness was the conduct of the alert and dashing French commander, the gallant Marquis of Montcalm, who spread panic among the colonists and broke up their campaign by a sudden descent upon Oswego, where he made important captures, and who later, while Loudon was making a feeble demonstration against Louisburg, fell upon Fort William Henry and compelled its surrender (August, 1757).

But the accession of William Pitt to the chief seat in the British cabinet now put a new face upon affairs. That able statesman understood the significance of the trouble in America, as none of his predecessors did. He recalled Loudon; he sent out a powerful fleet under Admiral Boscawen; he so inspired the colonists that they raised even more than the 20,000 men asked of them; and at the beginning of 1758 Abercrombie, the new commander-in-chief, found himself at the head of 50,000 troops. Louisburg was captured in July, with 5,000 prisoners; and although an assault upon Fort Ticonderoga was repelled by Montcalm, Fort Frontenac (Kingston, in Canada) was captured with garrison and shipping, and Fort Du Quesne fell into the hands of Washington and his Virginians, and was henceforth called Fort Pitt. General Amherst took Ticonderoga the next summer.

The decisive event of the war was the capture of Quebec. For the attempt upon this formidable and important fortress Pitt selected Brigadier-General Wolfe, a highly accomplished young officer, who had shown marked ability as second in command at the taking of Louisburg. With a fleet and 8,000 troops he ascended the St. Lawrence and debarked near the city, where Montcalm with an equal force was strongly posted awaiting him. Direct assault failed; bombardment, owing to the position of the fortress on a high promontory was impossible. But Wolfe, after two months' disheartening trials, discovered a ravine in the steep bank; and by this path, so narrow and difficult that it had been left virtually unguarded, he led a part of his army at night to the heights of Abraham, in the rear of the town. At daylight on September 13, 1759, the English were drawn up in order of battle. The astonished Montcalm hurried from his camp and attacked with spirit; but the British line was not to be broken. Wolfe was killed at the moment of victory; Montcalm fell mortally wounded while vainly trying to rally his defeated troops. Five days later Quebec surrendered; and although hostilities continued

for some time longer, and Montreal was not given up until September, 1760, the fall of Quebec was virtually the fall of the French power in America.

The war in the colonies had been over for three years when the treaty of Paris, in 1763, settled the terms of the peace. France divested herself of all her American possessions. Great Britain obtained everything east of the Mississippi except New Orleans; that town and the territory west of the Mississippi were transferred to Spain; and Florida was ceded to Great Britain in exchange for Havana, which had been captured from Spain during the war.

#### PRELUDE TO THE REVOLUTION.

During the last years of the struggle with France the colonies had been vexed with many Indian troubles among the tribes of the South as well as those on the French frontier; and the close of the war, with the substitution of English for French supremacy in the western country, brought on a rising, led by the Ottawa chief, Pontiac, which assumed a most serious character. The conspiracy of Pontiac (1763) involved an attack upon all the English border settlements from Virginia to the lakes. More than 100 traders were murdered. More than 500 families were massacred or driven from their homes. Detroit was besieged by Pontiac for five months, and after the tribes were at last compelled to sue for peace, the indomitable chief continued for some years to incite war among those of the farther West.

While the surrender of Canada relieved the colonists of their only rival, and gave permanent security to their frontiers, the rejoicings with which they celebrated the conquest were not free from alloy. Seventy years of intermittent war had cost them dear. They had lost thirty thousand soldiers; they had seen many of their towns laid in ruins; they had spent \$16,000,000, of which sum the home government repaid only \$5,000,000. Their population at this time did not exceed 2,000,000 of whom 350,000 were negro slaves. Virginia stood first, with 300,000 inhabitants; Massachusetts second with 230,000; Pennsylvania, with nearly as many as Massachusetts, ranked third; New York was below the Carolinas, Maryland, and Connecticut. The principal town was Boston, with 15,000 inhabitants, but Philadelphia and New York were fast overtaking it in population, while Newport, Norfolk, and Baltimore were becoming its rivals in trade. The New England colonies managed to keep up a profitable contraband traffic with the West Indies; but peace found the Americans, upon the whole, depressed, poor, and nearly exhausted with debt.

It was a conjuncture in which a wise home government would have been careful to foster their industries and lighten their burdens. Great Britain made it an occasion for enforcing oppressive laws with new vigor and by hateful means. Ever since the revolution which dethroned James II., the commercial classes had been gaining influence in the British Parliament, and it was their policy to crush the trade and manufactures of the colonies and force them to buy whatever England had to sell. It was the shopkeeper rather than the King against whom America had now to assert her independence. The navigation acts forbade the colonists to ship their

products in any but English vessels, or, so far as the principal articles were concerned, to trade except with English countries. To please the London hatters they were forbidden to export hats, or to send them from one colony to another. To satisfy other British interests, they were forbidden to manufacture iron, even so small as a nail; or to send any manufacture of woolen out of the province in which it was produced; and an act was passed to destroy the most important business of New England, which was the exchange of timber with the French West Indies for molasses to be distilled into rum. Such laws inevitably produced an active smuggling trade, and to some extent the royal officers seem to have connived at it. On the accession of the Grenville ministry, in 1763, it was determined to make America pay a share of the English war debt. Grenville undertook to enforce the obnoxious trade laws; to establish a portion of the British army as a permanent garrison in America; and to raise money for the support of the troops by Parliamentary taxation of the colonies. These three measures were the immediate causes of the American revolution.

Grenville might have been warned by the opposition to the "writs of assistance" two years before. When the government granted these general search warrants, authorizing officers of the customs to break into any store or private house suspected of containing smuggled goods, the Americans made such vigorous resistance to what they declared to be an unconstitutional abridgment of their liberties that, although the legality of the writs was finally sustained by the courts, the officers did not venture to execute them. The attempt to tax the people without their consent was certain to be still more violently resented, for it was the invasion of a principle which had been maintained in the leading colonies almost from the beginning. Nevertheless, after the passing of a declaratory act in 1764, Grenville brought forward his scheme of a stamp act. It was a tax imposed upon every legal paper and every document used in trade. Agents were appointed for the sale of the stamps. Violations of the act could be tried in any royal or admiralty court, however distant, and without a jury. Troops were to be sent to America to overawe remonstrance, and the colonists were required to find them "quarters, rum, fuel, and other necessities." The introduction of Grenville's measure produced a general outcry. The colonists insisted that they could not constitutionally be taxed by a Parliament in which they were not represented. James Otis, who had distinguished himself during the opposition to the writs of assistance in Boston resigned the office of advocate-general in order to defend the cause of the people; Samuel Adams, soon to be known as the most astute of the popular leaders in Massachusetts; and Patrick Henry, the brilliant orator of Virginia, were conspicuous in the agitation. Franklin for Pennsylvania, Jackson for Massachusetts, Ingersoll for Connecticut, were commissioned to argue against the scheme in England. The provincial assemblies drew up protests. Colonel Barré, who had served in America, spoke against the bill in Parliament. Nevertheless, the stamp act passed in March, 1765.

The news was received in America with a burst of indignation. Virginia passed a declaration that the Gen-



eral Assembly had exclusive right to tax the inhabitants, and in debating the resolution Patrick Henry uttered his most famous saying: "Cæsar," he cried, "had his Brutus Charles his Cromwell, and George the Third"—"Treason, treason!" exclaimed some of the members—"George the Third may profit by their example. If this be treason, make the most of it." Massachusetts instructed the courts to conduct their business without stamps. The distributing agents were forced to resign their offices. "Sons of Liberty" were organized to resist the act. The houses of officials and friends of the crown were mobbed and gutted. On the day appointed for the act to be put in force, flags were hung at half mast, bells were tolled, business was suspended, not a stamp was to be seen. In the meantime, at the request of Massachusetts, delegates from nine colonies met in Congress at New York (October, 1765), and drew up a petition to the King, a memorial to Parliament, and a declaration of rights. They insisted that the colonies could not be taxed except by their own Legislatures; and the several Assemblies at their next sessions cordially approved their proceedings. A committee of correspondence, formed by a popular movement in New York, successfully urged an agreement among the colonies to import no more goods from Great Britain until the stamp act was repealed. The "Daughters of Liberty" fostered the patriotic determination by spinning yarn for the domestic looms.

Against the resolution of the colonists, the dissatisfaction of embarrassed British merchants, and the eloquent denunciation of Pitt, who declared that the Americans would have been slaves if they had not resisted, the stamp act could not be maintained. It was repealed by the Rockingham ministry, March 18, 1766. But scarcely had the rejoicings over this event died away when a new scheme of taxation was put forth by Charles Townshend, chancellor of the exchequer, imposing duties on tea, paper, glass, etc. (June, 1767). The effect was to unite the colonies more firmly than ever in the principle that "taxation without representation is tyranny." The General Court of Massachusetts issued a circular letter inviting the Assemblies to consult for the defense of their rights. The non-importation agreement was renewed. An attempt to seize a sloop belonging to John Hancock, a rich and popular merchant of Boston, for violation of the revenue laws, led to a riot. The Assembly of New York, having refused to furnish quarters for royal troops, was dissolved. A still more popular Assembly, elected in its place, also refused, and was dissolved. The General Court of Massachusetts was commanded to rescind the circular letter; it refused, and was dissolved. The Burgesses of Virginia were dissolved for protesting against the treatment of New York. The Assemblies of Maryland and Georgia were dissolved for approving the course of Massachusetts and Virginia. Parliament approved the action of the royal governors, and recommended them to send all treasonable persons to England to be tried there for their offenses.

Two regiments were sent to Boston. The town flatly refused to give them quarters, and their commander, General Gage, was compelled to provide for them from his own resources. Their presence was a constant source

of irritation. A serious collision at last occurred between a picket guard and a mob, in which five citizens were killed and several wounded (March 5, 1770). In the excited state of the public temper, "the Boston massacre" was greatly magnified. A committee of the people, headed by Samuel Adams, waited upon Lieutenant-Governor Hutchinson and forced him to order the removal of all the troops from the town. Captain Preston and the soldiers of the guard were tried for murder. Defended by John Adams and Josiah Quincy, two of the most ardent of the popular leaders, they were all acquitted except two privates, who were found guilty of manslaughter, and branded in the hand.

Townshend's scheme of taxation had failed as completely as Grenville's stamp act. Its repeal, proposed by the ministry of Lord North, was an obvious political and economical necessity. But to satisfy King George III., who insisted that "there should always be one tax at least, to keep up the right of taxation," the duty on tea was retained. The new measure, presented to Parliament on the day of the Boston massacre, only increased the popular agitation in America. The people pledged themselves to use no tea while the tax remained, and to let none be landed. When news came that three tea ships were on the way to Boston, a mass meeting in that town resolved, on motion of Samuel Adams, that the ships should be sent back. The governor insisted that the cargo should be landed. On the night of December 18, 1773, a band of fifty or sixty men disguised as Indians boarded the ships and threw the tea into the harbor. Other ships, bound for New York and Philadelphia, were turned back without discharging. The resentment of the ministry at these proceedings fell upon Boston, which was, not unjustly, regarded as the hotbed of insurrection. By the Boston port bill the shipping business of that commercial city was entirely interdicted. The capital was removed to Salem. The act for quartering soldiers on the inhabitants was renewed. Seven regiments were stationed in the colony, and General Gage, besides holding the military command, was appointed governor. A new form of government was devised, containing scarcely a vestige of popular authority.

If English statesmen had paid proper attention to American affairs they must have learned, from the indignation with which these measures were received throughout the colonies, and the language of the public protests, that the controversy had already passed beyond the character of a quarrel about taxes, and was fast becoming a demand for popular rights all along the line. Committees of correspondence, formed at the suggestion of Patrick Henry, Thomas Jefferson, Richard Henry Lee, and others, enabled the colonies to concert measures of common interest, and in the spring of 1774 proposals were made by several of the Assemblies for a general Congress. On the 5th of September of that year the first, or "Old" Continental Congress met in Philadelphia under the presidency of Peyton Randolph, of Virginia, with representatives from all the colonies except Georgia. It was a dignified, sagacious, and patriotic body, including among its members Washington, Patrick Henry, and R. H. Lee of Virginia, Samuel and John Adams of Massachusetts, John Jay, Philip Livingston, and James Duane

of New York, Roger Sherman of Connecticut, Edward and John Rutledge and Christopher Gadsden of South Carolina, William Livingston of New Jersey, Galloway of Pennsylvania, and Chase of Maryland. A far-reaching declaration of rights, a protest against eleven specific acts of Parliament passed since the accession of George III., a petition to the King and addresses to the people of Great Britain, Canada, and the colonies, were framed, and an "American Association" was established, whose members pledged themselves not to trade with Great Britain, Ireland, the British West Indies, or any American province which should refuse to come into the Association, and not to use any British goods.

In Massachusetts events moved fast towards revolution. General Gage called a House of Representatives, under the new scheme of government, to meet at Salem, but, alarmed at the public temper, he countermanded the summons. Disregarding this second proclamation, the members came together, resolved themselves into a Provincial Congress, removed to Concord, and organized by choosing John Hancock as president. No Legislature ever met again in Massachusetts under royal authority. Almost unnoticed the sovereignty had passed to the people. Having assumed full legislative power the Massachusetts Congress provided for executive functions also, by creating a committee of safety with John Hancock at its head, and authorizing it to call out the militia. "Minute men" were enrolled, pledged to turn out at call; arms and ammunition were collected—the royal stores being sometimes seized—and public speakers began to defend the right of rebelling against oppression. General Gage fortified himself in Boston, and called for 20,000 more troops.

#### BEGINNING THE REVOLUTION.

On the 19th of April, 1775, General Gage sent 800 soldiers to destroy some arms and ammunition which the patriots had stored at Concord, sixteen miles from Boston. The expedition was to move secretly by a night march, but timely warning was given of its departure, the minute men were roused, and when the troops reached Lexington, at dawn of the 19th, they found sixty or seventy Americans drawn up in arms. The little force was easily dispersed after eight of the company had been killed and several wounded; but, insignificant as it seemed, the "battle of Lexington" had mighty consequences. The British continued their march to Concord, where they found little to destroy, and were met, moreover, so resolutely by a hastily collected body of 400 minute men that they quickly began a retreat. The whole country was now in arms. The Americans hung upon the line of march, firing from behind trees and fences, and doing such execution that the retreat became a rout, and when the troops were at last rescued by the arrival of reinforcements, they had lost 273 men.

The effect of the battles of Lexington and Concord was electric. For the first time a considerable party in the colonies began to talk of a separation from Great Britain; the people of Mecklenburg county, North Carolina, even adopted a formal declaration of independence (May 31, 1775), but this too hasty movement was not generally sustained. Almost everywhere authority passed

from the royal governors to popular assemblies, congresses, or committees of safety. Troops were raised by the several colonies, Massachusetts alone voting 13,000, and before the end of April the Americans had 20,000 men in camp before Boston. The second Continental Congress, meeting at Philadelphia in May, disclaimed the desire for independence, but made provision for war, issued bills of credit, and practically assumed all the functions of government. On the 10th of May, a party of Vermont volunteers, known as Green Mountain Boys, surprised and captured Fort Ticonderoga. To the inquiry of the astonished British commander, in whose name they demanded his surrender, their leader, Ethan Allen, replied, "In the name of the Great Jehovah and the Continental Congress." Seth Warner, with another Vermont party, captured Crown Point; and by these two exploits the patriots secured over 200 cannon and a large supply of powder.

There was neither discipline nor organization in the camp before Boston. Gen. Artemus Ward of Massachusetts, held the precedence among several more or less independent commanders, but he had little real authority. It was under orders from the Massachusetts committee of safety that Colonel Prescott marched secretly from Cambridge after dark on June 16, to fortify Charlestown Heights overlooking the city and harbor of Boston. He was instructed to throw up intrenchments on Bunker Hill; he decided, after reaching the ground, that the safer course would be to construct his defenses on Breed's Hill, an eminence a little nearer Boston. The Americans worked all night without discovery, and continued their labors until nearly noon of the 17th, while the British were preparing an assault. By that time they had completed a redoubt and a breastwork. Prescott was in command. Dr. Joseph Warren, president of the Massachusetts Congress, recently appointed a major-general, served with him as a volunteer. Israel Putnam of Connecticut, a veteran of the French and Indian war, was likewise on the field. The British attacking party, 3,000 strong, crossed the Charles river and advanced up the hill under a covering fire from their ships and batteries. Twice the picked regulars recoiled and fled before the American militia, who reserved their steady and well-aimed fire until the enemy were close to the works. Reinforced for a third attempt, and gallantly led by Generals Howe, Pigot, and Clinton, the British carried the intrenchments at last, only when the powder of the Americans was entirely exhausted. Prescott conducted an orderly retreat across Charlestown Neck, with the loss of the brave and ardent Warren. The number of killed, wounded, and prisoners on the American side was 449; the total number engaged at any one time was about 1,500, but more than that were in action at some part of the day. The British force was probably between three and four thousand, and they lost 1,054. The battle of Bunker Hill, as it has always been called, was a British victory; but it was so little satisfactory to the ministry that Gage was recalled and replaced by Howe, while the provincials derived from it increased confidence in their ability to meet regular troops.

The Congress at Philadelphia in the meanwhile had adopted the motley but brave array before Boston as a



Continental army, and appointed George Washington commander-in-chief. When the General reached Cambridge, two weeks after the battle of Bunker Hill, he found about 14,000 men in the ranks, and even this small force was largely composed of short-time volunteers, who had turned out for an emergency, with no idea of regular service. It was necessary during the next few months not only to create the organization of an army, but in a great measure to renew its material. But while the commander-in-chief was performing this delicate work in the face of the enemy, operations elsewhere were not neglected. General Richard Montgomery, invading Canada by way of Lake Champlain, captured Montreal on November 12, 1775, and marched upon Quebec, where Benedict Arnold joined him with a small force which he had led through the Maine wilderness. The assault, delivered in a blinding snowstorm on the 31st of December, was a failure. Montgomery was killed, Arnold was badly wounded, and the Americans lost nearly a third of their expedition. In Virginia, the royal governor, Dunmore, driven out of the capital, collected ships, burned Norfolk (January, 1776), and ravaged the coasts. British vessels of war attacked various seaport towns, but the colonists likewise fitted out cruisers and captured supply ships, with powder and other stores of which they were in great need. A combined land and naval attack upon Charleston, S. C., by General Clinton and Admiral Sir Peter Parker, was beaten off with heavy loss by a small body of men under Colonel Moultrie (June 28th, 1776).

Washington had no sooner brought his army into tolerable condition than he put in execution a bold plan which would force Howe either to evacuate Boston or give battle; and for the latter alternative he was amply prepared. On the night of March 4-5, 1776, the Americans fortified Dorchester Heights as silently as the year before they had fortified Breed's Hill, and in the morning Boston was at their mercy. Howe decided to risk an assault; but a storm delayed him; his officers lost heart; and on the 17th he embarked his whole army for Halifax, leaving valuable stores to the victors. Washington well knew that the intention of the British was to seize New York; and while the whole country was rejoicing over the recovery of Boston, he hurried his troops to the Hudson, and pushed on the fortifications begun some time before in anticipation of this movement.

#### THE DECLARATION OF INDEPENDENCE.

The conflict of arms was not long in commending to the people the idea of independence. Instructions which virtually implied separation were given to their delegates in Congress by Massachusetts in January, 1776, by South Carolina in March, by Georgia in April, and on the 12th of April North Carolina explicitly directed her representatives to vote for independence. In May, Congress resolved that all authority under the crown ought to be suppressed and all the powers of government exerted under authority of the people. Massachusetts, at an election May 30th, voted unanimously to instruct her delegates for independence.

On the 7th of June, Richard Henry Lee, in obedience

to instructions from the convention of Virginia, moved in Congress, "that the United Colonies are, and ought to be, free and independent states." The resolution was debated in secret, John Adams warmly supporting it, and was then postponed to give time for consultation with the people. In the meanwhile, however, Thomas Jefferson, John Adams, Benjamin Franklin, Roger Sherman, and Robert R. Livingston were appointed a committee to prepare a formal declaration. The deferred resolution was called up on the 1st of July and discussed in committee of the whole, John Adams again making an impassioned speech for it. It passed the committee by a vote of nine colonies to four, South Carolina being against it, Delaware and Pennsylvania divided, and New York awaiting the action of a popular convention which had been called but had not yet assembled. When the final vote was taken in the House July 2, all opposition had disappeared. Twelve colonies resolved "that these United Colonies are, and of right ought to be, free and independent states; that they are absolved from all allegiance to the British crown, and that all political connection between them and the state of Great Britain is, and ought to be, totally dissolved." The unanimous assent of the New York convention was given in due course. The discussions of the Congress were held in private. Crowds waited anxiously in the streets until the result of the deliberations was announced by the joyful pealing of the State-house bell, which, by a strange coincidence, bore the following text inscribed upon the metal: "Proclaim liberty throughout the land unto all the inhabitants thereof."

The Declaration of Independence, written by Jefferson, was agreed to on the evening of the 4th of July, and this date has consequently been taken as the American anniversary. John Hancock, president of the Congress, was the only member who signed the document on the 4th, the others waiting until it had been engrossed. But the declaration was immediately published, and everywhere dissension seemed to be smothered in popular rejoicings. (See DECLARATION OF INDEPENDENCE.) The immortal document which is justly regarded as the charter of American freedom had its prototype in a Declaration of Rights, prepared by Thomas Jefferson and adopted by the Virginia Legislature on June 12, 1776, as follows:

"A declaration of rights made by the Representation of the good people of Virginia, assembled in full and free Convention, which rights do pertain to them and their posterity as the basis and foundation of government.

"I. That all men are by nature equally free and independent, and have certain inherent rights, of which, when they enter into a state of society, they cannot by any compact deprive or divest their posterity; namely, the enjoyment of life and liberty, with the means of acquiring and possessing property, and pursuing and obtaining happiness and safety.

"II. That all power is vested in, and consequently derived from, the people; that magistrates are their trustees and servants, and at all times amenable to them.

"III. That government is, or ought to be, instituted for the common benefit, protection, and security of the people, nation, or community; of all the various modes and forms of government, that is best which is capable of producing the greatest degree of happiness and safety, and is most

effectually secured against the danger of maladministration; and that, when a government shall be found inadequate or contrary to these purposes, a majority of the community hath an indubitable, unalienable, and indefeasible right to reform, alter, or abolish it, in such manner as shall be judged most conducive to the public weal.

"IV. That no man, or set of men, are entitled to exclusive or separate emoluments or privileges from the community but in consideration of public services, which not being descendible, neither ought the offices of magistrate, legislator, or judge to be hereditary.

"V. That the legislative, executive, and judicial powers should be separate and distinct; and that the members thereof may be restrained from oppression, by feeling and participating the burthens of the people, they should, at fixed periods, be reduced to a private station, return into that body from which they were originally taken, and the vacancies be supplied by frequent, certain, and regular elections, in which all, or any part of the former members to be again eligible or ineligible, as the laws shall direct.

"VI. That all elections ought to be free, and that all men having sufficient evidence of permanent common interest with, and attachment to the community, have the right of suffrage, and cannot be taxed, or deprived of their property for public uses, without their own consent, or that of their representatives so elected, nor bound by any law to which they have not in like manner assented, for the public good.

"VII. That all power of suspending laws, or the execution of laws, by any authority, without consent of the representatives of the people, is injurious to their rights, and ought not to be exercised.

"VIII. That in all capital or criminal prosecutions a man hath a right to demand the cause and nature of his accusation, to be confronted with the accusers and witnesses, to call for evidence in his favor, and to a speedy trial by an impartial jury of twelve men of his vicinage, without whose unanimous consent he cannot be found guilty; nor can he be compelled to give evidence against himself; that no man be deprived of his liberty, except by the law of the land or the judgment of his peers.

"IX. That excessive bail ought not to be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted.

"X. That general warrants, whereby an officer or messenger may be commanded to search suspected places without evidence of a fact committed, or to seize any person or persons not named, or whose offence is not particularly described and supported by evidence, are grievous and oppressive, and ought not to be granted.

"XI. That in controversies respecting property, and in suits between man and man, the ancient trial by jury of twelve men is preferable to any other, and ought to be held sacred.

"XII. That the freedom of the press is one of the great bulwarks of liberty, and can never be restrained but by despotic governments.

"XIII. That a well-regulated militia, composed of the body of the people, trained to arms, is the proper, natural, and safe defence of a free State; that standing armies in time of peace should be avoided as dangerous to liberty; and that in all cases the military should be under strict subordination to, and governed by, the civil power.

"XIV. That the people have a right to uniform government; and therefore that no government separate from or independent of the government of Virginia ought to be erected or established within the limits thereof.

"XV. That no free government, or the blessing of liberty, can be preserved to any people but by a firm adherence

to justice, moderation, temperance, frugality, and virtue, and by a frequent recurrence to fundamental principles.

"XVI. That religion, or the duty which we owe to our Creator, and the manner of discharging it, can be directed only by reason and conviction, not by force or violence; and therefore all men are equally entitled to the free exercise of religion, according to the dictates of conscience; and that it is the duty of all to practise Christian forbearance, love, and charity towards each other."

This Declaration of Rights, indeed, was not only the prototype of the Declaration of Independence, but also of a considerable portion of the Constitution of the United States.

#### THE FIGHT FOR INDEPENDENCE.

The military situation at the time of the declaration was discouraging. The force with which Washington occupied New York did not exceed 8,000 men; and on the day of the passing of the resolution of independence the first part of a large armament destined by the ministry for the subjugation of America landed on Staten Island. To supplement the regular English troops, 17,000 mercenaries had been hired in the petty states of Germany, most of them from the Prince of Hesse Cassel. General Sir William Howe was appointed to the chief command of the armies, and there was a large fleet under his brother, Admiral Lord Howe. The Howes were empowered to promise a redress of grievances and a pardon to all who would return to their allegiance; but the people were in no mood to listen to any proposals short of independence.

The British plan of campaign was to seize the line of the Hudson river, by an advance simultaneously from New York and from Lake Champlain. Without ships and with a vastly inferior army, Washington was unable to prevent their landing at Gravesend Bay, on Long Island; nor did the battle of Long Island, August 27, 1776, in which the Americans fought well and suffered severely, greatly retard their advance. Brooklyn and New York were now at Howe's mercy; but the American commander, crossing the East river under cover of night and fog, drew off his men and stores, falling back successively to the heights of Harlem and of Fordham, baffling attempts to get in his rear, fighting an indecisive battle at White Plains, October 28, where he deceived his enemy with imitation redoubts of corn-stalks, and finally taking possession of the passes of the Highlands, where the Hudson flows through the gate of the mountains. The British occupation of New York, which lasted till the end of the war, gave a rallying place for the royalists, always strong in that town, and fostered the discontent and distrust among the half-hearted. The American troops also rapidly fell away by desertion and discharge. Washington, however, had shown consummate ability as a strategist, and the highest kind of force, steadfastness, and courage, as a leader. Howe's scheme for isolating New England by the seizure of the Hudson was defeated. Not only did Washington bar the way at the Highlands, but the expedition dispatched from Canada under Carleton failed on Lake Champlain. In a naval engagement on the lake, Benedict Arnold, indeed, was beaten and half his flotilla destroyed (October 11); but the Ameri-



cans maintained themselves at Fort Ticonderoga, where Carleton did not venture to attack them.

After capturing Fort Washington, at the upper end of Manhattan Island, Howe sent a strong corps under Lord Cornwallis across the Hudson into New Jersey. Falling back before this threatening movement, and adroitly maneuvering the remnant of his army so as to cover Philadelphia, Washington traversed the State in hot haste, and at Trenton crossed the Delaware into Pennsylvania. The two armies went into winter quarters on opposite sides of the river. On the 26th of December, having suddenly recrossed in the midst of a snowstorm, Washington surprised a Hessian detachment at Trenton, capturing a thousand prisoners. When the main body of the enemy under Cornwallis came upon him, he marched around them in the night, and routed their reserves at Princeton (January 3, 1777); and although obliged afterwards to fall back towards Morristown, he was able by harassing operations, in the course of the winter, to expel the British from nearly all their posts in the Jerseys, and to revive the depressed spirits of the people. Congress, which had fled to Baltimore, returned to Philadelphia, and the most active measures were taken to raise the strength and improve the organization of the American army.

The next campaign, however, in the Middle States was a series of disasters. Howe gained possession of Philadelphia after defeating the Americans at Brandywine creek (September 11, 1777), Congress removing to York, Penn.; he repulsed an attack at Germantown, October 4; and later he reduced Forts Mercer and Mifflin, on the Delaware, thus securing free communication with the sea. Washington went into quarters at Valley Forge, on the Schuylkill, about twenty miles above Philadelphia, where he was well placed for observation; but during "the dark winter," as it was afterwards called, his men suffered terribly for the want of food and clothing, and the patriotism of the country sometimes appeared to be nearly exhausted. It was the most critical period of the war.

Nevertheless, there were substantial causes of encouragement. Franklin, Silas Deane, and Arthur Lee, sent to ask assistance from Louis XVI., were kindly though unofficially received at the French court, and through indirect channels obtained large supplies from the royal arsenals, and what was of vital importance, considerable sums of money. They were permitted, also, to fit out privateers and vessels of war in French ports, with which enterprising American seamen inflicted great damage upon British commerce. Commissions were issued to foreign officers willing to enter the American army; and among those who gave their abilities to the cause were several of distinguished merit—the generous and high-minded La Fayette, who became one of Washington's warmest friends and disciples; the Polish patriots Pulaski and Kosciuszko; DeKalb, an Alsatian in the French service, and the Prussian Baron Steuben, whose work in drilling and organizing troops proved of the highest value.

Nor was the military outlook so black as it seemed on the capture of Philadelphia. The British government had made extraordinary preparations for a fresh attempt upon the line of the Hudson river. While Sir Henry Clinton marched from New York to force the passage of

the Highlands, a thoroughly equipped army of 8,000 men under General Burgoyne was to move from Canada by Lake Champlain. The Americans had but few troops in Northern New York, and the invaders met with little resistance until they reached Fort Edward, on the Upper Hudson. There General Schuyler had collected about 4,500 men, with whom he obstructed and delayed the advance, gathering reinforcements as he slowly fell back to Stillwater, and giving time for the militia to gather along the lengthening British line. Two flank expeditions, unwisely ordered by Burgoyne, ended in disaster. Colonel St. Leger, who was to have swept the valley of the Mohawk and joined Burgoyne at Albany, was defeated at Fort Schuyler (Rome), and returned in disorder to Canada. An English and Hessian force, detached for an attack upon Bennington, Vermont, was signally beaten by the New Hampshire militia under Stark (Aug. 16). Crippled by his losses, unable either to go forward or to retreat, Burgoyne halted at Saratoga, and fortified a camp. He attacked the Americans under Gates (who had superseded Schuyler) at Bemis Heights, September 19, without decisive result. He was attacked in turn by Gates at Saratoga, October 7, when the Americans gained a decided advantage of position. Burgoyne's only hope now was in Clinton. That general did, indeed, capture Forts Clinton and Montgomery in the Highlands, October 6, but his help came too late. On the 17th of October, Burgoyne surrendered with 5,800 men and 27 pieces of artillery. Clinton returned in haste to New York.

The capture of an entire British army of picked troops by a miscellaneous force of half-destitute provincials and militia was well calculated to dismay the ministry and reanimate the patriots; but its most important effect was in determining France to acknowledge the independence of the United States and make open cause with them. Treaties of alliance and of commerce and friendship were signed with the American commissioners in Paris, February 6, 1778. England at once declared war against France, and a French fleet under Count d'Estaing sailed promptly for America.

In anticipation of the arrival of the French ships, the British hastened to evacuate Philadelphia and transfer themselves to New York. Washington pursued, and coming up with them at Monmouth Court House, N. J., June 28, 1778, fought a severe battle, in which the disasters of the early part of the day were repaired by his personal exertions. Under cover of the night, Clinton (who had superseded General Howe) stole away to the protection of the ships, losing nearly 2,000 men on the field and in the retreat. The French auxiliaries, however, did much less than was expected of them. An attack upon New York proved impracticable, and a combined land and naval expedition against Newport was defeated by a storm; after which d'Estaing sailed for the West Indies. The policy of arming the "savages" against the insurgent patriots, steadily urged by the King, had its natural result in the terrible massacre of Wyoming (near Wilkes-barre, Penn.), where a settlement of Connecticut emigrants was captured (July 3, 1778), by a force of Tories and Indians under Col. John Butler, and 400 persons were murdered by the red men after the surrender. In Northern New York, where the Mohawk chief, Joseph Brant,

held his tomahawk always at the British service; in various parts of the South; and in the West, where Indian raids were instigated by the British commanders of frontier posts, the settlers were kept in constant alarm; and sometimes they were moved to severe retaliation. Sullivan conducted an energetic campaign against the Six Nations and Tories of New York (1779), and the daring pioneer, Maj. George Rogers Clark, surprised the British at Kaskaskia, Detroit, and other places in the West. But the alliance between the King and the savage did its bloody work until the end of the war.

Ravaging expeditions of the British against exposed towns on the coast were more than countervailed by such imposing exploits as the surprise and capture of Stony Point, below the Highlands, by General Wayne (called Mad Anthony) July 16, 1779, or Major Henry Lee's descent upon Paulus Hook, (Jersey City); and especially by the successes of the American armed ships, public and private, in foreign waters, over five hundred British merchantmen having been made prizes. The most famous of the American commanders was John Paul Jones, who sailed from France with a small squadron, fitted out by the help of Dr. Franklin, and off Flamborough Head, on the coast of Yorkshire, fought a battle (September 23, 1779), which has a conspicuous place in all naval histories. With his flagship, the *Bon Homme Richard*, so named in compliment to the "Poor Richard" of Franklin's almanac, he engaged a much finer and heavier ship, the *Serapis*, at close quarters, for three hours, and received her surrender when his own vessel was on the point of sinking.

The discovery of the treason of General Benedict Arnold came upon the country at a time when the military fortunes of the Northern department were so low that Washington doubted his power to hold his suffering and mutinous troops together for another campaign. Arnold had bargained with Sir Henry Clinton to betray West Point into the hands of the British. The post was the key to the Highlands, and its loss might have been a fatal disaster. To complete the details of the plot, Major Andre, an accomplished young officer of Clinton's staff, landed from the man-of-war *Vulture*, and held an interview with Arnold at Haverstraw, on the Hudson, between the English and American lines. Unable to return to the ship, Andre crossed the river, spent the night within the American lines, and the next day attempted to reach New York by land in disguise, a course which, by the laws of war, placed him in the position of a spy. He was captured near Tarrytown, with papers on his person which revealed the whole plot, and was hanged, by sentence of a court martial, October 2. Arnold escaped to the *Vulture*, and was rewarded for his perfidy with £6,300 and a commission as brigadier-general.

Washington, whose headquarters were at Morristown, had been unable, since the summer of 1778, to do much more than maintain a watchful defensive. Clinton, on the other hand, disheartened by repeated failures at the North, resolved to strike at Georgia and the Carolinas, and for this purpose withdrew his garrisons from Newport and the forts on the Hudson. Savannah was easily captured, December 29, 1778. The whole State of Georgia

submitted, and the Tories took arms. General Lincoln, who commanded the American forces in the South, saved Charleston from an attack by General Prevost; but he was defeated in an attempt to recapture Savannah (October, 1779), where the gallant Pulaski was mortally wounded. Count d'Estaing, who had returned to the American coast, took a spirited part in the siege and assault; but, more cautious than his allies, he sailed away while Lincoln was still belligerent and hopeful, and thus, as at Newport, he put an end to the enterprise. In February, Clinton himself sailed for the South with a strong force. He took Charleston, May 12, plundering the city and shipping the slaves to the West Indies. When he returned to the North he left Cornwallis in command, and upon this officer must rest the chief responsibility for the barbarous and unusual methods by which the conflict in the Carolinas was conducted. Men were forcibly enrolled under the British flag; even prisoners were driven into the ranks; private property was confiscated; murders on one side provoked executions on the other. The worst, but not the only, excesses, were committed by the Tory irregulars. To meet them the patriots organized partisan bands, and the exploits of Sumter, Marion, Pickens, and others soon rang through the country.

Against the advice of Washington, Congress committed the Southern department to Gates, and this mediocre and inflated general, who had filched the laurels of Schuyler at Saratoga and intrigued for the place of Washington, put an end to his own career by a disgraceful defeat at the hands of Cornwallis, near Camden, S. C. (Aug. 16, 1780), the brave De Kalb falling mortally wounded in trying to stay the rout. Washington was now allowed his choice, and he sent to the South Nathaniel Greene, the ablest and most trusted of his generals. In every campaign of the war Greene had displayed signal qualities as a commander—courage, firmness, judgment, ingenuity, and a true military instinct; and latterly he had served with the greatest zeal and success as quartermaster-general of the army. He had some good subordinates at the South, especially Morgan and "Light Horse Harry" Lee, and he was joined after a while by Wayne; but his men were only the phantom of an army, nearly naked, untrained, and, in large part, of poor spirit. For several months the campaign in the Carolinas was a series of baffling marches, adroit retreats, skirmishes, and surprises, in which Greene showed himself a much better strategist than Cornwallis, and much more fertile in resources. Morgan gained a brilliant victory over Tarleton's light division at the Cowpens, in South Carolina, January 17, 1781; and Greene, having been reinforced, ventured to give battle to Cornwallis at Guilford Court House, N. C., March 15, when the pluck of the Continentals held the field after the flight of the North Carolina and Virginia militia. The advantage of the day was with the Americans, but they were too weak to follow it up; while Cornwallis retreated to Wilmington, persuaded that Clinton's plan of overrunning America from the Carolinas was a failure.

It was impossible for Washington to give Greene much help. A dangerous revolt of the unpaid and dissatisfied soldiers of the Pennsylvania line had just been put down, but it resulted in the discharge of nearly all



the Pennsylvania troops and the encouragement of a mutinous spirit in the rest of the army. Arnold, with a marauding expedition from New York, was committing havoc along the James river from the sea to Richmond. To this quarter Cornwallis decided to transfer himself. With characteristic boldness, Greene left Cornwallis to be cared for by others, and hurried southward where the British held a chain of posts extending through Central South Carolina and down the line of the Savannah river. Fort after fort fell into his hands, generally after hard fighting; and at Eutaw Springs, September 8, 1781, there was a severe battle in which the losses and the honors were about equal, but the practical advantages were with Greene. By the end of the year the British retained only Charleston and Savannah; and thus, in a single campaign, fought with a small and disaffected force in the midst of a Tory population, Greene restored two States to the Union, and virtually put an end to the war in the South.

But the blunder of Cornwallis in turning his back upon Greene had still larger consequences. After some unimportant demonstrations against Lafayette, who commanded in Virginia, the British general, by Clinton's orders, posted himself on the Yorktown peninsula between the James and York rivers, where it was believed that he would be favorably situated for further operations. But he was safe only while British ships could command Chesapeake Bay. A French fleet under Admiral De Grasse was on the way from the West Indies to co-operate with Washington in an attack upon New York. Washington instantly saw his opportunity. De Grasse was diverted to the Chesapeake, where he defeated a British squadron which arrived a few days later. Lafayette disposed his troops across the head of the peninsula; and Washington, joined by a strong French contingent under Count Rochambeau, which had been waiting idly at Newport since the previous summer, marched with all haste towards Yorktown. Clinton did not discover his destination until he had reached the Delaware and was beyond molestation; and an attempt to arrest the movement by sending Arnold to Connecticut had no effect. By the end of September the trap was closed. Cornwallis was completely invested at Yorktown. After two of his redoubts had been taken by assault, and he had failed in a desperate effort to cross the York river and break through the lines, he surrendered to Washington, October 19, 1781, with 7,000 men and 100 cannon, while the British ships in the river hauled down their flags to Admiral De Grasse. The allied armies at the siege consisted of 5,500 Continentals, 3,500 militia, and 7,000 French.

The war was over. All America rang with rejoicings; and although George III. still obstinately refused to acknowledge the independence of the States, a resolution in favor of peace passed the House of Commons February 27, 1782; Lord North resigned; and under a new ministry headed by the Marquis of Rockingham, a commissioner was appointed to negotiate a treaty in Paris. Rockingham died shortly afterwards, and it fell to his successor, Lord Shelburne, to complete the work. The American agents were Franklin, John Adams, and John Jay, most of the business being in the hands of Franklin,

who crowned with this illustrious service his long and patriotic career at the French capital. A preliminary treaty, signed November 30, 1782, was ratified by Congress in March, and published in Washington's camp on April 19, 1783, the eighth anniversary of the battle of Lexington. The definitive treaty was signed at Paris, September 3, 1783; and on the 23d of December Washington formally resigned his commission and retired to his home at Mount Vernon.

#### THE CONSTITUTION.

Troubles crowded thick and fast upon the new States, even before the final treaty was concluded, and not the least of them came from the dissatisfied soldiers. Unpaid, and often suffering, the men in Washington's camp near Newburg became rebellious under their wrongs. A proposal that the commander-in-chief should declare himself king is remembered on account of Washington's indignant reply to it. A more dangerous project, set forth in an anonymous circular, for an organized demonstration against Congress, was defeated by Washington's tact and patriotism. The soldiers had ample cause of complaint; but in truth Congress had no money. Nearly \$170,000,000 had been spent during the war; the debt of the United States was \$42,000,000; that of the separate States was \$20,000,000 more; and the Continental paper currency had become entirely worthless. Trade and manufactures were crushed. Poverty was almost universal. Nor was it easy to find a remedy for the general distress. A common danger, to say nothing of nobler motives, kept a semblance of union among the States during the war; even so faint a form of government as the Articles of Confederation, reported to Congress July 12, 1776, was not adopted until 1781, and in the meantime the States administered affairs more or less effectively by an irregular general consent. But with the advent of peace the disorders became intolerable. Congress lost all consideration, and could hardly command a quorum. The States entered into ruinous commercial rivalry with one another. Abroad, the country was regarded with contempt. At home there was no executive authority to enforce the laws. A rebellion against the collection of taxes, led by one Daniel Shays, in Massachusetts (1786), strengthened the growing popular conviction that it was necessary to substitute for the Confederation a real government.

A convention, authorized by Congress to revise the Articles of Confederation, met at Philadelphia in May, 1787, with Washington as chairman. Its work, however, was not a revision of the existing league, but the construction of a new Constitution. At the very beginning two parties declared themselves with differences which have ever since influenced American politics. The so-called Virginia plan, introduced by Edmund Randolph and favored by the large States—Massachusetts, Pennsylvania, and Virginia—as well as by the Carolinas and Georgia, represented in substance the national principle which was finally adopted, with a central Federal Government complete in all its departments. The New Jersey plan, presented by William Paterson, and supported by the small States—Connecticut, New Jersey, and Dela-

were—with a majority of the delegates from New York, adhered jealously to the sovereign powers of the separate States, and retained some of the most unfortunate characteristics of the existing Confederation. The instrument at last agreed upon was a compromise, in which the three great concessions, yielded by one party or the other, were the equal representation of States in the Senate, the reckoning of three-fifths of the slaves in the apportionment of representation in the House, and the prohibition of Federal interference with the slave trade before 1808.

The new Constitution required the assent of nine States, or two-thirds; and it was carried only after a hard contest. Delaware was the first to ratify; Pennsylvania and New Jersey quickly followed; the assent of Massachusetts and Virginia was given after a close contest; the vote of New Hampshire, June 21, 1788, completed the two-thirds; New York, Rhode Island, and North Carolina held back until the Constitution had been adopted without them. Under a law of the Continental Congress, the Presidential electors were chosen on the first Wednesday of January, 1789; they cast their ballots on the first Wednesday of February; and the new government was to go into operation on the first Wednesday (the 4th) of March. New York was designated as the temporary capital. As to the Presidency, there was practically no difference of opinion in the country, and George Washington received all the electoral votes. John Adams was chosen Vice-President. The journey of Washington from Mount Vernon to New York was turned by spontaneous popular demonstrations into a triumphal procession. The formal inauguration did not take place until the 30th of April, when the oath of office was administered to the first American President on the balcony of the old Federal Hall, at the corner of Wall and Broad streets. This building, on the site of the present custom house, had been set apart for the use of Congress; but the next year the seat of government was again at Philadelphia.

The first Cabinet consisted of only three officers—Thomas Jefferson, Secretary of State; Alexander Hamilton, Secretary of the Treasury; and Gen. Henry Knox, Secretary of War. In the organization of the government during the trying experimental years of Washington's administration, no man's services, after those of the sagacious and high-minded President, equaled Alexander Hamilton's. This brilliant young statesman, the chief inspiration of the rising of the Federal party, whose principles he had signally defended in a series of papers on the Constitution, published while its ratification was in debate, was eminent alike as a political thinker, a party leader, and a practical administrator. He brought the chaotic finances of the country into order, instantly reviving the prostrate national credit; and by causing the Federal Government to assume the Revolutionary war debts of the States, he strengthened the sentiment of union and the respect for Federal authority. This important measure was not carried without bitter opposition, and its adoption was at last secured by a pledge to Virginia that the permanent capital, after 1800, should be on the Potomac. The funding of the debt led necessarily to the passing of a Federal excise law; and Hamilton's schemes were completed by the establishment of a na-

tional bank, which he justified on the theory, then new, of implied powers in the Constitution. He was thus not merely promoting a strong government, but he was fostering the idea of nationality at a time when that sentiment was still weak, and the success or speedy failure of the Constitution depended largely upon its interpretation. The leader of the Anti-Federalists, or Republicans, as they soon began to be called, was Thomas Jefferson, a strict constructionist, who honestly dreaded Hamilton's designs, and detested him personally.

Washington was unanimously re-elected for a second term, beginning March 4, 1793, and John Adams again became Vice-President. France at this moment was on the eve of the Reign of Terror. The King had been sent to the scaffold. The Queen, who had been the special friend of America during the war of independence, was to follow him a few months later. But Jefferson and the Anti-Federalists sympathized with the French revolutionists too strongly to be much affected by their excesses, and the strict neutrality which Washington insisted upon preserving when France and England declared war was resented with indecent violence. The grotesque demonstrations of the French faction reached their height when "Citizen" Genet arrived in America in April, 1793, as minister from the revolutionary government. This extravagant person was guilty of diplomatic outrages from the moment of his landing; and when his attempts to embroil the United States in an offensive alliance with France failed, he made a gross attack upon Washington, and otherwise so misbehaved that the President demanded his recall. The rancor of faction, inflamed by this affair, was aggravated by the insolence of the British, whose men-of-war, cruising against the French, committed great injuries upon American commerce, seizing our grain ships bound for French ports, taking all French property from under the protection of our flag, searching our vessels for sailors supposed to be British subjects, and carrying off naturalized and even native Americans to serve in the British navy. Moreover, ten years after the peace of Paris, England still retained her hold upon some of the forts in the Northwest. A treaty negotiated in London by John Jay (1794) procured a partial redress of grievances, and averted the danger of war; but it left the claim of the right of search to be a cause of future trouble, and the treaty was not ratified without an angry contention.

Refusing a third nomination, Washington retired to Mount Vernon in 1797, after publishing a memorable farewell address which has been cherished as a political legacy. Still more impressive than the wise counsels of this document was the example of a noble life, directed by the purest impulses, the calmest judgment, the finest and most unselfish sentiment of justice. For eight years, at the head of his ragged Continentals, he withstood the armies of a great empire; and he achieved the independence of America, not merely by the exercise of a rare military talent, perhaps amounting to genius, but by teaching his uneasy and spiritless countrymen to what heroic heights one may carry the virtues of patience, equanimity, perseverance, and unselfishness. In his civil administration, although he had to deal with many novel and difficult complications, he added fresh lustre to an



already glorious name, and strengthened the popular respect and affection with which, in spite of occasional outbreaks of political scurrility, he had long been regarded. Fortunate, indeed, was it for America that during the critical formative period of the new government the guidance of affairs was committed to so sound a statesman and so pure a patriot.

#### THE NEW WEST.

By the treaty of 1783 the Mississippi river was recognized as the western boundary of the United States, but most of the region beyond the Alleghany Mountains was still an untrodden wilderness. One of the last acts of Congress under the Confederation was the adoption of an Ordinance for the Government of the Northwest Territory, that district comprising the present States of Ohio, Indiana, Illinois, Michigan, Wisconsin, and a part of Minnesota. The Ordinance of 1787, as it is called, may well be ranked with the Declaration of Independence and the Constitution of the United States, as a foundation stone of the American Government. The first four and sixth articles of it have exerted a vast permanent influence upon the constitutional development of the nation. They are as follows:

"ARTICLE I.—No person, demeaning himself in a peaceable and orderly manner, shall ever be molested on account of his mode of worship, or religious sentiments, in the said territories.

"ARTICLE II.—The inhabitants of the said territory shall always be entitled to the benefits of the writ of *habeas corpus*, and of the trial by jury; of a proportionate representation of the people in the legislature, and of judicial proceedings according to the course of common law. All persons shall be bailable, unless for capital offences where the proof shall be evident, or the presumption great. All fines shall be moderate; and no cruel or unusual punishments shall be inflicted. No man shall be deprived of his liberty or property, but by the judgment of his peers, or the law of the land; and should the public exigencies make it necessary, for the common preservation, to take any person's property, or to demand his particular services, full compensation shall be made for the same. And, in the just preservation of rights and property, it is understood and declared, that no law ought ever to be made or have force in the said territory, that shall, in any manner whatever, interfere with or affect private contracts, or engagements, *bona fide* and without fraud, previously formed.

"ARTICLE III.—Religion, morality, and knowledge being necessary to good government and the happiness of mankind, schools and the means of education shall forever be encouraged. The utmost good faith shall always be observed towards the Indians; their lands and property shall never be taken from them without their consent; and in their property, rights, and liberty they never shall be invaded or disturbed, unless in just and lawful wars authorized by Congress; but laws founded in justice and humanity shall, from time to time, be made, for preventing wrongs being done to them, and for preserving peace and friendship with them.

"ARTICLE IV.—The said territory, and the States which may be formed therein, shall forever remain a part of this confederacy of the United States of America, subject to the Articles of Confederation, and to such alterations therein as shall be constitutionally made; and to all acts and ordinances of the United States in Congress assembled, conformable thereto. The inhabitants and settlers in the said

territory shall be subject to pay a part of the Federal debts, contracted, or to be contracted, and a proportional part of the expenses of government to be apportioned on them by Congress, according to the same common rule and measure by which apportionments thereof shall be made on the other States; and the taxes for paying their proportion shall be laid and levied by the authority and direction of the legislatures of the district, or districts, or new States, as in the original States, within the time agreed upon by the United States in Congress assembled. The legislatures of those districts or new States shall never interfere with the primary disposal of the soil by the United States in Congress assembled, nor with any regulations Congress may find necessary for securing the title in such soil to the *bona fide* purchasers. No tax shall be imposed on lands the property of the United States; and in no case shall non-resident proprietors be taxed higher than residents. The navigable waters leading into the Mississippi and Saint Lawrence, and the carrying places between the same, shall be common highways, and forever free, as well to the inhabitants of the said territory as to the citizens of the United States, and those of any other States that may be admitted into the confederacy, without any tax, impost, or duty therefor.

"ARTICLE VI.—There shall be neither slavery nor involuntary servitude in the said territory, otherwise than in the punishment of crimes, whereof the party shall have been duly convicted: Provided always, that any person escaping into the same, from whom labor or service is lawfully claimed in any one of the original States, such fugitive may be lawfully reclaimed, and conveyed to the person claiming his or her labor or service as aforesaid."

There were a few small towns in Illinois; Cahokia and Kaskaskia had been founded by the French under La Salle nearly a century before. Vincennes, in Indiana, was a French settlement dating from about 1702. Detroit was begun by the French in 1701. The first permanent settlement in Ohio was Marietta, planted in 1788. Daniel Boone, the famous hunter and Indian fighter, penetrated into Kentucky as early as 1769, and founded Boonesborough in 1775. Nominally a part of Virginia, this remote country practically ruled itself, and at one time under Spanish influence it meditated the formation of an independent sovereignty. It was joined with Tennessee in 1790 to constitute the Territory South of the Ohio, and was admitted to the Union as a State in 1791. Tennessee, originally a part of North Carolina, set up the State of Frankland in 1785, but that vapory commonwealth disappeared about 1788, and Tennessee was admitted to the Union in 1796. Alabama and Mississippi, separated from Georgia in 1798 and became the Territory of Mississippi. Vermont, long in dispute between New York and New Hampshire, was admitted as a State in 1791.

Upon the organization of the Northwest Territory, the movement of emigration across the mountains was greatly hastened. But the Indians in the valley of the Ohio became very troublesome, and their hostility was carefully kept alive by the British at the frontier posts. General Harmer, who was sent against the tribes in 1790, was defeated near the present site of Fort Wayne, Ind., and a more formidable expedition under General St. Clair the next year met with a more complete disaster. Wayne at last conquered a peace. He devastated the Indian country, and after a great victory on the Maumee river (1794) he compelled the tribes to sue for terms.

The third presidential election resulted, after an angry contest, in the choice of the Federalist candidate, John Adams, while, under the constitution as it then stood, the Vice-Presidency went to his next rival, Thomas Jefferson. President Adams began his term March 4, 1797, retaining Washington's Cabinet, which then consisted of Timothy Pickering, Secretary of State; Oliver Wolcott, Secretary of the Treasury, and James McHenry, Secretary of War. He found our relations with France in a critical condition. The Directory, resenting our treaty with England and our refusal to make common cause with the democratic propaganda, had laid intolerable exactions upon our commerce, and grossly affronted our government. Gouverneur Morris, the American minister, had been recalled at the request of the French republic because he was too conservative. His successor, Monroe, had been recalled by Washington because he was too extravagantly radical. C. C. Pinckney, sent to replace Monroe, was not received; and when President Adams appointed a commission (1797), consisting of Pinckney, Elbridge Gerry, and John Marshall, to negotiate for a better understanding, Talleyrand demanded of them as a preliminary a loan for the government and a bribe for the Directory, threatening war in case of refusal. The publication of these infamous proposals created a profound sensation. Every preparation was made to set an army in the field. Washington accepted the chief command, and without any declaration of war the ships of the new navy then in course of organization were hurried to sea to check the depredations of the French cruisers. It was under these circumstances that the historic frigates *Constitution*, *Constellation*, and *United States* began their famous careers, with Samuel Nicholson, Truxton, and Barry in command. All the squadrons made many prizes.

The Directory before long made such offers of accommodation that Mr. Adams appointed a new commission; but when it reached France the Consulate had been established, and it was with Bonaparte as First Consul that the treaty was concluded in 1800.

Distracted during the French troubles by faction quarrels between the followers of Adams and Hamilton, the Federal party was, moreover, discredited in the country by the passing of the alien and sedition acts, the first of which empowered the President, in his discretion, to banish any alien judged dangerous to the peace and safety of the United States; while the second imposed restrictions upon freedom of speech and the press which, if the law had ever been strictly enforced, would have armed the government with despotic power over its political opponents. At the elections of 1800 the Federalists were overthrown, not so signally, however, but that Adams had 65 electoral votes against 73 cast for each of the Republican candidates, Thomas Jefferson and Aaron Burr. The choice going to the House of Representatives, Jefferson became President from the 4th of March, 1801, with Burr for Vice-President.

Jefferson's greatest service as President was performed in bold disregard of his own theory of a strict construction of the constitution. That instrument certainly gave no express authority to the Federal Government to purchase territory. France, however, by a secret treaty with Spain (1800), had recovered Louisiana, and Jefferson

proposed, by way of removing vexatious disputes respecting the navigation of the Mississippi, to buy New Orleans. Bonaparte declined this offer, but agreed to sell the whole province of Louisiana, and the American commissioners took the responsibility of exceeding their instructions by a prompt acceptance. Thus, for the sum of \$15,000,000, one quarter of which was to be paid to American citizens in satisfaction of claims against France, the United States acquired the vast region between the Gulf of Mexico and British America, the Mississippi river and the Rocky Mountains.

Jefferson was triumphantly re-elected in 1804, receiving 162 electoral votes against only 14 for C. C. Pinckney, but Burr was dropped and the Vice-Presidency went to Gen. George Clinton.

Brilliant, vicious, and unstable, Burr was almost everywhere distrusted. Of all his political adversaries the one whose opposition he most rancorously resented was Alexander Hamilton. He killed Hamilton in a duel at Weehawken, on the Hudson, opposite New York, July 11, 1804, and, followed by general execration, he fled to the South, where we hear of him a year later embarking his desperate fortunes in a conspiracy whose exact purpose has never been made clear. He seems to have planned the seizure of Mexico by an armed expedition from New Orleans, perhaps, also, the forcible detachment of some of the Western States from the Union. Arrested and put on trial for treason, he was acquitted on technical rulings, and after thirty wandering and unhappy years he died in disgrace.

The Corsair states on the Barbary coast had long levied tribute upon the commercial powers trading in the Mediterranean, most nations choosing the ignoble course of buying immunity from their piratical attacks instead of fighting them. In 1801, however, the United States sent a squadron to teach them moderation. Commodore Preble, with the *Constitution*, imposed terms upon the Emperor of Morocco, and then bombarded Tripoli, where Lieut. Stephen Decatur, with a small schooner, had previously boarded the frigate *Philadelphia*, captured after she had run aground, and, driving off the Tripolitan crew, completely destroyed her. These and other exploits secured a few years of peace.

With both France and England, in the meantime, the relations of the United States had become extremely unfriendly. Each of those powers, in making war upon the other, struck at the commerce which America had acquired by neutrality. British orders in council declared an arbitrary blockade in the English Channel, and forbade neutral vessels to enter a French port without first paying a tax in an English port. Napoleon retaliated by a paper blockade of all British ports, and by his "Milan decree," which confiscated every ship submitting to the English tax or the English "right of search." Congress attempted to meet these high-handed measures by an embargo, which prohibited all vessels, American or foreign, from leaving the ports of the United States; but the law was unpopular and ineffective, and it gave place after a short trial (1809) to a non-intercourse act, forbidding trade with France and England. The old claim of the right of search was enforced by the British with more violence than ever; the Department of State had



the names of more than 6,000 seamen, alleged to be American citizens, who had been forcibly taken from American vessels; and the outrages culminated when a British man-of-war fired into the U. S. frigate *Chesapeake*, and took off four of her men. Peace could no longer be kept with honor; but the final responsibility was left for another administration. Jefferson refused to be a candidate for a third term. His party, now beginning to be known as the Democratic, nominated the Secretary of State, James Madison (1808), and he was elected over C. C. Pinckney by 122 out of the 176 electoral votes. Clinton was again chosen Vice-President.

#### WAR WITH ENGLAND.

When Madison entered office, March 4, 1809, he had to confront not only an imminent foreign war, but a dangerous confederacy of the Indians, who, under the Shawnee Chief, Tecumseh, and his brother, "The Prophet," were known to be organizing hostilities. General William Henry Harrison, governor of the Territory of Indiana, gained a signal victory over them at their principal town on the Tippecanoe river, Indiana (Nov. 7, 1811); but they were soon in arms again as open allies of the British, and their rising, merged in the war between England and the United States, was not quelled until Andrew Jackson inflicted a series of crushing defeats upon the Creeks, ending with a battle at the Horseshoe Bend of the Tallapoosa, Alabama (March 27, 1814).

The President published a declaration of war against Great Britain June 19, 1812. On land, as events soon proved, the country was little prepared for such an emergency. General William Hull, being ordered to invade Canada by way of Detroit, surrendered to General Brock and Tecumseh not only Detroit, but the whole Territory of Michigan (Aug. 16). He was afterwards sentenced to death for cowardice, but was pardoned on account of his services in the Revolution. An expedition against Queenstown Heights, near Niagara, was defeated by the bad conduct of the American militia. General Winchester surrendered to Proctor at Frenchtown (Mich.), and the sick and wounded prisoners were massacred by Proctor's Indians. Harrison successfully withstood a siege by Proctor and Tecumseh at Fort Meigs, in Ohio, and in various fights on the border the Americans showed gallantry. But the military operations upon the whole accomplished little. Dearborn, the commander-in-chief, was superseded by Wilkinson, a change which failed to restore the lost American prestige.

It was the little half-starved American navy which saved the national honor. The Anti-Federalist or Democratic party had always treated that branch of the service in a niggard, obstinate, and unfriendly spirit. The Southern Democratic members were generally opposed to a naval establishment; and Jefferson insisted upon substituting for ships of war a swarm of harbor gunboats which proved costly failures. Recent events had at last compelled Congress to refit the few available frigates and order the construction of new vessels. At once it seemed as if every disaster on land was to be counterbalanced by a victory on the ocean. The *Essex*, Captain Porter, captured the *Alert*. The *Constitution*,

Capt. Isaac Hull, destroyed the frigate *Guerriere* off the Gulf of St. Lawrence (Aug. 19); later, under Commodore Bainbridge, took the frigate *Fava* on the coast of Brazil; and under Stewart captured the sloops of war *Cyane* and *Lewant* in a night engagement off the coast of Portugal. The *United States*, Commodore Decatur, captured the *Macedonian* (Oct. 25). The *Hornet*, Capt. James Lawrence, took the *Peacock* (Feb. 1813). The *Enterprise*, Lieutenant Burrows, took the *Boxer* (Sept. 5). The *Essex* under Porter swept the Pacific, making numerous prizes before, by a glaring invasion of neutrality, she was destroyed by two British ships in the harbor of Valparaiso. Of the rare British victories which disturbed this brilliant record, the most important was the engagement between the *Chesapeake* and *Shannon* off Boston (June 1, 1813), when the American frigate was captured by boarding, and her commander, the gallant Lawrence, was mortally wounded, exclaiming as he was carried below, "Don't give up the ship."

Nor was it only on the open sea that the navy maintained the honor of the flag. Oliver Hazard Perry, a young master-commandant, by extraordinary exertions built and launched a few vessels on Lake Erie. Naming his flag-ship the *Lawrence*, and displaying on his flag the famous injunction of the dying commander of the *Chesapeake*, he gave battle to a British flotilla of about equal strength, September 10, 1813, and in fifteen minutes forced it to surrender. This victory gave the Americans control of the lake. Brock and Tecumseh evacuated Detroit, and being followed by Harrison into Canada were defeated at Moravian Town, October 5. Tecumseh was killed. Michigan was now restored to the United States. An invasion of Canada under General Brown in the summer of 1814 was marked by an American victory at Chipewewa (July 5) and an indecisive battle at Lundy's Lane (July 25), both near Niagara Falls; the movement had no important consequences.

Reinforced by veteran regiments from Wellington's army, the British General Prevost undertook the invasion of New York by the line of Lake Champlain with an army of 14,000 men, while a squadron under Captain Downie co-operated with him. The Americans offered battle at Plattsburg—less than 6,000 troops under General Macomb posted behind the Saranac river, and a squadron under Commodore Macdonough, far inferior to the British, drawn up at the entrance to Plattsburg Bay. The engagement, lasting two hours, ended in a complete American victory on land and water (Sept. 11, 1814), the invaders retreating in disorder to Canada.

During all these operations on the frontier and on the sea, Washington had been left undefended. In August, 5,000 British soldiers and marines under General Ross and Admiral Cockburn were landed on the Patuxent river, about 40 miles from the capital. Easily dispersing a militia force at Bladensburg on the 24th, they entered the Federal city the same evening, the President and other officers of the government seeking safety in flight. They burned the Capitol, with the library of Congress, the President's house, the Treasury, and nearly all other public buildings except the Patent Office; and after this vandal exploit they returned hastily to their ships, and proceeded to an attack upon Baltimore. Here, however,

they were stoutly met. Ross was killed in an unsuccessful land engagement at North Point, and Admiral Cockburn failed in a bombardment of Fort McHenry, after which the enterprise was abandoned (Sept. 12-13). The operations against Baltimore and Washington and the ravaging excursions of Cockburn on the coasts were subordinate to a far more serious undertaking of the British; namely, the reduction of New Orleans and the seizure of the Mississippi. General Jackson, who commanded in the Southwest, hurried to New Orleans to meet this danger; but he was wretchedly provided with men, arms, and money, and when the attacking force—12,000 veteran soldiers under Sir Edward Pakenham, and a fleet numbering 4,000 sailors and marines—arrived in the Gulf, the American general could muster only 5,000 men, mostly militia. Capturing the American gunboats on Lake Borgne, an arm of the Gulf which lies east of New Orleans, the British marched towards the city over a strip of land having the Mississippi on one side and a morass on the other. Jackson attacked their advance December 23, 1814, enforcing a delay which both sides employed in constructing breastworks, the British using hogsheads of sugar, the Americans bales of cotton. The attack in force was made January 8, 1815. The assailants moved forward in excellent order; but nothing could withstand the American riflemen. Before these western sharpshooters, the red lines melted away. Pakenham was killed; and after a loss of about 2,000 troops the British retreated, and the invasion was at an end. It was a useless battle for, two weeks before it was fought, peace had been signed at Ghent.

From the first the war had been unpopular in New England, which suffered severely in the destruction of commerce and the depredations of the British fleets; and complaints of the failures and misconduct of the government ripened into discontent with the supposed inequalities of the constitution, and projects were put forth for its immediate amendment. A convention of twenty-six delegates from the New England States met at Hartford, December 15, 1814, with closed doors. The most extravagant rumors of treasonable designs, of schemes for secession, nullification, and a separate peace with England, alarmed the administration and excited the public press. The convention, however, contented itself with a temperate report on grievances, the recommendation of certain constitutional amendments, and provision for another assembly six months later should the causes of dissatisfaction continue. Peace put an end to the whole affair; but the ultimate purposes of the Hartford convention have always remained a subject of discussion.

The principal cause of the war was the impressment of seamen. "If this encroachment is not provided against," wrote officially the Secretary of State, "the United States have appealed to arms in vain." The obnoxious orders in council were revoked almost at the beginning of hostilities. Yet the American negotiators, John Quincy Adams, James A. Bayard, Henry Clay, Jonathan Russell, and Albert Gallatin, were instructed by the President to abandon our essential claim if they could not otherwise obtain peace. In the treaty signed at Ghent, December 24, 1814, the object for which we had been fighting was not even referred to. But peace now prevailed in

Europe; England was not in need of sailors; the right of search was allowed to drop; and it is not likely to be revived.

The scandal of the Barbary tribute was finally abolished during Mr. Madison's administration. Peace was no sooner concluded with England than Commodore Decatur sailed with a fine squadron for Algiers, where the crew of an American vessel had been reduced to slavery. Capturing some Algerine men-of-war, he compelled the dey to sign a treaty on board his flag-ship, renouncing tribute from America for all time, and agreeing to pay an indemnity, release all his prisoners, and treat no more prisoners of war as slaves. Indemnities were also exacted from Tunis and Tripoli.

Mr. Madison had been re-elected in 1812, with Elbridge Gerry as Vice-President. In 1816 the Democrats, favored by the popular rejoicings over the peace, were again successful and by an increased electoral majority, James Monroe, Madison's Secretary of State, became President March 4, 1817, with Daniel D. Tompkins as Vice-President.

#### THE SLAVERY QUESTION.

The administration of Monroe, marked by a decline of party rivalries and a great advance in material prosperity, was called the "era of good feeling." The financial depression of the war period was quickly relieved by a tariff passed in the spring of 1816, which recognized the principle of protection to home industries, recommended by Hamilton in a famous report on manufactures, and called by him "The American System," a title which has ever since clung to it. The Cotton States which afterwards resented the protective tariff as a wrong to the South, ardently supported it in 1816 because it would create a domestic market for their staple product. The bill was reported by Lowndes of South Carolina, and Calhoun was one of its leading advocates. Mr. Monroe found on entering office a full treasury and a definite and successful financial policy. The relations of the country with Spain were disturbed by the open sympathy of the United States with the revolting South American republics, for whose recognition Henry Clay made an eloquent plea in Congress, and by complaints from the Florida border, where neither party seems to have dealt very scrupulously with the other. By the treaty of 1763 Spain ceded Florida to England. By the treaty of 1783 she recovered it, with disputed boundaries on the west, to which the United States gave a practical definition in 1810 by occupying all that portion beyond the Perdido river, the present limit of the State. Spanish Florida became a safe refuge for the hostile Indians, and for large numbers of fugitive slaves. When Gen. Andrew Jackson was charged with a campaign against the Seminoles (1818), he seems to have had reason for understanding that the government would tacitly approve of his seizing Florida in the course of his military operations. He invaded the province, hanged two British subjects on charges of conspiring with the Indians, captured St. Mark's and Pensacola, and shipped the garrison and civil authorities of the latter town to Havana. Diplomatic protests at Washington were answered with the plea of necessity;



and Spain was practically forced to accept a long standing proposal of the United States for the cession of Florida (1819). The nominal consideration was a price of \$5,000,000; but all this was to be paid American citizens in satisfaction of claims against Spain. On the other hand, by a treaty to define the disputed boundary between the Spanish possessions beyond the Mississippi and the Louisiana purchase, the United States, which had claimed all the country as far as the Rio Grande, accepted the line of the Sabine, thus conceding to Spain what is now the State of Texas.

The independence of the Spanish American states was formally recognized in 1822, and this action led to the announcement in the President's annual message the next year of the political "doctrine" with which his name is inseparately associated. England had privately proposed a convention on the subject of the South American republics, and joint action against the absolutist designs of the Holy Alliance. Mr. Monroe declined to entangle the country in foreign complications; but in his message he made a remarkable declaration, with respect to the supposed designs of the European states, "that we should consider any attempt on their part to extend their system to any portion of this hemisphere as dangerous to our peace and safety"; and, as a more general statement of policy, "that the American continents, by the free and independent condition which they have assumed and maintain, are henceforth not to be considered as subjects for future colonization by any European power."

It was in the administration of Mr. Monroe that the slavery question began to be the supreme issue in American politics, and the defense of the peculiar institution of the South to take the form of a fierce and intolerant propaganda. Natural causes brought about the extinction of slavery in the Northern States, but the expectation of our early statesmen that it would gradually disappear at the South had been disappointed. The astonishing impetus given to the cotton industry by Eli Whitney's invention of the cotton gin created a new demand for slave labor, founded the business of breeding slaves for sale, and stimulated domestic slave traders to fresh brutalities. Since the beginning of the century, the admission of free and slave States alternately had given the slave party a fictitious strength. Ohio (1802) was balanced by Louisiana (1812), Indiana (1816) by Mississippi (1817), Illinois (1818) by Alabama (1819). In all these instances the North accepted slavery where it was already well rooted. But when Missouri applied for admission as a State (1818), the question was squarely presented whether the United States should deliberately establish human bondage where it had no legal existence—a question affecting not only the condition of Missouri but the whole of the still unorganized Louisiana purchase, and whatever other territory might in future be acquired. The attempt to prohibit or restrict slavery in the new State was hotly resisted by the Southern party in Congress; threats of disunion were heard in the Senate; the debate lasted until March, 1820, when the famous compromise was adopted admitting Missouri as a slave State, and prohibiting slavery forever in all the rest of "that territory ceded by France to the United States under the name of Louisiana, which lies north of 36° 30' N.

lat."—that being the southern boundary of Missouri. To force the assent of Northern members, the friends of slavery coupled the admission of Maine with that of Missouri. The compromise was supported by sincere patriots like Henry Clay, who believed that concessions were necessary for the peace if not for the safety of the Union; but it was a great victory for the slavery propagandists whose claims from this time became more and more arrogant and exclusive.

Monroe and Tompkins were re-elected in 1820, the President receiving all the electoral votes but ten. The weakness of the opposition was only a symptom of the disintegration of parties, which by 1824 had gone so far that there were four candidates in the field—Andrew Jackson, John Quincy Adams, William H. Crawford, and Henry Clay. The choice went to the House of Representatives, and Adams was selected; John C. Calhoun, of South Carolina, had been elected Vice-President. Mr. Adams, the son of the second President, had been Monroe's Secretary of State. Politically his administration was a period of transition, marked not less by the final disappearance of the old Federalist party than by a transformation of the philosophical Democracy of Jefferson—a transformation of which the next administration was to give a signal example. The campaign of 1828 was exceedingly bitter, and Mr. Adams, who was a candidate for re-election, was defeated by Gen. Andrew Jackson, Mr. Calhoun again becoming Vice-President.

#### FISCAL PROBLEMS.

Jackson was imperious, daring, energetic, contentious, and ignorant; and although his patriotism and sincerity are beyond question, his administration was distinguished above that of any of his predecessors for selfish intrigues and mean personal strifes. He introduced into national politics the spoils system, which became so fruitful a source of corruption; and from his time dated the spectacle of a mob of place-hunters thronging the capital at every change in the chief magistracy, to beg pay in appointments for their services to the successful candidate. The tone of official life was instantly lowered after his inauguration. A chivalric but ill-judged attempt to force Mrs. Eaton, the wife of his Secretary of War, into Washington society, was converted by his violence from a tea-table squabble into an issue of state. Never had an American President so passionately asserted the claims of self as this champion of the Democratic masses.

There was prejudice and obstinacy, but also sincere conviction, in the fight against the United States Bank which convulsed Jackson's terms in office. The charter of the bank being about to expire, he opposed its renewal on the ground that the measure was of doubtful constitutionality, and he complained, moreover, that the directors were using their financial power to influence the votes of Congress. The controversy became a chief issue in Congress and the country. An act renewing the charter passed by large majorities (1832), and Jackson vetoed it. In the elections of that year, Clay, the leader of the bank party, the representative of many formidable interests, personally one of the most attractive men ever known in American politics, was Jackson's competitor and Jack-

son was re-elected by an impressive vote. At the next session the attack upon the bank, whose charter had still four years to run, was renewed with fresh heat. The President questioned its solvency; and when Congress refused to authorize the removal of the government deposits, he ordered the removal on his own responsibility, dismissing his Secretary of the Treasury, Duane, who declined to execute the command, and appointing in his place Roger B. Taney, soon afterwards made Chief Justice. The Bank of the United States was destroyed, but the evils which Jackson discovered or imagined in its management were intensified by the operations of the favored State banks selected as depositaries of the public money, and a great deal of commercial embarrassment followed.

Nevertheless, the country was generally prosperous under the impulse of great public improvements and enlarging industries. The Erie canal, opened in 1825, brought to market the products of a rich region and created thriving towns. Steam navigation was developed on the rivers; ocean steamships began to make voyages between England and America; railroads, introduced in 1829, were rapidly multiplying; settlers took up public lands in the West; immigration was increasing; manufactures and farming were alike profitable, under the protective tariff. But the cotton planters, who had warmly favored the American system at the beginning, looked upon it with different eyes when it was found that free labor reaped the chief advantage under it. When the tariff was revised in 1828, the South was clamorous and threatening for a reduction of duties. When a more, distinctively protective measure was passed, in 1832, a State convention in South Carolina resolved that the tariff acts were null and void, and that any attempt by the Federal Government to collect the duties in that State would absolve South Carolina from all connection with the Union. The Governor called upon the Legislature to "provide for all possible contingencies," and preparations were made for war. In meeting this revolt Gen. Jackson exhibited his strongest and best qualities. He published a proclamation denying the right of either nullification or secession; he warned South Carolina that resistance would be promptly quelled; he sent General Scott to Charleston with troops and a ship of war; he asked Congress for special and enlarged powers. Two years before (1830), the constitutional question of State rights had been the subject of a memorable debate in the Senate between Mr. Hayne of South Carolina, and Daniel Webster. Now the nullifiers in Congress were led by John C. Calhoun, who had quarreled with Jackson, resigned the Vice-Presidency, and entered the Senate as the champion of that doctrine which was finally to drive the South into a ruinous rebellion. General Jackson would, perhaps, have been glad to try conclusions with the secessionists at once. But the difficulty was settled—or rather postponed—by a compromise in which Henry Clay again appeared as the pacificator. He introduced a new tariff bill, making a gradual reduction until 1842, when the duties were to be fixed at 20 per cent. South Carolina yielded; and the "force bill," introduced at General Jackson's request, was allowed to linger until it was no longer needed, when it was passed.

Jackson retired from office with a reputation for vigor, honesty, and courage which has increased in the lapse of time; and his popularity counted for much in the next campaign, when Vice-President Martin Van Buren was elevated to the Presidency (1836), against a divided opposition known by that time as the Whigs. Mr. Van Buren's administration was mainly a struggle with financial disasters, the country during his first year in office (1837) passing through a monetary crisis of extraordinary severity. As usual in such cases, the government was charged with blame which did not belong to it. The canvass of 1840 was one of unprecedented excitement. Van Buren, again the candidate of the Democrats, was signally defeated, and the Whigs came into power with Gen. William Henry Harrison as President and John Tyler as Vice-President.

Gen. Harrison died on the 4th of April, 1841, just one month after his inauguration. Tyler soon broke with the party which had elected him. He was accused of bad faith in vetoing bills for the creation of a new national bank, to which he was supposed to have signified his assent in advance. He cast his lot finally with the Democrats when he took up their scheme for the annexation of Texas. That country had conquered its independence from Mexico largely by the arms of American adventurers. A treaty of annexation (1844) negotiated by Mr. Calhoun, who had become Tyler's Secretary of State, was rejected by the Senate. The question was taken into the Presidential canvass. With the South and its Northern Democratic allies, the paramount consideration was gaining an area for slavery. The Whigs opposed the project, partly from hostility to slavery and partly from reluctance to go to war with Mexico. The Democrats nominated James K. Polk; the Whigs, Henry Clay. Polk was elected by 170 votes against 105. A joint resolution annexing Texas was passed March 1, 1845, and Mr. Tyler signed it, as one of the last acts of his administration.

#### TEXAS, CALIFORNIA, AND OREGON.

Mr. Polk lost no time in negotiations with Mexico, but ordered Gen. Zachary Taylor to the frontier, with instructions to occupy a district between the Nueces and Rio Grande rivers, to which Mexico had never admitted that Texas had any claim. Here the first battles took place, Taylor, with 2,000 men, defeating Arista's 6,000 at Palo Alto May 8, 1846, and beating the same enemy again, with heavy loss at Resaca de la Palma the next day. The Americans then crossed the Rio Grande, and with a force raised by volunteers to 6,000 pushed into the interior of Mexico, capturing Monterey (Sept. 24) after a three days' battle, while the port of Tampico was taken by a squadron under Commodore Conner, and the province of California was conquered by a handful of explorers and surveyors under Capt. John C. Fremont, and a few ships under Commodore Stockton. The Mexican War, which lasted only a year, was a series of uninterrupted victories for our arms, always gained against heavy odds, and seldom without hard fighting. The Mexicans were brave, but they had few soldierly qualities except courage, and were miserably officered. The Americans, on the contrary, had excellent and well-trained officers of all grades, and a fine



body of men in the ranks, the volunteers, according to General Grant, being better than the regulars.

Weakened by the detachment of some of his best troops to serve under Gen. Winfield Scott in a movement against the Mexican capital, Taylor was attacked at Buena Vista (Feb. 23, 1847), by the Mexican President Santa Anna. Although outnumbered four to one, the Americans put their assailants to rout after a terrible battle of ten hours' duration. Scott and Commodore Conner arrived off Vera Cruz in March. That strong place, after a bombardment of four days, surrendered with 5,000 prisoners and 500 guns (March 26), and Scott at once began his march to Mexico. He defeated Santa Anna at the mountain pass of Cerro Gordo (Apr. 18), rested three months among the hills, to let his men recover from the effects of the climate, and in August appeared before the capital. He had only 10,000 men; the garrison of the city was about 30,000; and there were several strong positions to be won before reaching the walls. On the 20th of August Scott carried the fortified camp of Contreras, the castle of San Antonio, and the heights of Churubusco. On the 8th of September he won possession of the fortified Molino del Rey, on the 13th he stormed the heights of Chapultepec and secured two of the gates of the city; and the next morning entered the capital. This was practically the end of the war. By the treaty of peace signed at Guadalupe Hidalgo, March 2, 1848, the United States was not only confirmed in the possession of Texas, with the Rio Grande as the boundary, but Mexico sold for \$18,750,000 the provinces of Upper California and New Mexico, including Nevada, Utah, Arizona and parts of Colorado and Wyoming. A further strip of territory south of the Gila river, now embraced in New Mexico and Arizona was purchased five years later,

The treaty of peace was not yet signed when the discovery of gold in the Sacramento valley (Feb. 1848), turned the attention of the world upon California. The deposits of the precious metal proved to be rich and widely distributed. The new acquisition of the United States became thronged with adventurers and gold hunters. They made the long voyage around Cape Horn, the difficult transit of the Central American isthmus, or the long and dangerous wagon journey across the continent. In the year 1849, nearly 100,000 immigrants entered the Territory. The new community, thus suddenly created, was naturally a paradise of gamblers and criminals, and order was not securely established until a vigilance committee in San Francisco (1851-55) had assumed the administration of justice, hanged four ruffians, and banished others.

Utah began to receive settlers a little earlier than California. The Mormons, founded in Western New York in 1830 by an impostor named Joseph Smith, who pretended to a revelation from Heaven, had been driven away from Nauvoo, Illinois, and their prophet had been murdered by a mob (1844). Under Smith's successor, Brigham Young, they removed into what was believed to be the desert (1847), built Salt Lake City, on the great lake of Utah, and established an independent theocratic state, which they called Deseret. Here the doctrine of polygamy, attributed to Smith's revelations, but first taught openly by Brigham Young, was put in general

practice, and an autocracy which has ever since been in virtual rebellion against the United States, was founded upon fanaticism and sustained by crime. In 1857 the Mormons massacred, at a place called the Mountain Meadow, a whole company of 120 persons who were on their way to California. Refusing to recognize the laws of the United States or the Territorial officers appointed by the President, they were reduced to quasi-submission by a display of military force (1858), but they have always defied or evaded the statutes against polygamy.

Mr. Webster, while Secretary of State under President Tyler, had negotiated an important treaty with Great Britain for the settlement of the Northeastern boundary. The limits of the two countries on the northwest, where a large disputed territory had long been in their joint occupation, were more difficult to adjust. The United States claimed as far north on the Pacific coast as lat. 54° 40', or the southern extremity of what was then Russian America. Great Britain claimed as far south as lat. 42°, the northern boundary of California. Both rested their pretensions upon discovery and exploration. A section of the Democratic party in the United States raised the cry of "Fifty-four forty, or fight," but Polk's treaty of 1846, establishing the compromise line of 49° and securing to us Oregon, Washington, and Idaho, met with general acquiescence.

#### THE FREE-SOIL CAMPAIGN.

The renewal of the anti-slavery agitation by the annexation of Texas and the war with Mexico, showed that during the quarter of a century since the supposed settlement by the Missouri compromise, the antagonism between freedom and bondage had been gathering dangerous force. The demands of the South had grown larger and more arrogant. It was now insisted that the preservation and extension of slavery should be the key to the entire national policy. Congress had passed a gag law to prevent the reception of anti-slavery petitions. The mails were rifled to intercept anti-slavery newspapers and documents. On the other hand, the radical Abolitionists, led by Garrison, Lundy, the Lovejoys, Birney, Tappan, and other enthusiastic reformers, though few in numbers, socially discredited, mobbed, and outraged, were spreading ideas which in time roused the spirit and conscience of the long tolerant North. That Texas should be a slave State was a foregone conclusion. When it was proposed to place money at Mr. Polk's command for the purchase of further territory from Mexico, David Wilmot, a Democratic member from Pennsylvania, moved in the House of Representatives (August 8, 1816), a resolution since known as the Wilmot Proviso, that in any territory acquired from Mexico slavery should be forever prohibited. The resolution was not passed; but it presently marked a broad line of division in politics, splitting both parties and pointing the way for the union of all shades of anti-slavery sentiment, on the principle of freedom for the Territories. In the Presidential elections of 1848 the Whigs nominated Gen. Zachary Taylor, who was acceptable to such moderate anti-slavery leaders as Webster, William H. Seward, and Horace Greeley.

The regular Democratic nominee was Lewis Cass, representing the anti-proviso majority of his party, while a bolting faction organized with Abolitionists and others, under the name of Free-Soilers, and nominated Martin Van Buren. Gen. Taylor was elected. During the session of Congress between his election and inauguration, an address reported by Mr. Calhoun and signed by forty-eight Southern Senators and Representatives, declared that Congress had no power to exclude slavery from any new territory, nor had the territorial legislature or people any such power. The whole of the public domain must be given up to bondage. Here at last the irrepressible conflict was clearly defined.

The manifesto had much practical significance, because California had already framed a free State constitution and was asking admission. Slavery had no existence there, or in any other part of the Mexican purchase, but the South fought strenuously against admission, sought to extend the Missouri compromise line to the Pacific (which would have cut California in two), and again threatened disunion. Another compromise—the last of this series of delusions—was brought forward by Mr. Clay. It admitted California as a free State, organized the Territories of New Mexico and Utah without either prohibition or permission of slavery, settled the boundary of Texas and gave that State \$10,000,000, abolished the slave trade in the District of Columbia, and made stringent provisions for the rendition of fugitive slaves. Defeated as a single bill, it was adopted in the form of separate acts and became law September 9, 1850.

President Taylor died July 9, 1850, and was succeeded by the Vice-President, Millard Fillmore, whose administration is now chiefly remembered for the enforcement of the odious fugitive slave act. In 1852 the Democrats elected Franklin Pierce, the candidate of the extreme pro-slavery and State rights party, the Whigs voting for Gen. Winfield Scott and the Free-Soilers for John P. Hale. The convention which nominated General Pierce passed a resolution condemning all attempts, in Congress or out of it, to revive the slavery controversy or disturb the settlement of 1850. Yet, in less than two years, Stephen A. Douglas, Democratic Senator from Illinois, introduced his bill to repeal the Missouri compromise and organize the Territories of Kansas and Nebraska, both within the limits which had been solemnly and forever dedicated to freedom, leaving them to establish slavery or not, as the inhabitants pleased. The astonishment and anger of the North were indescribable. But, after many exciting scenes, the iniquitous measure became a law, May 30, 1854, and the South at once began to show how new slave States could be created by "squatter sovereignty." The pro-slavery men poured into Kansas across the Missouri border, often in armed companies, and with no thought of remaining in the Territory longer than might be necessary to vote. The North met the crisis by the organization of emigrant aid societies to send out *bona-fide* settlers. The free State party was a large majority of the population, but elections were carried with the most flagrant fraud and violence by Missourians imported for the purpose, legislatures assembled with hardly a show of legality, governors who attempted to do their duty were removed,

outrage was followed by retaliation; for nearly five years Kansas was virtually in a state of civil war, and the whole country was convulsed by the struggle. The free settlers, however, sustained themselves against both border marauders and a hostile Federal administration. Getting a chance to express themselves at the polls at last, they voted down a pro-slavery constitution by a large majority, and Kansas was ultimately admitted as a free State (1861).

The excitement over these transactions was increased by various demonstrations of the Southern temper and purposes. Charles Sumner, for a speech in the debates on Kansas, was brutally and dangerously beaten in the Senate chamber by Preston S. Brooks, a Representative from South Carolina, whose constituents enthusiastically re-elected him when he resigned after a vote of censure. The filibustering attempts of Walker in Central America, which seemed to promise the acquisition of more slave territory, were promoted by the South and hardly opposed by the Administration. In 1854, Mr. Pierce suggested a conference of the American ministers to England, France, and Spain on the subject of getting Cuba, and the result was the truculent report known as the Ostend Manifesto, in which Messrs. James Buchanan, John Y. Mason, and Pierre Soule recommended that if Spain refused to sell the island (she had already refused with emphasis) the United States should take it by force.

The repeal of the Missouri compromise resulted in the sudden and complete breaking up of the old Whig party. For a brief period an organization styling itself the American party, based principally upon the proscription of foreigners and Roman Catholics, and operating through secret lodges, collected many of the Whig fragments; but the "Know Nothing" movement, as it was popularly called, was only an episode of transition, and the anti-slavery men soon began to coalesce under better auspices. The new Republican party held its first national convention at Philadelphia June 17, 1856, and nominated for the Presidency Col. John C. Fremont, famous for his adventurous scientific explorations in the unknown far West. The Democrats named James Buchanan, whose principles were entirely satisfactory to the pro-slavery extremists, and Ex-President Fillmore was the candidate of the expiring American party, which had no real business in the controversy now fairly joined. Mr. Buchanan was elected, with John C. Breckinridge for Vice-President; but the Republicans polled an unexpectedly heavy vote.

Early in Mr. Buchanan's term the Supreme Court of the United States decided in the case of a slave named Dred Scott that a negro could not be a citizen of the United States, and therefore could not sue for his freedom in that tribunal. The opinion of the majority of the judges, delivered by Chief Justice Taney, went still further; it pronounced the Missouri compromise unconstitutional, and declared that Congress had no power to exclude slavery from any United States territory (March, 1857). A forcible dissenting opinion was delivered by Justice Curtis. Instead of settling the controversy, this judicial approval of the Southern claims only added to the excitement. The South began to advocate the re-



opening of the slave trade; the North began to feel that, as Abraham Lincoln said, "the Union could not exist half slave, half free." In October, 1859, John Brown, a stern and fanatical Abolitionist who had fought for freedom in Kansas, startled the country by a crazy plot to bring about an insurrection of the slaves in Virginia. With a handful of followers he seized the United States arsenal at Harper's Ferry; but the slaves did not rise, the invaders were easily overpowered, and Brown was hanged December 2. His enterprise was almost universally condemned at the North; and yet his death powerfully stimulated anti-slavery feeling.

When the Democratic national convention met in 1860, the Southern delegates were bent upon carrying matters with a high hand. They insisted upon an explicit assertion of the duty of the Federal government to maintain slavery "in the Territories and wherever else its constitutional authority extends." The Douglas faction protested in vain that they could not carry the North with such a platform. The result was the disruption of the party. The Southern Democrats, many of whose leaders already counted upon secession, nominated Vice-President Breckinridge. The Northern wing nominated Douglas, with an evasive promise to "abide by the decisions of the Supreme Court of the United States upon questions of constitutional law." A so-called Constitutional Union party placed in nomination John Bell and Edward Everett. The Republican convention at Chicago was the most memorable assemblage of the epoch. Seward, Chase, Cameron, Bates, and other men who had been conspicuous for many years in the fight for freedom were set aside, and the nomination was given to Abraham Lincoln, of Illinois, whose celebrity, earned by a series of public debates with Douglas in a canvass for the Illinois Senatorship, was only of yesterday. The choice was not a fortunate accident; it was a wise and deliberate selection. None of the older leaders saw so clearly the condition of the conflict at hand. After a stirring campaign, Lincoln was elected, with Hannibal Hamlin as Vice-President. He received all the electoral votes of the free States, except three in New Jersey, and he had none from the South.

#### THE CIVIL WAR.

Few persons at the North had believed that the slave States would carry out their threat of secession; but the election of Mr. Lincoln was no sooner assured than the South Carolina Legislature (November 10, 1860), ordered the assembling of a convention, which, on December 20, declared the union between South Carolina and the other States dissolved for the reason, among others, that a President has been chosen "whose opinions and purposes were hostile to slavery." Mississippi seceded January 9, 1861; Florida, January 10; Alabama, January 11; Georgia, January 19; Louisiana, January 26; Texas, February 1. Several of these States entered upon the rebellion reluctantly, and their action was the result rather of a conspiracy at Washington than of their own impulse; but once committed to the cause their people showed no lack of enthusiasm for it. Mr. Buchanan made no effort to maintain the national authority. On the contrary, his

annual message in December virtually admitted the right of secession and encouraged the disunionists; and three of his cabinet, Howell Cobb of Georgia (Treasury), John B. Floyd of Virginia (War), and Jacob Thompson of Mississippi (Interior), were among the most active of the conspirators against the Union, even while they still held their offices under it. When Mr. Lincoln was inaugurated, March 4, 1861, a provisional government for the "Confederate States of America" had been established at Montgomery, Ala. (February, 1861), with Jefferson Davis and Alexander H. Stephens for President and Vice-President; forts, arsenals, arms, and military supplies had been seized; and throughout the seceding States the national flag remained only on the forts of Charleston harbor, Pensacola, and Key West. On March 11 a permanent constitution was adopted at Montgomery, and under it Messrs. Davis and Stephens were afterwards elected President and Vice-President for six years.

In an admirable inaugural address Mr. Lincoln declared that he had neither the right nor the desire to interfere with slavery in the States. He denied the right of secession, and he expressed his determination to enforce the laws throughout the national jurisdiction. For the principal posts in his Cabinet he chose his principal rivals at the Chicago convention. Mr. Seward became Secretary of State, Mr. Chase Secretary of the Treasury, Mr. Cameron Secretary of War, Mr. Bates Attorney-General. The other places were filled by Gideon Welles (Navy), Caleb B. Smith (Interior), and Montgomery Blair (Postmaster-General).

The war began April 12, 1861. Apprised of the intention of Mr. Lincoln to reinforce Fort Sumter, in Charleston harbor, the Confederates opened fire upon that work, and after sustaining a bombardment of thirty-four hours, Major Anderson and the garrison of 80 men were forced to surrender (April 14). The next day the President issued a call for 75,000 volunteers. Never had the country beheld such a patriotic uprising as now took place. The troops hurried forward; the quotas of the loyal States were filled at once, and a further call for 42,000 volunteers and 40,000 men for the regular army and navy was answered with as much enthusiasm as the first. On the other hand, North Carolina, Tennessee, and Virginia cast in their fortunes with the Rebellion, thus giving the Confederacy eleven of the fifteen slave States—all it ever obtained. The Confederate capital was removed to Richmond in July.

The first operations were encouraging to the Confederates. They gained possession of the navy-yard at Norfolk and the arsenal at Harper's Ferry. A secessionist mob made a murderous attack upon Massachusetts troops passing through Baltimore (April 19), and for a short time severed direct communication between Washington and the North. In an important engagement at Big Bethel, near Fortress Monroe, the Union troops under General Butler were worsted. To compensate for these Federal misfortunes, Generals McClellan and Rosecrans gained a series of victories in West Virginia. In the meantime both combatants were mustering their main force in front of Washington. On the 21st of July a Union army of about 18,000 under General McDowell attacked the Confederates under Beauregard at

the crossings of Bull Run, near Manassas Junction, Va. The battle was in McDowell's favor until late in the afternoon, when the Confederate general, Joseph E. Johnston, eluding Patterson, an estimable militia general who had been ordered to keep him in check at Winchester, arrived on the field with fresh troops. The undisciplined Federal volunteers were seized with sudden panic and driven into the defenses of Washington, having lost about 3,000 men against a loss of 2,000 on the other side. This disaster only strengthened the courage and determination of the North. Congress authorized the enlistment of 500,000 volunteers and voted an appropriation of \$500,000,000. General McClellan was called from West Virginia to reorganize and command the Army of the Potomac, and, on the retirement in November of the aged General Scott, was made general-in-chief. Missouri and Kentucky had proposed to remain neutral during the struggle; but the Confederates treated this absurd policy with scant ceremony. In Missouri a strong secession party, with which Gov. Claiborne F. Jackson was implicated, sought to carry the State out of the Union by force. Until the end of the year the tide of battle swept back and forth with varying success, McCulloch and Sterling Price leading Confederate invasions from Arkansas, and Lyon, Sigel, Fremont, Hunter, and Halleck commanding the forces by which Missouri was finally saved for the Union.

Immediately after the attack on Fort Sumter, President Lincoln proclaimed a blockade of all the Southern ports, and to enforce this measure extraordinary efforts were made to increase the navy. By the purchase and armament of merchant vessels efficient fleets were soon collected, and in the course of 1861-62 a number of naval and military expeditions were dispatched to close important Southern harbors. Port Royal, Pamlico and Albemarle Sounds, Newbern, Fernandina, Jacksonville, St. Augustine, Darien, Brunswick, and Savannah were thus sealed, or made dangerous for blockade runners; and England and France were deprived of the excuse for which they were watching to declare the blockade invalid. On the first news of the first shot of the war, the British government, with headlong speed, issued a proclamation of neutrality conceding to the Confederates all the rights of a belligerent power; and British subjects entered actively into the business of running arms and other supplies through the blockade and bringing out cotton. The governing classes in England were largely in sympathy with the South. The Emperor of the French was urging England to join him in recognizing the independence of the Confederacy. Our foreign relations were in this critical condition when the indiscretion of a gallant naval officer gave Great Britain grave cause of complaint. Capt. Charles Wilkes, of the United States frigate *San Jacinto*, stopped the British passenger steamer *Trent* on the high seas, and took off Messrs. Mason and Slidell, Confederate commissioners to London and Paris (Nov. 8, 1861). The act was indefensible, and was promptly disavowed by the President, but it was loudly applauded throughout the country, and in yielding to the demand of the British government for the release of the prisoners, all Mr. Seward's astuteness was called for to make the surrender palatable to the American people.

He took the doubtful ground that Capt. Wilkes was justified in searching the *Trent* and seizing the envoys as contraband, but that he ought to have sent the vessel into port for adjudication.

In January, 1862, Mr. Cameron became Minister to Russia, and was succeeded as Secretary of War by Edwin M. Stanton. Harsh, often unjust, at times tyrannical, Mr. Stanton was a man of remarkable force and of high patriotism, and his energetic administration of military affairs was felt in every branch of the service through the rest of the war.

At the beginning of the year the number of men under arms, Federal and Confederate, was not far from a million, and the two sides were well matched, both in the character and spirit of the soldiers and the capacity of the officers. The Confederates held the Mississippi from its mouth to the southern boundary of Kentucky, with a line of strong positions extending through Kentucky and Tennessee to Virginia, and a large force between the Potomac and the Rappahannock, covering Richmond and threatening Washington. The Federals confronted them with two western armies, one under Halleck, with headquarters at St. Louis, the other under Buell, at Louisville, while fleets of gunboats and rams were prepared for service on the Mississippi. In front of Washington, McClellan had formed the Army of the Potomac into a fine organization of nearly 200,000 men. The earliest important engagement of the year was at Mill Spring, in Kentucky, where Gen. George H. Thomas, with a part of Buell's army, gained a signal victory in which the Confederate General Zollicoffer was killed. A little later a movement was undertaken by Brigadier-General Grant, then just rising into notice as an enterprising commander under Halleck, and Flag Officer Foote with a flotilla of gunboats, for the reduction of the Forts Henry and Donelson, which barred the entrance into western and middle Tennessee by the Tennessee and Cumberland rivers. Fort Henry was reduced by the fleet February 6; Fort Donelson, a stronger work, surrendered to a land attack, with over 10,000 prisoners, February 16. It was here, in answer to General Buckner's request for terms, that Grant used the phrase, soon in every one's mouth, "No terms except unconditional and immediate surrender can be accepted."

These victories obliged the Confederates to abandon Nashville, and the strong fortifications of Columbus, on the Mississippi. Grant and Buell followed the retreating enemy southward. At Shiloh, or Pittsburg Landing, on the Tennessee river, Grant was attacked, April 6, by a superior force under Albert Sidney Johnston, and in a terrible battle, lasting all day, was severely handled. During the night Buell arrived with fresh troops, and on the 7th the combined Union armies won a complete victory. Johnston, one of the ablest of the Confederate generals, was killed on the first day, and Beauregard replaced him. Halleck took command of the forces of Grant and Buell, and cautiously advanced as far as Corinth, Miss., where an important strategic position was abandoned at his approach.

The river fleets nobly sustained the fame of the American navy. Flag Officer Foote co-operated with General



Pope in the capture of a formidable stronghold at Island No. 10, in the Mississippi, on the day of the victory of Shiloh, April 7; and Capt. C. H. Davis, destroying a Confederate flotilla, forced the evacuation of Fort Pillow, June 4, and the surrender of Memphis, June 7. For the reduction of New Orleans, a fleet of forty-five ships, gunboats, and mortar-boats under Flag Officer David G. Farragut, was ordered to the Lower Mississippi. Forts Jackson and St. Philip, situated on opposite banks of the river, seventy-five miles below New Orleans, were the principal defenses of the city. After a bombardment of six days from the mortar-boats under Capt. David A. Porter, Farragut, with the rest of the fleet, himself leading the way in the flag-ship *Hartford*, boldly passed the forts under a furious cannonade (April 24, 1862), cutting a barrier of chains and spars, and engaging a flotilla of sixteen vessels, nearly all of which were captured or destroyed. New Orleans, evacuated by its garrison, surrendered to him on the 25th and was occupied by an army under General Butler, and the forts surrendered to Captain Porter.

Among the prizes obtained by the Confederates, when Norfolk fell into their hands, was the steam-frigate *Merrimac*. They converted her into a powerful ram with a slant roof of railroad iron covering her deck and sides, against which the heaviest guns had no effect. On the 8th of March, 1862, she attacked the Federal fleet in Hampton Roads, sinking the *Cumberland*, burning the *Congress*, and retiring with impunity on the approach of night. When she came out the next morning to renew her work she was met by a nondescript little craft which the sailors called "a cheese-box on a raft." This was Capt. John Ericsson's turret iron-clad monitor, just arrived on her first voyage, under command of Lieutenant Worden. She fought the ram for five hours, receiving no damage, and at last driving the *Merrimac* back to Norfolk, whence she never reappeared.

In the summer the Confederates made extraordinary efforts to repair their disasters in the West. An invasion of Kentucky was undertaken simultaneously by Kirby Smith, who occupied Lexington and Frankfort and for a while threatened Cincinnati, and by Braxton Bragg, who, after a victory at Munfordsville (Sept. 17), advanced towards Louisville. Buell, by forced marches from Nashville, reached Louisville one day before his adversary, and, after collecting reinforcements, slowly pushed the Confederates back. Bragg and Kirby Smith united at Frankfort and, on October 8th, Buell fought them at Perryville. His campaign had been skillfully conducted, and the battle of Perryville put an end to the invasion; but Bragg carried off an immense quantity of supplies, and Buell, a victim to the Government's unreasonable expectations, was superseded by Rosecrans. This officer, already distinguished by victories over Price and Van Dorn at Iuka and Corinth, gained fresh laurels by the defeat of Bragg in the two battles of Stone River, near Murfreesboro, Tenn., December 31, 1862, and January 2, 1863.

Relieved of the command of all the armies except his own, McClellan began his advance against Richmond in March, 1862, choosing the route by the Yorktown peninsula, between the York and James rivers, and landing

over 100,000 men from transports at Fortress Monroe. The march was slow, his forces being detained in front of Yorktown a full month, and the Confederates under Gen. Joseph E. Johnston had ample time to strengthen their defenses. McClellan gained the battle of Williamsburg, May 5, and advanced within seven miles of Richmond. General Wool took possession of Norfolk, where the enemy blew up the ram *Merrimac* before retiring. The Federal gunboats entered James river. There was panic in Richmond, and the Confederate Congress hastily adjourned. But the golden opportunity was not perceived. Before quitting the Potomac, McClellan had been instructed to leave a strong force for the protection of the capital. Deciding that the scattered and somewhat inefficient commands designated for that purpose were not enough, the President detached McDowell's corps from the Army of the Potomac, and held it in front of Washington. McDowell might still have co-operated with McClellan by a movement against Richmond from the north; but the Confederate General, T. J. Jackson, popularly known as "Stonewall," suddenly burst into the Shenandoah valley, and swept down towards the Potomac, driving General Banks across the river, checking General Fremont at Cross Keys, June 8, defeating Shields at Port Republic, and filling the North with alarm for the safety of Washington. McDowell was turned aside and sent after Jackson; and Johnston seized his chance to fall upon McClellan's left, which had been pushed across the Chickahominy. On the 31st of May, when the river and its swampy borders were so filled by a heavy rain that communication between the two wings of the Army of the Potomac was difficult and uncertain, the Confederates made a determined attack at Fair Oaks (or Seven Pines), and were beaten only after a hard battle, in which the Union loss was greater than theirs. General Johnston was badly wounded, and the chief command was soon afterwards conferred upon Robert E. Lee, son of "Light Horse Harry" of the Revolution, and the one great character of the Confederacy whose personal and professional merits have been unanimously admired by both sides. Reinforced by Jackson, who had now left McDowell's corps where it could do no harm, Lee attacked the Union right at Gaines's Mill, June 27, drove it across the Chickahominy with heavy loss, and severed McClellan's communications with his base of supplies at White House, on the Pamunkey, while Stuart's Confederate cavalry rode entirely around the Federal lines.

McClellan's position, astride a swamp and a treacherous river, was untenable. He resolved upon the delicate maneuver of a change of base, from the York river to the James, by a flank march to the left. The movement, lasting from June 28th to July 1, was carried out with skill, the troops marching all night and fighting gallantly all day. Lee attacked them at Golding's Farm, Savage's Station, White Oak Swamp, etc., and the series of engagements known as the Seven Days' Battle closed at Malvern Hill, near the James, where the Confederates were signally repulsed. McClellan then fortified himself at Harrison's Landing, with the gunboats in his rear. He had lost 15,000 men during the change of base, and Lee nearly as many.

Halleck, in the meantime, had been called to Wash-

ington, with the rank of general-in-chief, and the corps of McDowell, Banks, and Fremont had been united under the command of Pope. But Pope and McClellan were so placed that neither could help the other. McClellan was ordered to abandon the peninsula and transfer his whole army by water to the Potomac. As soon as the movement was developed, Lee hurled his army against Pope, pressing him back from the line of the Rapidan, while Pope stubbornly contested the ground. From the 26th of August to the 1st of September there was an almost continual battle, a part of it taking place on the old field of Bull Run. McClellan's troops were pushed forward, as they tardily arrived, and the contest at many points was gallantly maintained; but Pope was outgeneraled and outnumbered; Stonewall Jackson, passing through an undefended gap in the mountains, menaced his rear, and he fell back in disorder to the defenses of Washington, where the army passed again under the command of McClellan.

Lee now invaded Maryland, crossing the Potomac at Leesburg, while Jackson captured Harper's Ferry. McClellan attacked and defeated Lee at South Mountain, September 14, 1862, and on the 17th encountered the whole Confederate force on Antietam creek, near Sharpsburg. A severe battle lasted all day and left both combatants exhausted. Practically it was a Union victory, for it put an end to the invasion; but Lee retired unmolested, and McClellan declined to move further until his army had been thoroughly refitted.

The position of President Lincoln with respect to slavery had become a cause of dissension in the Republican party, by the advanced section of which his cautious and conservative policy was viewed with increasing impatience. That policy was tersely expressed in his answer to a public letter from Horace Greeley: "My paramount object is to save the Union, and not either to save or destroy slavery. If I could save the Union without freeing any slave, I would do it—if I could save it by freeing all the slaves, I would do it—and if I could save it by freeing some and leaving others alone, I would also do that. What I do about slavery and the colored race, I do because I believe it helps to save this Union, and what I forbear, I forbear because I do not believe it would help to save the Union." But when he wrote this, the President had already resolved to proclaim emancipation as a war measure on the morrow of the next Union victory; and the battle of Antietam gave him the opportunity. The proclamation, issued September 22, 1862, announced that on the 1st of the next January all slaves in States or designated parts of States in rebellion should be "then, thenceforward, and forever free," and should be so treated by the civil, military, and naval authorities of the United States. The final proclamation in accordance with this preliminary announcement was duly issued at the appointed time.

General McClellan, who had written an extraordinary letter to the President from Harrison's Landing, after the failure of the Chickahominy campaign, warning him that "a declaration of radical views, especially upon slavery," would disintegrate the army, consulted his friends after the appearance of the proclamation of freedom, to decide whether he should not throw down his sword and refuse

to serve an Abolitionist government. He had begun to move against Lee, however, when, in November, he was relieved from duty, and the Army of the Potomac was intrusted to General Burnside. This gallant officer, who had shown high qualities on smaller fields, was unequal to the command of 100,000 men, and his short campaign was a complete disaster. Attacking Lee at Fredericksburg on the Rappahannock, December 13, 1862, he repeatedly stormed the heights behind the town, only to be beaten back with cruel loss, and on the night of the 15th-16th he withdrew across the river after a vain sacrifice of 12,000 men. In January, he was replaced by General Hooker, who was able in the spring to resume the advance upon Richmond with 120,000 men. He crossed the Rappahannock above and below Fredericksburg, and met Lee at Chancellorsville, about five miles from the scene of Burnside's failure. The battle was fought through the 2nd and 3rd of May, 1863. A sudden onslaught by Stonewall Jackson's corps surprised and routed the Union right, hurling the fragments in confusion upon the centre, and Lee then fell with his main force upon the left grand division of Sedgwick, separating it from the rest of the army, and pressing it back to the river. Again the Army of the Potomac recrossed the Rappahannock under cover of the night, the losses by this failure amounting to about 17,000 men.

Lee at once marched for the North, crossing into Pennsylvania, advancing as far as Chambersburg, and menacing Washington, Baltimore, and Philadelphia. The Army of the Potomac followed him, covering the capital. On the 28th day of June Hooker was superseded by Gen. George G. Meade; and under this commander the Federal forces met the invaders at Gettysburg on July 1, 1863. The battle, lasting three days, was by far the most severe in which Americans had ever engaged. The opposing troops were about equal in numbers—100,000 on each side—equal in spirit, and equally well handled. When the Confederates made their last desperate charge, on the evening of the 3d, against Meade's firm lines, and were beaten back, the Confederacy received its death wound, for it never recovered from the exhaustion of this campaign. On the 4th Lee retreated to the Potomac. He had lost 30,000 men and Meade 23,000.

On the very day of Lee's retreat from Gettysburg, the Confederates suffered an equal disaster in the West by the surrender of Vicksburg. Situated on high ground on the east bank of the Mississippi, and difficult of approach on the north owing to the nature of the country, that stronghold had resisted several Federal attacks, when General Grant conceived a bold plan for approaching it from below. He marched his army down the west bank of the Mississippi to Bruinsburg, where the fleet under Commodore Porter, having run the formidable batteries of Vicksburg, ferried him across the river. Then cutting loose from his base, living on the country and fighting as he moved, he hastened to intercept an army under Joseph E. Johnston, which was coming from the east to relieve Vicksburg. This force was thoroughly beaten at Jackson, Miss., May 14, 1863, by the corps of McPherson and Sherman; and the Union army then turned upon Pemberton, who with the garrison of Vicksburg was advancing from the opposite direction to meet Johnston. Two de-



feats drove him back to his defenses; but Grant twice failed to carry the city by assault, and it was only after a siege of forty-five days that Pemberton and his 27,000 men surrendered July 4. The capture of Port Hudson by General Banks four days later gave the Federal fleets and armies permanent control of the whole Mississippi, and cut the Confederacy in two. Rosecrans began an advance from Murfreesboro about the end of June, driving Bragg out of Middle Tennessee and back beyond Chattanooga. Reinforced from Johnston and Lee, Bragg offered battle at Chickamauga, and a severe engagement was fought September 19th and 20th, ending in a rout of the Union right wing, which only the stubborn resistance of Thomas on the left prevented from becoming general. But Bragg did not venture to press his victory and Rosecrans fell back to the strong position of Chattanooga. There he was superseded by Thomas in command of the Army of the Cumberland in October, while the general charge of operations in the West was committed to Grant. Joined by Sherman with the Army of the Tennessee, and by Hooker with two corps from the Potomac, Grant assailed Bragg's position in front of Chattanooga, Hooker carrying Lookout Mountain by storm, November 24, and the main army sweeping over Missionary Ridge the next day. Knoxville, where Burnside had been withstanding a trying siege, was now relieved. Bragg was deprived of his command.

Against these Union triumphs the Confederacy had little to show during the year except riotous opposition to the draft in New York, plots of disloyal organizations at the West, and above all else, the operations of the *Alabama* and other cruisers, the best of them built in England and largely manned by English sailors, which nearly ruined the foreign shipping trade of the United States. The *Alabama*, under Capt. Raphael Semmes, after destroying more than 60 merchant vessels, was sunk off the harbor of Cherbourg, June 19, 1864, by the *Kearsarge*, Captain Winslow. The ships were equally matched, and the result was due to the better gunnery of the *Kearsarge*.

By the spring of 1864 the Administration, having learned the cost of divided councils and found a general whom it trusted, was prepared to reorganize the military forces under a single head. Grant was made general of all the armies March 2, 1864, with the rank of lieutenant-general. He took personal charge of the operations in Virginia, leaving Meade in immediate command of the Army of the Potomac, while the three western armies of the Ohio (Schofield), Tennessee (McPherson), and Cumberland (Thomas), were united under General Sherman.

Both great organizations, eastern and western, were ordered to advance about the 1st of May. The Army of the Potomac crossing the Rapidan, May 4, near Chancellorsville, found itself on a difficult, thickly wooded tableland called the Wilderness, through which it was necessary to fight a way at great disadvantage. Lee attacked on the 5th and the battle lasted, with little intermission, until Grant was out of the woods on the 9th, and concentrated at Spottsylvania Court House. He had lost 20,000 men in the Wilderness; in ten days' engagements near Spottsylvania he lost 10,000 more. On the

11th he telegraphed to Washington: "I propose to fight it out on this line if it takes all summer." At the end of May he had reached McClellan's old battle ground on the Chickahominy. There he was repulsed in two terrible assaults upon Lee's lines at Cold Harbor, in the second of which (June 3) he lost 10,000 men in twenty minutes. But Lee also had suffered terribly, and, unlike Grant, he had nothing in reserve, for the Confederacy had drafted its last man.

Throwing his army across the James, to approach Richmond from the south, Grant was obliged first to reduce the strongly fortified town of Petersburg. Attempts to take it by assault repeatedly failed (June and July) and at last the Federal commander settled down to a regular siege. Lee sought to shake his hold by making a diversion in the Shenandoah valley. Early swept through that harassed region, entered Maryland, made a futile demonstration against Washington (July), and burned Chambersburg, Pennsylvania; but General Sheridan in a rapid campaign practically broke up Early's command, and so stripped the valley that the Confederates could never again draw supplies from it.

Sherman moved from Chattanooga on the 7th of May with 100,000 men. His first object was the capture of Atlanta. Opposed to him were 60,000 Confederates under Johnston, who, not venturing upon a general engagement, skillfully obstructed and delayed the advance. Impatient at this defensive policy, President Davis replaced Johnston by Hood, who gave battle and failed, July 20 and 26, and by a masterly movement of Sherman's was driven out of Atlanta, which the Union army entered September 2. Then, burning the town, destroying the railroads and telegraph in his rear, cutting loose from all connections, and detaching Thomas to take care of Hood, Sherman with 65,000 men began, November 14, his famous march to the sea. He was uncertain at starting where he should come out, and for nearly a month nothing was heard from him at the North. Extended over a breadth of forty miles, and gathering vast quantities of supplies and cotton, his army traversed Georgia with little fighting, and appeared before Savannah, where Fort McAllister was taken by assault on December 13, the city being evacuated on the 20th. On the 1st of February, 1865, he started northward to co-operate with Grant. He seized Columbia, forced the evacuation of Charleston, fought Johnston at Fayetteville, and was joined at Goldsboro by Schofield and Terry. There he halted.

In the meantime Hood had invaded Tennessee, where Thomas awaited him at Nashville. Disregarding the urgency of the President and the General-in-Chief, Thomas would not strike until he was thoroughly prepared. Then he fell upon Hood, December 15, and crushed him in a two days' battle.

The harbor of Charleston had been closed to the Confederates since the summer of 1863, when the batteries of General Gilmore and the squadron of Commodore Dahlgren reduced Fort Wagner, demolished Sumter, and enabled the blockading ships to enter the port. Mobile was closed on August 5, 1864, when Farragut forced his way past forts Gaines and Morgan and demolished the Confederate flotilla in the bay, leading the fight lashed

to the rigging of the *Hartford*. Wilmington, the only important port remaining to the Confederates east of Texas, was defended by Fort Fisher, which fell before a combined land and naval attack by Terry and Porter on January 16, 1865.

The situation of Lee was now desperate. In the hope of breaking through Grant's lines and uniting with Johnston, he made a fierce assault upon Fort Steedman on March 25, but was repulsed with heavy loss. Grant pressed his advantage, extending and strengthening his left, where, on April 1, Sheridan gained a great victory at Five Forks. This was the decisive battle. Lee evacuated Petersburg and Richmond the next day, and retreated toward Lynchburg, closely followed and flanked by Grant. The Confederates are supposed to have had 50,000 or 60,000 men when they abandoned their capital. In six days these were reduced one-half by capture and other casualties of the hasty retreat, and many of the remainder had lost or thrown away their arms.

On April 9, 1865, the Army of Virginia surrendered to Grant at Appomattox Court House, Virginia, twenty-eight thousand men giving their parole and then dispersing quietly to their homes. Johnston surrendered 37,000 men to Sherman on April 26, and one by one the other Confederate commands laid down their arms or broke up, and disappeared. Jefferson Davis was captured by the Federal cavalry at Irwinsville, Georgia, and long confined at Fortress Monroe on an indictment for treason, but at last he was released on bail furnished by Horace Greeley and other northern men, and the prosecution was dropped. The great Rebellion, which had cost 600,000 lives, was ended.

#### THE NEW UNION.

The tremendous burdens of the war were borne by the North with an ease which has no parallel in the history of such conflicts. Expenses were met by an increase in the tariff, by internal taxes, popular loans, and the issue of Treasury notes; and although the evils of inconvertible paper money were not escaped, industries were stimulated by the tariff, the creation of a national banking system gave a safe and stable currency, and peace was followed by a rapid extinguishment of debt, a reduction of taxes, and an appreciation of the legal-tender notes. In the South, on the contrary, which under the slave system could not manufacture what it needed, and by the blockade was cut off from foreign trade, the distress was extreme. All the obligations of the government became worthless, and nearly the whole population was reduced to poverty.

Mr. Lincoln had been re-elected in 1864 by an enormous majority over the Democratic candidate, General McClellan; and in his second inaugural address, March 4, 1865, there was a memorable passage which disclosed at once the depth and nobility of his character, and his feeling towards the suffering people of the shattered Confederacy: "With malice towards none, with charity for all, with firmness in the right as God gives us to see the right, let us strive to finish the work we are in, to bind up the nation's wounds, to care for him who shall have borne the battle, and for his widow and orphans; to do all

which may achieve and cherish a just and a lasting peace among ourselves and with all nations." But on the 14th of April, five days after Lee's surrender, the President was assassinated in the theatre at Washington by an actor named John Wilkes Booth, who, shouting "*Sic semper tyrannis!* The South is avenged!" escaped for a time in the confusion. On the same night one of his accomplices named Payne made a desperate attempt upon the life of Secretary Seward. Booth was afterwards killed in resisting arrest. Payne and three others were hanged.

The death of the President stirred the nation with profound emotion. No one since Washington had taken so firm a hold upon the popular trust and attachment; no ruler in our history has risen so steadily in the estimation of mankind. When his great heart was stilled the South lost its best friend.

The Vice-President, Andrew Johnson, of Tennessee, succeeded to office with a rancorous feeling against traitors. But he soon changed his tone, quarreled violently with the Republican majority in Congress, vetoed bills for the protection of the colored people, and adopted a scheme of reconstruction which would have restored the Confederate States to the Union with the disloyal element in full control and the freedmen helpless and unrepresented. There was little disposition among the vanquished secessionists at that date to accept the political consequences of the war, and they lost no time in showing, by brutal vagrancy laws and other devices, that their purpose was to reduce the ex-slaves to a servitude as harsh in some respects as the former bondage. Congress had already proposed to the States a thirteenth amendment, ratifying the proclamation of emancipation by a constitutional prohibition of slavery, and in December, 1865, it was declared adopted by the necessary three-fourths. A fourteenth amendment was now proposed, to secure the freedmen in the right of citizenship, to provide that those who are denied the suffrage shall not be counted in the basis of representation, to disqualify certain classes of Confederates from holding office without the consent of Congress, to affirm the validity of the United States debt, and to prohibit the payment of the rebel debt or claims for the emancipation of slaves. Whenever this amendment should be adopted, Congress offered to readmit to representation the rebel States accepting it. Tennessee ratified the amendment at once, and, having a loyal government, was restored to the Union without waiting for action elsewhere. The other ten States of the Confederacy rejected the amendment with something like contempt and defiance. Congress thereupon placed them under military rule, to await reconstruction under more stringent conditions.

This animosity of the President towards the two houses of Congress, sometimes strangely emphasized by Mr. Johnson's personal foibles, had now become a deplorable scandal. A tenure of office act was passed (March, 1867) to limit his power of making removals. He flouted it by removing Mr. Stanton from the office of Secretary of War. For this and other offenses he was impeached by the House of Representatives March 5, 1868, and tried by the Senate under the presidency of Mr. Chase, who had been appointed Chief Justice in 1864. The exciting



trial ended in May with a vote of one less than the two-thirds necessary to convict.

The purchase of Russian America (Alaska) for \$7,200,000 in 1867, is the event by which Mr. Johnson's administration is most favorably remembered.

The Republicans in 1868 nominated General Grant for the Presidency, with Schuyler Colfax for Vice-President, and he was easily elected over Horatio Seymour, whom the Democrats, after an effort to take up Chief Justice Chase, presented on a platform which declared the reconstruction acts unconstitutional, revolutionary, and void, and demanded the payment of the national debt in depreciated paper. The fourteenth amendment became a part of the constitution in July of this year, and eight of the rebel States, having accepted it, were restored to representation in Congress and took part in the election. Even thus early, however, in the history of reconstruction it became evident that the rights of the freedmen, guaranteed by the amendments, could not be maintained without the active intervention of the Federal authority. The new voters, maltreated by their natural leaders, and left to their own ignorance or the arts of adventurers, administered State affairs extravagantly and corruptly; and the whites met them with murder, terrorism, and an abuse of the forms of election almost too brutally frank to be called fraud. General Grant's administration was much occupied with these difficulties, and it cannot be said that they were solved. Virginia, Mississippi, and Texas, the last of the unreconstructed States, were readmitted in January, February, and March, 1870. The fifteenth constitutional amendment, declaring that "the right of citizens of the United States to vote shall not be denied or abridged by the United States or by any State on account of race, color, or previous condition of servitude," was proclaimed as adopted March 30, 1870.

The signal achievement of General Grant's administration was the settlement of the long-standing controversy with Great Britain over the aid furnished by that power to the Confederacy. By the treaty of Washington (1871), the so-called Alabama claims were referred to a tribunal of arbitration at Geneva, which round Great Britain responsible for the depredations of the *Alabama* and several other cruisers, and awarded \$15,500,000 to the United States as damages (Sept. 14, 1872). A dispute respecting the northwest boundary was referred to the Emperor of Germany, and decided in favor of the United States. The question of the compensation to be made by this country for fishery privileges on the British North American coast was not so satisfactorily adjusted. A commission of arbitrators, meeting at Halifax, awarded Great Britain (1877) the extravagant sum of \$5,500,000 for twelve years' use of the inshore fisheries by American vessels; besides which Canadian fish and fish-oil were, by the treaty, to be admitted to the United States free of duty. Since the expiration of this arrangement, the fishery difficulties with Canada have been renewed with many circumstances of exasperation.

General Grant was ill-served by many of his friends and office-holders, and his somewhat drastic methods in dealing with the South were disapproved by a considerable party among Northern Republicans. The

Liberal movement in 1872 was a protest at once against "bayonet rule" and administrative abuses. The President's renomination by the regular convention being certain, the Liberal Republicans met at Cincinnati in May, and named for the presidency Horace Greeley, the founder and editor of the New York *Tribune*. In July the Democratic national convention at Baltimore also nominated Mr. Greeley, and the strange spectacle was presented of the party of slavery and secession supporting one of the ablest and most ardent of their life-long enemies. Mr. Greeley had strong qualities as a candidate; his pure transparent character, his honesty, and his unselfishness had caused his name to be affectionately cherished in thousands of homes; and at one time his election seemed highly probable; but in the end General Grant's triumph was signal. Crushed by private sorrows heaped upon his public disappointments, and cruelly hurt by the scurrilities of an exceptionally angry campaign, Mr. Greeley died a few weeks after the election. Over his grave all parties united in tributes to his noble nature, and in appreciation of the great and permanent usefulness of his busy life.

The Democratic party soon recovered from the defeat of 1872 and three years later, with the aid of the "solid South," it held a majority of the House of Representatives for the first time since the beginning of the Rebellion. For the Presidential campaign of 1876 it nominated the ablest of its Northern leaders, Mr. Samuel J. Tilden. The Republicans, after an animated demonstration by the friends of Ex-Speaker Blaine, named Rutherford B. Hayes. The election was claimed for Hayes by a majority of one electoral vote; but the result depended upon contested returns from the States of Louisiana, Florida, South Carolina, and Oregon. Unable to agree upon a joint rule for counting these votes, the two houses of Congress referred the case to an Electoral Commission, composed of five Senators, five Representatives, and five judges of the Supreme Court; and by this body the election was awarded to Mr. Hayes. The administration of Mr. Hayes is memorable for the removal of the military force which had thus far sustained republican governments in the reconstructed States, the practical extinction of the Republican party throughout the territory of the Confederacy, and the practical elimination of the freedmen as an element in Southern politics. Financial matters occupied much of the attention of Congress; and on the 1st of January, 1879, the Treasury and the banks resumed specie payments, suspended since the early part of the war. The act under which this important result was accomplished had been framed by Senator Sherman, and it was his fortune now to carry it into effect as Secretary of the Treasury.

In the Republican convention of 1880 a resolute effort of the friends of General Grant to nominate him for a third term was defeated by the equal ardor and good management of an opposition which attached itself principally to Mr. Blaine. The prize, however, went to Gen. James A. Garfield, and he was elected by a majority of 59 electoral votes over his Democratic competitor, General Hancock. A man of force, of broad mind, of political experience, and of high impulses, General Garfield promised to make a successful President; but four

months after his inauguration he was shot at Washington by a disappointed office seeker named Guiteau (July 2, 1881), and he died after great suffering, September 19. Guiteau was hanged June 30, 1882.

The Vice-President, Chester A. Arthur, succeeding to the vacant chair, administered affairs with credit, and was a prominent candidate for the nomination in 1884; but Mr. Blaine's popularity with the Republican masses was no longer to be overlooked, and he was named by the convention, with John A. Logan for Vice-President. After an exciting campaign, determined at the last moment by a sudden change of votes in New York, the Democratic candidates, Grover Cleveland of New York and Thomas A. Hendricks of Indiana, were elected by a small majority. In December, 1884, the Washington Monument at Washington was completed, and a World's Industrial Cotton Centennial Exposition was opened at New Orleans. In February, 1885, the President-elect, in a letter to Congressmen, urged the suspension of the purchase and coinage of silver; advice which unfortunately was not acted upon. In March the new administration entered office. Mr. Cleveland was strongly committed to the principle of Civil Service Reform, but did not in that respect command the entire sympathy of his party, which, having been out of office for twenty-five years, was naturally desirous of reaping the fruits of victory. Some friction consequently arose between him and some of the party leaders over that subject. In the end he relaxed slightly the rules he had at first sought to maintain, but on the whole preserved the public service from wholesale looting by spoilsmen. In September, 1885, occurred a hideous massacre of Chinamen at Rock Springs, Wyoming, their only offense being that they went industriously to work for honest wages in the place of strikers. The United States government was afterward constrained to pay China a handsome indemnity for the outrage. In March, 1886, widespread strikes occurred on the railroads of the southwest, compelling the use of Federal troops to maintain the free transportation of the mails. Anarchists in Chicago committed wholesale murder with dynamite bombs at the "Haymarket," in May, for which a number of them were afterward put to death. The policy of the Democratic party in favor of a lower tariff led to the introduction of a new tariff bill by Representative Morrison, in February, 1886, but it was rejected by the House in June. The Interstate Commerce Commission was established in February, 1887. In September, 1887, the centenary of the United States Constitution was elaborately celebrated. In June, 1888, a Commissioner of Labor was appointed, under act of Congress, from which office the Secretaryship of Commerce and Labor has since grown.

Another effort to revise the tariff in the direction of reduction was made in the summer of 1888, under the leadership of Congressman Mills, of Texas. His tariff bill was passed by the House on July 21, but was beaten in the Senate, which had a Republican majority, in January, 1889. In August, 1888, the President suggested a measure of retaliation against Canada in the dispute over the North Atlantic fisheries, which had been in progress for many years, and a Retaliation bill was promptly passed by the House, but\* was laid aside by

the Senate. In September a law was enacted prohibiting the entrance of Chinese to the United States, excepting officials, teachers, students, merchants, or travellers for pleasure. In the Presidential campaign of that year Mr. Cleveland was a candidate for re-election, and in a notable utterance he made his platform one of sweeping tariff reform in the direction of free trade. The Republicans nominated for President Benjamin Harrison of Indiana, and for vice-President Levi P. Morton of New York. After an unusually exciting campaign the Republican candidates were elected by a large majority of the electoral votes, though they had a minority of the popular vote. Four new States; namely, North and South Dakota, Montana, and Washington, were provided for in January, 1889, though not actually admitted until October and November following.

Benjamin Harrison became President on March 4, 1889, with a Republican majority in each House of Congress. On April 22 the new Territory of Oklahoma was opened for settlement, and on April 29-May 1 the centenary of Washington's inauguration as first President of the United States was widely celebrated. A Pan-American Congress was opened at Washington in October. In December the Farmers' Alliance and other bodies were organized into a new political party, which, under the name of Populists, a little later played an important part in national affairs. In March, 1890, owing to persistent poaching by British sealers in Alaskan waters, the President issued a proclamation warning all persons against entering Behring Sea for purposes of sealing, and the seizure of poachers was begun, which presently led to a controversy with Great Britain which had finally to be referred to international arbitration. The most important pieces of National legislation of the year 1890 were the McKinley Tariff bill, a strong Protectionist measure, and a bill to protect trade against the improper restraint of trusts or monopolies. An act was also passed for the regulation of the currency, providing for the purchase of not more than 4,500,000 ounces of silver per month at not more than one dollar for 371¼ grains and the coinage of 2,000,000 ounces a month until July 1, 1891, and thereafter as necessary. Idaho and Wyoming were admitted as States in July. In October, in order to remove objections to the admission of Utah to Statehood, the Mormon church at a general conference, declared polygamy to be thenceforth abolished. The fall of this year was marked with serious Indian disturbances, owing to the "ghost dances" and "Messiah craze" among the Sioux, Comanches, Cheyennes, and Arapahoes. These were suppressed only after serious fighting, in the course of which the famous Sioux chief Sitting Bull was killed. The outbreak was not fully ended until January, 1891. (For a continuation of the HISTORY OF THE UNITED STATES, from 1890 forward, see Vol. XII, page 2995.)

## GOVERNMENT OF THE UNITED STATES.

The Government of the United States consists of three co-ordinate departments, whose functions are prescribed by the Constitution. These are the Executive, the Legislative, and the Judicial. The Executive Department



consists of the President, who has a number of advisers and assistants known collectively as his Cabinet. The Legislative Department consists of the Congress—Senate and House of Representatives. The Judicial Department consists of the Supreme Court of the United States, and subordinate tribunals known as circuit and district courts. The various subdivisions of the Executive Department, each under a Cabinet officer, are here to be described:

#### THE DEPARTMENT OF STATE.

*Secretary of State.*—The Secretary of State is charged, under the direction of the President, with the duties appertaining to correspondence with the public ministers and the consuls of the United States, and with the representatives of foreign powers accredited to the United States; and to negotiations of whatever character relating to the foreign affairs of the United States. He is also the medium of correspondence between the President and the chief executives of the several States of the United States; he has the custody of the Great Seal of the United States, and countersigns and affixes such seal to all executive proclamations, to various commissions, and to warrants for the extradition of fugitives from justice. He is regarded as the first in rank among the members of the Cabinet. He is also the custodian of the treaties made with foreign States, and of the laws of the United States. He grants and issues pass-ports, and exequaturs to foreign consuls in the United States are issued through his office. He publishes the laws and resolutions of Congress, amendments to the Constitution, and proclamations declaring the admission of new States into the Union.

*Assistant Secretary of State.*—The Assistant Secretary of State becomes the Acting Secretary of State in the absence of the Secretary. Under the organization of the Department the Assistant Secretary, Second Assistant Secretary, and Third Assistant Secretary are charged with the immediate supervision of all correspondence with the diplomatic and consular officers, and are intrusted with the preparation of the correspondence upon any questions arising in the course of the public business that may be assigned to them by the Secretary.

#### THE DEPARTMENT OF THE TREASURY.

*Secretary of the Treasury.*—The Secretary of the Treasury is charged by law with the management of the national finances. He prepares plans for the improvement of the revenue and for the support of the public credit; superintends the collection of the revenue, and prescribes the forms of keeping and rendering public accounts and of making returns; grants warrants for all moneys drawn from the Treasury in pursuance of appropriations made by law, and for the payment of moneys into the Treasury; and annually submits to Congress estimates of the probable revenues and disbursements of the Government. He also controls the construction of public buildings, and the coinage and printing of money.

*Comptroller of the Treasury.*—The act of July 31, 1894, reorganizing the accounting offices of the Treasury, abolished the offices of Second Comptroller of the Treas-

ury and the Commissioner of Customs, and provided that hereafter the First Comptroller shall be known as the Comptroller of the Treasury. The Comptroller is not charged with the duty of revising accounts, except upon appeal from the settlements made by the Auditors, an appeal to be taken within one year by either the claimant, the head of the Department interested, or by the Comptroller himself. Upon the request of a disbursing officer or the head of a Department, the Comptroller is required to give his decision upon the validity of a payment to be made, which decision, when rendered, shall govern the Auditors and the Comptroller in the settlement of the account involving the payment. He is required to approve, disapprove, or modify all decisions of the Auditors making an original construction or modifying an existing construction of statutes, and to certify his action to the Auditor. He transmits all decisions made by him forthwith to the Auditor or Auditors whose duties are affected thereby. By the regulations of the Department the Comptroller passes upon the sufficiency of authorities to indorse drafts and receive and receipt for money from the Government, upon the evidence presented in applications for duplicates of lost or destroyed United States bonds, drafts, checks, etc. The forms of keeping and rendering all public accounts (except those relating to the postal service), the recovery of debts certified by the Auditors to be due to the United States, and the preservation, with their vouchers and certificates, of accounts finally adjusted, are under the direction of the Comptroller. Upon revision of accounts, appealed from the several Auditors to the Comptroller, his decision upon such revision is final and conclusive upon the executive branch of the Government.

*Treasurer of the United States.*—The Treasurer of the United States is charged with the receipt and disbursement of all public moneys that may be deposited in the Treasury at Washington and the subtreasuries at Boston, New York, Philadelphia, Baltimore, Cincinnati, Chicago, St. Louis, New Orleans, and San Francisco, and in the national-bank United States depositories; is trustee for bonds held to secure national-bank circulation and public deposits in national banks; is custodian of Indian trust-fund bonds and other public trusts; is fiscal agent for paying the interest on the public debt, and ex officio commissioner of the sinking fund of the District of Columbia.

*Register of the Treasury.*—The Register of the Treasury signs and issues all bonds of the United States, the District of Columbia, the Pacific railroads, the Cherokee Indian lands, the Louisville and Portland Canal Company, and the Spanish indemnity, and transmits to the Treasurer of the United States schedules showing the name of every individual, corporation, etc., holding registered bonds and entitled to receive interest thereon. He signs all transfers conveying money from the United States Treasury to all the United States subtreasuries and depositories, and all the correspondence of the office. He receives, examines, and registers coupon bonds exchanged for registered bonds or redeemed and registered bonds transferred and finally redeemed. He receives, examines, arranges, and registers all redeemed United States notes, gold certificates, silver certificates, Treasury

notes, detached interest coupons, interest checks on registered bonds, redeemed fractional currency, and all other United States securities redeemed and destroyed. Also, all customs, internal-revenue, and postage stamps condemned for imperfections and destroyed. He is represented on the committee having in charge the destruction by maceration of certain of the United States securities, etc., mentioned herein. The work is performed in two divisions, as follows:

*Comptroller of the Currency.*—The Comptroller of the Currency has, under the direction of the Secretary of the Treasury, the supervision of the national banks. The divisions of this Bureau are: The organization of national banks; the preparation and issue of national-bank circulation; the examination and consolidation of the reports of national banks; and the redemption and destruction of notes issued by national banks.

*Director of the Mint.*—The Director of the Mint has general supervision of all the mints and assay offices of the United States. He prescribes rules, to be approved by the Secretary of the Treasury, for the transaction of business at the mints and assay offices. He regulates the distribution of silver coin and the charges to be collected of depositors. He receives for adjustment the accounts of the mints and assay offices, superintends their expenditures and annual settlements, and makes special examinations of them when deemed necessary. All appointments, removals, and transfers in the mints and assay offices are subject to his approval. The purchase of silver bullion and the allotment of its coinage are made by the Director, and, at his request, also transfers of the moneys in the mints and assay offices and advances from appropriations for the mint service.

Tests of the weight and fineness of coins struck at the mints are made in the assay laboratory under his charge. The values of the standard coins of foreign countries are annually estimated for custom-house and other public purposes. Two annual reports are prepared by the Director, one for the fiscal year, and printed in the Finance Report of the Secretary of the Treasury, the other for the calendar year, on the statistics of the production of the precious metals.

*Commissioner of Internal Revenue.*—The Commissioner makes assessment of and has general superintendence of the collection of all internal-revenue taxes, and of the enforcement of internal-revenue laws; employment of internal-revenue agents; compensation and duties of gaugers, storekeepers, and other subordinate officers; the preparation and distribution of stamps, instructions, regulations, forms, blanks, hydrometers, stationery, etc.; and analyses of foods and drugs in the District of Columbia, and payment of bounty on sugar.

#### DEPARTMENT OF WAR.

*Secretary of War.*—The Secretary of War is the head of the War Department, and performs such duties as are required of him by law or may be enjoined upon him by the President concerning the military service. He is charged by law with the supervision of all estimates of appropriations for the expenses of the Department, including the military establishment; of all purchases of army

supplies; of all expenditures for the support, transportation, and maintenance of the Army, and of such expenditures of a civil nature as may be placed by Congress under his direction. He also has supervision of the United States Military Academy at West Point and of military education in the Army, of the Board of Ordnance and Fortification, of the various battlefield commissions, and of the publication of the Official Records of the War of the Rebellion. He has charge of all matters relating to national defense and seacoast fortifications, army ordnance, river and harbor improvements, the prevention of obstruction to navigation, and the establishment of harbor lines, and all plans and locations of bridges authorized by Congress to be constructed over the navigable waters of the United States require his approval. He also has charge of the establishment or abandonment of military posts, and of all matters relating to leases, revocable licenses, and all other privileges upon lands under the control of the War Department.

*Assistant Secretary of War.*—To the Assistant Secretary of War is assigned the general direction and supervision of all matters relating to rivers and harbors; bridges over navigable waters of the United States; leases, revocable licenses, and all other privileges upon lands under the control of the War Department; inspections relating to the military establishment; Record and Pension Office business; recruiting service, discharges, commutation of rations, courts-martial, and other questions relating to enlisted men, including clemency cases and matters relating to prisoners at military prisons and penitentiaries. He also has charge of all matters relating to the militia; the supervision of miscellaneous claims and accounts; preliminary examination of questions relating to the Philippines, and final disposition of all ordinary routine matters relating to said islands; matters relating to national cemeteries, boards of survey, open-market purchases, and medals of honor.

*Chief Clerk.*—Under the immediate direction of the Secretary and the Assistant Secretary of War, the chief clerk has the custody of the records and files, and is charged with supervision of the receipt, distribution, and transmission of the official mail and the correspondence of the Secretary's office; of all matters affecting the civil force of the War Department, the departments at large, and the military governments; War Department printing and binding, and official advertising and job printing for the Army and the War Department; requisitions for and routine business pertaining to militia supplies; War Department supplies; routine calls for information from the records; expenditures from appropriations for contingent expenses and stationery for the War Department, and matters of routine character not requiring the personal action of the Secretary or the Assistant Secretary of War.

*Military Bureaus.*—The chiefs of the military bureaus of the War Department are officers of the Regular Army of the United States and a part of the military establishment, viz.:

The Adjutant-General promulgates all orders of a military character of the President, the Secretary of War, and the Commanding General of the Army, and conducts the correspondence between the latter and the Army; receives reports and returns pertaining to the Army; pre-



pires commissions, appointments, and acceptances of resignations for issuance; and, under the immediate direction of the Secretary of War, has charge of the recruiting service.

The Inspector-General, with his assistants, inspects all military commands and stations, the schools of application, the military department of all colleges and schools at which officers of the Army are detailed, all depots, rendezvous, armories, arsenals, fortifications, and public works of every kind under charge of or carried on by officers of the Army; and also the money accounts of all disbursing officers of the Army.

The Quartermaster-General, aided by assistants, provides transportation for the Army; also clothing and equipage, horses, mules, and wagons, vessels, forage, stationery, and other miscellaneous quartermaster stores and property for the Army, and of clothing and equipage for the militia; constructs necessary buildings, wharves, roads, and bridges at military posts, and repairs the same; furnishes water, heating and lighting apparatus; pays guides, spies, and interpreters, and is in charge of national cemeteries.

The Commissary-General of Subsistence has administrative control of the Subsistence Department; the disbursement of its appropriations; the providing of rations and their issue to the Army; the purchase and distribution of articles authorized to be kept for sale to officers and enlisted men; the administrative examination of accounts of subsistence funds preliminary to their settlement by the proper accounting officers of the Treasury; and the examination and settlement of returns of subsistence supplies.

The Surgeon-General, under the immediate direction of the Secretary of War, is charged with the administrative duties of the Medical Department; the designation of the stations of medical officers, and the issuing of all orders and instructions relating to their professional duties. He directs as to the selection, purchase, and distribution of the medical supplies of the Army. The Army Medical Museum and the official publications of the Surgeon-General's Office are also under his direct control.

The Paymaster-General is charged with the payment of the officers and enlisted men of the Army and civil employees of the Department; with furnishing funds to his officers and seeing that they duly account for the same, and with a preliminary examination of their accounts, also with the payment of Treasury certificates for bounty, back pay, etc., and balances due deceased officers and soldiers of the Volunteer and Regular Army.

The Chief of Engineers commands the Corps of Engineers, which is charged with all duties relating to construction and repair of fortifications, whether permanent or temporary; with torpedoes for coast defense; with all works of defense; with all military roads and bridges, and with such surveys as may be required for these objects, or the movement of armies in the field. It is also charged with the river and harbor improvements, with military and geographical explorations and surveys, with the survey of the lakes, and with any other engineer work especially assigned to the corps by acts of Congress or orders of the Secretary of War.

The Chief of Ordnance commands the Ordnance De-

partment, the duties of which consist in providing, preserving, distributing, and accounting for every description of artillery, small arms, and all the munitions of war which may be required for the fortresses of the country, the armies in the field, and for the whole body of the militia of the Union. In these duties are comprised that of determining the general principles of construction and of prescribing in detail the models and forms of all military weapons employed in war. They comprise also the duty of prescribing the regulations for the proof and inspection of all these weapons, for maintaining uniformity and economy in their fabrication, for insuring their good quality, and for their preservation and distribution.

The Judge-Advocate-General is directed by law to "receive, review, and cause to be recorded the proceedings of all courts-martial courts of inquiry, and military commissions." He also furnishes the Secretary of War information and advice relating to lands under control of the War Department, and reports and opinions upon legal questions arising under the laws, regulations, and customs pertaining to the Army, and upon questions arising under the civil law; reports upon applications for clemency in the cases of military prisoners; examines and prepares legal papers relating to the erection of bridges over navigable waters; drafts bonds, and examines those given to the United States by disbursing officers, colleges, and others; examines, revises, and drafts charges and specifications against officers and soldiers, and also drafts and examines deeds, contracts, licenses, leases, and legal papers generally.

The Chief Signal Officer is charged with the supervision of all military signal duties, and of books, papers, and devices connected therewith, including telegraph and telephone apparatus and the necessary meteorological instruments for use on target ranges and other military uses; the construction, repair, and operation of military telegraph lines, and the duty of collecting and transmitting information for the Army by telegraph or otherwise, and all other duties usually pertaining to military signaling.

The Chief of the Record and Pension Office is charged by law with the custody of the military and hospital records of the volunteer armies and the transaction of the pension and other business of the War Department connected therewith, including the publication of the Official Records of the War of the Rebellion. The work of the office embraces all subjects relating to the service of organizations, officers, and enlisted men of the volunteer armies, and includes the answer to calls from the Commissioner of Pensions, the accounting officers of the Treasury, and others for information required in the adjudication of claims against the National and State governments, the adjustment of the individual records of officers and enlisted men under the general and special legislation of Congress relating thereto, and the general correspondence of the Department relating to the volunteer forces. The records of the office include those of the late Provost-Marshal-General's Bureau and the Bureau of Refugees, Freedmen, and Abandoned Lands; also the Confederate archives, embracing those relating to the legislative, executive, and judicial branches of the Confederate Government.

## THE DEPARTMENT OF JUSTICE.

*Attorney-General.*—The Attorney-General is the head of the Department of Justice and the chief law officer of the Government. He represents the United States in matters involving legal questions; he gives his advice and opinion, when they are required by the President or by the heads of the other Executive Departments, on questions of law arising in the administration of their respective Departments; he exercises a general superintendence and direction over United States attorneys and marshals in all judicial districts in the States and Territories; and he provides special counsel for the United States whenever required by any Department of the Government.

He is assisted by a chief clerk and other clerks and employees in the executive management of the business of the Department.

A law clerk, who is also an examiner of titles, assists the Attorney-General in the investigation of legal questions and in the preparation of opinions.

*Solicitor-General.*—The Solicitor-General assists the Attorney-General in the performance of his general duties, and by special provision of law, in the case of a vacancy in the office of Attorney-General or in his absence, exercises all these duties. Except when the Attorney-General otherwise directs, the Attorney-General and Solicitor-General conduct and argue all cases in the Supreme Court and in the Court of Claims in which the United States is interested; and, when the Attorney-General so directs, any such case in any court of the United States may be conducted and argued by the Solicitor-General; and in the same way the Solicitor-General may be sent by the Attorney-General to attend to the interests of the United States in any State court or elsewhere.

*Assistant Attorneys-General.*—Four Assistant Attorneys-General assist the Attorney-General and the Solicitor-General in the performance of their duties. They assist in the argument of causes in the Supreme Court and in the preparation of legal opinions; one is charged with the conduct of the defense of the United States in the Court of Claims, and has seven assistant attorneys to assist him; one with the defense of the Indian depredation claims, and another with the defense of the claims before the Spanish Treaty Claims Commission.

Under the act of 1870 the different law officers of the Executive Departments exercise their functions under the supervision and control of the Attorney-General. They are the Assistant Attorney-General for the Department of the Interior, the Assistant Attorney-General for the Post-Office Department, the Solicitor of the Treasury, the Solicitor of Internal Revenue, Treasury Department, and the Solicitor for the Department of State.

## THE POST-OFFICE DEPARTMENT.

*Postmaster-General.*—The Postmaster-General has the direction and management of the Post-Office Department. He appoints all officers and employees of the Department, except the four Assistant Postmasters-General, who are appointed by the President, by and with the advice and consent of the Senate; appoints all postmas-

ters whose compensation does not exceed \$1,000; makes postal treaties with foreign Governments, by and with the advice and consent of the President, awards and executes contracts, and directs the management of the domestic and foreign mail service.

*First Assistant Postmaster-General.*—The First Assistant Postmaster-General has charge of the following divisions, viz.: Salary and Allowance Division, Free Delivery, Division of Post-Office Supplies, Money-Order Division, Dead-Letter Office, and Correspondence Division.

*Second Assistant Postmaster-General.*—The Second Assistant Postmaster-General has charge of the transportation of all mails. His office embraces four divisions and two offices, viz.:

The Contract Division prepares all advertisements inviting proposals for star, steamboat, and mail-messenger service, receives the proposals, prepares orders for the award of contracts, attends to the execution of contracts, prepares cases and orders for the establishment of new service or changes in existing service, attends to all correspondence relating thereto, and prepares statistics and reports of mail service required by law.

The Division of Inspection is charged with the examination of monthly and special reports of postmasters as to performance of mail service by contractors and carriers; the preparation of cases and orders for deductions for nonperformance of service and for the imposition of fines for delinquencies of contractors and carriers, of authorization for payment of railway postal clerks, of certifications of service to the Sixth Auditor, and the correspondence relative to nonperformance of contract requirements for carrying the mails.

The Railway Adjustment Division prepares cases authorizing the transportation of mails by railroads, cable and electric roads, wagons and pneumatic tubes in cities, and by mail messengers, the establishment of railway postal-car service, and changes in existing service; prepares orders and instructions for the weighing of mails, receives the returns and computes basis of pay therefrom; prepares cases for the adjustment of allowances to railroads for carrying the mails and for postal cars, and attends to all correspondence relating to these matters.

The Mail Equipment Division is charged with the preparation of advertisements inviting proposals for furnishing mail bags, mail locks and keys, label cases, and mailbag cord fasteners; the receipt of proposals and the preparation of contracts therefor, the issuing of such articles for the use of the service, the repairing of the same, the keeping of records and accounts, and the preparation of all correspondence incident to these duties.

The Office of Railway Mail Service has charge of the railway mail service and the railway post-office clerks, prepares for the Second Assistant Postmaster-General cases for the appointment, removal, promotion, and reduction of said clerks, conducts the correspondence, and issues the orders relative to moving the mails on railroad trains; has charge of the dispatch and distribution of mail matter in railway post-office cars and post-offices, and conducts the weighing of mails when ordered.



The Office of Foreign Mails has charge of all foreign postal arrangements (except those relating to the money-order system), including the preparation of postal conventions and the regulations for their execution, as well as the consideration of questions arising under them; and conducts the correspondence relative thereto both with foreign Governments and private citizens. It also has the supervision of the ocean mail steamship service in all its details, including the settlement of the accounts with steamship companies for the conveyance of mails from the United States to foreign countries.

*Third Assistant Postmaster-General.*—The Third Assistant Postmaster-General has charge of the postal subjects named below, embraced in the following divisions of his Bureau:

*System of Postal Finance.*—The financial system, involving the collection of all moneys due the Department, the payment, by warrant or draft, of accounts chargeable against appropriations for the postal service, the designation of depositories for postal funds, and the supervision and instruction of all postmasters relative to the disposition of the postal revenue from whatever source.

*Postage Stamp Supplies and Postmasters' Accounts.*—The supervision and collection of postal revenue through the issue of postage stamps, stamped envelopes, newspaper wrappers, and postal cards, and the keeping of postmasters' accounts relative thereto; also the supplying of postmasters with envelopes for their official use, including registered-package and registered-tag envelopes.

*Classification Division.*—The general control of all business relating to the classification of domestic mail matter and the rates of postage thereon, including the determination of the admissibility of publications for entry to the second class of mail matter and their right to continue in that class, the general supervision of those therein, and the instruction of postmasters relative thereto.

*The Registry Office.*—The supervision and management of the registered-mail service and the conduct of correspondence relating thereto and the preparation of record forms used therein, the establishment and control of all through registry exchanges, the compilation of registry statistics, and the instruction of all postmasters in registry matters.

*Redemption Division.*—The duty of receiving, disposing of, and authorizing credits for redeemed, damaged, and unsalable supplies of stamped paper returned by postmasters.

*Files and Records Division.*—The duty of receiving, distributing, and indexing all papers coming into the office, of dispatching and recording all papers sent from the office, and of keeping and attending to the office files and records.

The Bureau of the Third Assistant Postmaster-General also has charge of the Special-Delivery System, and the supervision of proposals and letting of contracts for furnishing the Post-Office Department with postage stamps, stamped envelopes, newspaper wrappers, and postal cards, registered-package, tag, official, and dead-letter envelopes, and envelopes for the use of each of the several Executive Departments.

*Fourth Assistant Postmaster-General.*—The Fourth Assistant Postmaster-General has the duty of preparing all cases for establishment, discontinuance, and change of name or site of post-offices, and for the appointment of all postmasters, and attending to all correspondence consequent thereto; receiving and recording appointments; sending out papers for postmasters and their assistants to qualify; receiving, entering, and filing their bonds (and approval of same) and oaths, and issuing the commissions for postmasters; the general supervision of the work of the post-office inspectors, and the consideration and adjustment of their accounts for salary and expenses.

#### THE DEPARTMENT OF THE NAVY.

*Secretary of the Navy.*—The Secretary of the Navy performs such duties as the President of the United States who is Commander-in-Chief, may assign him, and has the general superintendence of construction, manning, armament, equipment, and employment of vessels of war.

The Chief Clerk has general charge of the records and correspondence of the Secretary's office.

*Assistant Secretary of the Navy.*—The Assistant Secretary of the Navy performs such duties in the Navy Department as shall be prescribed by the Secretary of the Navy or may be required by law.

*Bureau of Navigation.*—The duties of the Bureau of Navigation comprise all that relates to the promulgation, record, and enforcement of the Secretary's orders to the fleets and to the officers of the Navy, except such orders as pertain to the office of the Secretary; the education of officers and men, including the Naval Academy and technical schools for officers (except the War College and Torpedo School), the apprentice establishment, and schools for the technical education of enlisted men, and to the supervision and control of the Naval Home, Philadelphia; the enlistment and discharge of all enlisted persons, including appointed petty officers for general and special service. It controls all rendezvous and receiving ships, and provides transportation for all enlisted persons and appointed petty officers; establishes the complement of the crews of all vessels in commission; keeps the records of service of all squadrons, ships, officers, and men, and prepares the annual Naval Register for publication; has under its direction the preparation, revision, and enforcement of all tactics, drill books, signal codes, cipher codes, and the uniform regulations.

*Bureau of Yards and Docks.*—The duties of the Bureau of Yards and Docks comprise all that relates to the planning, construction, and maintenance of all docks (including dry docks), wharves, slips, piers, quay walls, and buildings of all kinds, for whatever purpose needed, within the limits of the navy-yards, but not of hospitals and magazines outside of those limits, nor of buildings for which it does not estimate. It repairs and furnishes all buildings, stores, and offices in the several navy-yards, and is charged with the purchase, sale, and transfer of all land and buildings connected with the navy-yards; has under its sole control the general administration of the navy-yards; provides and has sole control of all landings, derricks, shears, crane sewers, dredging, railway tracks, cars and wheels, trucks, grading, paving,

walks, shade trees, inclosure walls and fences, ditching, reservoirs, cisterns, fire engines and apparatus, all watchmen, and all things necessary, including labor, for the cleaning of the yards and the protection of the public property.

*Bureau of Equipment.*—The duties of the Bureau of Equipment comprise all that relates to the equipment of all vessels with rigging, sails, anchors, yeomen's stores, furniture not provided by other bureaus, navigation stores and supplies of all kinds, including nautical and navigating instruments and books, stationery, and blank books for commanding and navigating officers ashore and afloat, binnacles, flags, signal lights, running lights, and standing lights on board vessels, including all electrical apparatus for lighting purposes and search lights, logs, leads, lines, and glasses, log books, ships' libraries, illuminating oil for all purposes, except that used in the engineer department of steamers, and fuel for steamers, the ropewalks, and the shops for making anchors and cables, rigging, sails, galleys, and cooking utensils, the Naval Observatory, Nautical Almanac, compass offices, and pilotage. It has under its control the Hydrographic Office, the collection of foreign surveys, publication and supply charts, sailing directions, and nautical works, and the dissemination of nautical and hydrographic information to the Navy and mercantile marine.

*Bureau of Ordnance.*—The duties of the Bureau of Ordnance comprise all that relates to the manufacture or purchase of offensive and defensive arms and apparatus (including torpedoes), all ammunition, war explosives, vessels for submarine torpedo service, magazines on shore, and of all machinery, apparatus, equipment, and things for use with the above; the recommending the nature of the armament to be carried by vessels, and the material, kind, and qualities of ship's armor and dimensions of gun turrets; charged with the carrying power of vessels, as determined by the Bureau of Construction and Repair, and fixes the location and command of the armament, and distributes the thickness of armor; places the armament on board of vessels, and determines the method of construction of armories and ammunition rooms, the latter in conjunction with the Bureau of Construction and Repair; purchases torpedo boats intended to be carried by ships, and has charge of all their details of whatever nature, and prescribes the armament to be given to all torpedo vessels.

*Bureau of Construction and Repair.*—The duties of the Bureau of Construction and Repair comprise all that relates to designing, building, fitting, and repairing the hulls of vessels, spars, boats, capstans, windlasses, steering gear, ventilating apparatus, tanks, ballast, casks, blocks, furniture for ships' use of the kind made in the navy-yards, and lumber, plates, and tools for sea stores of the kind used by it in building vessels; also the turrets and armor plating, after the material, quality, and distribution of thickness have been determined by the Bureau of Ordnance; has control of all vessels building and under repair, and is responsible that vessels in ordinary do not go to decay for want of proper examination on the part of constructors in the yards; and has charge of the docking of vessels.

*Bureau of Steam Engineering.*—The duties of the

Bureau of Steam Engineering comprise all that relates to the designing, building, fitting out, repairing, and engineering of the steam machinery used for the propulsion of naval vessels, and will also include steam pumps, steam heaters and connections, and the steam machinery necessary for actuating the apparatus by which turrets are turned.

*Bureau of Medicine and Surgery.*—The duties of the Bureau of Medicine and Surgery comprise all that relates to laboratories, naval hospitals, and dispensaries, the furnishing of all supplies, medicines, and instruments required in the Medical Department of the Navy; has sole control of all buildings erected for its purposes, and determines upon and furnishes all the stores, etc., used in the medical and hospital departments, materials, instruments, means, and appliances of every kind used for its purposes, and controls their inspection, storing, transportation, and preparation; designs, erects, furnishes, and maintains all the buildings constructed for its purposes outside the limits of the navy-yards, and for which it may have estimated; is charged with the purchase, sale, and transfer of all land and buildings in connection therewith, and with the preservation of the public property under its control; designs the various buildings erected within navy-yards for its purposes so far only as their internal arrangements are concerned, and after their completion has exclusive control of the same, and makes all contracts for and superintends all the work done under it.

*Bureau of Supplies and Accounts.*—The duties of the Bureau of Supplies and Accounts comprise all that relates to supplying the Navy with provisions, clothing, small stores, fresh water, and contingent stores in the Paymaster's Department; the reception, care, and custody of all stores not exempt by order from the general storekeeper's system, and the keeping of a proper system of accounts regarding the same; the purchase, at shore stations within the United States, of stores and supplies and their custody, transfer, and issue, upon authorized requisitions, except those of the Bureau of Medicine and Surgery, the Marine Corps, and those exempt by Regulation Circular No. 51.

*Judge-Advocate-General.*—It is the duty of the Judge-Advocate-General, under the direction of the Secretary of the Navy, to revise, report upon, and have recorded the proceedings of all courts-martial, courts of inquiry, and boards for the examination of officers for retirement and promotion in the naval service; to prepare the charges and specifications and the necessary orders convening general courts-martial in cases where such courts are ordered by the Secretary of the Navy; to prepare general orders promulgating the final action of the reviewing authority in general court-martial cases; to prepare the necessary orders convening courts of inquiry, boards for the examination of officers for promotion and retirement, and for the examination of candidates for appointment in the Medical Corps, and to conduct all official correspondence relating to courts-martial, courts of inquiry, and such boards; to examine and report upon claims of every description filed in the Department; to conduct the departmental correspondence relating to the business connected with the increase of the Navy, including the preparation of advertisements inviting proposals for the



construction of new vessels, or for furnishing materials for use in their construction; of forms of proposals to be used by bidders in offering to construct such vessels or furnish such materials, and forms of contracts to be entered into and bonds to be furnished by such bidders on the acceptance of their proposals, and including also the departmental correspondence relating to the plans, specifications, and materials of new vessels and to proposed changes in the same; to consider and report upon all matters which may be referred to him involving questions of law, regulations, and discipline and requiring the Department's action; the meaning or construction of the general regulations of the Navy, including those relating to rank or precedence, or to appointments, commissions, promotions, and retirement, and to the validity of proceedings in courts-martial cases; to conduct the correspondence with the Attorney-General relative to questions of statutory construction submitted for his opinion thereon; to the institution of suits, at the instance of the Navy Department, and to the defense of suits brought by private parties against the officers or agents of the Department; to answer calls from the Department of Justice and the Court of Claims for information and papers relating to cases pending in that court and affecting the Navy Department; to examine and report upon the official bonds of pay officers, and all questions presented to the Department relating to pay and traveling expenses of officers; to attend to all correspondence relating to the care of naval prisons and prisoners, and to consider and act upon applications for the removal of the mark of desertion standing against the names of enlisted men of the Navy or Marine Corps.

*Marine Corps.*—The Commandant of the Marine Corps is responsible to the Secretary of the Navy for the general efficiency and discipline of the corps; makes such distribution of officers and men for duty at the several shore stations as shall appear to him to be most advantageous for the interests of the service; furnishes guards for vessels of the Navy, according to the authorized scale of allowance; under the direction of the Secretary of the Navy, issues orders for the movement of officers and troops, and such other orders and instructions for their guidance as may be necessary; and has charge and exercises general supervision and control of the recruiting service of the corps, and of the necessary expenses thereof, including the establishment of recruiting offices.

#### THE DEPARTMENT OF THE INTERIOR.

*Secretary of the Interior.*—The Secretary of the Interior is charged with the supervision of public business relating to patents for inventions; pensions and bounty lands; the public lands and surveys; the Indians; education; railroads; the Geological Survey; the Hot Springs Reservation, Arkansas; Yellowstone National Park, Wyoming, and the Yosemite, Sequoia, and General Grant parks, California; forest reservation; distribution of appropriations for agricultural and mechanical colleges in the States and Territories; the custody and distribution of certain public documents; and supervision of certain hospitals and eleemosynary institutions in the

District of Columbia. He also exercises certain powers and duties in relation to the Territories of the United States.

*First Assistant Secretary of the Interior.*—To the First Assistant Secretary of the Interior is assigned the direction and supervision of matters relating to official bonds and bonds for the fulfillment of contracts; signing requisitions for Treasury warrants; business relating to the Territories; contracts and open-market purchases of Indian supplies; surveys, allotments, deeds, and leases of Indian lands; Indian annuities and trust funds; depredation claims; business from the office of the Commissioner of Railroads; and the general business of the Secretary in the absence of the latter.

*Assistant Secretary of the Interior.*—To the Assistant Secretary of the Interior is assigned the consideration and decision of appeals from the Commissioner of Pensions and questions relating to violations of the pension law; appeals from the administrative action of the Commissioner of Patents; countersigning of letters patent; business from the office of the Commissioner of Education, Government Hospital for the Insane, Freedman's Hospital, Columbia Institution for the Deaf and Dumb, education of the blind of the District of Columbia; admission to practice and disbarment of attorneys before the Department and bureaus; approval of requests and vouchers for advertising, and vouchers for transportation and other expenses of inspectors and special agents, and acts as Secretary in the absence of that officer and of the First Assistant Secretary.

*Chief Clerk.*—The Chief Clerk of the Department of the Interior has the general supervision of the clerks and employees; of the order of business, records, and correspondence of the Secretary's Office; of all expenditures from appropriations for contingent expenses, stationery, and printing for the Department and bureaus; enforcement of the general regulations of the Department; also the superintendence of buildings occupied by the Interior Department.

*Patents.*—The Commissioner of Patents is charged with the administration of the patent laws, and supervises all matters relating to the issue of letters patent for new and useful discoveries, inventions, and improvements, and the registration of trade-marks and labels. He is aided by an Assistant Commissioner, chief clerk, three examiners-in-chief, an examiner of interferences, and thirty-six principal examiners.

*Pensions.*—The Commissioner of Pensions supervises the examination and adjudication of all claims arising under laws passed by Congress granting bounty land or pension on account of service in the Army or Navy during the Revolutionary war and all subsequent wars in which the United States has been engaged. He is aided by two Deputy Commissioners and the chief clerk of the Bureau, each of whom has supervision over business arising in divisions of the Bureau assigned, under order of the Commissioner, to his immediate charge.

*General Land Office.*—The Commissioner of the General Land Office is charged with the survey, management, and sale of the public domain, and the issuing of titles therefor, whether derived from confirmations of grants made by former governments, by sales, donations, or

grants for schools, railroads, military bounties, or public improvements. He is aided by an Assistant Commissioner and chief clerk.

*Indian Affairs.*—The Commissioner of Indian Affairs has charge of the several tribes of Indians in the States and Territories. He issues instructions to and receives reports from agents, special agents, and school superintendents; superintends the purchase, transportation, and distribution of presents and annuities; and reports annually the relations of the Government with each tribe. He is aided by an Assistant Commissioner, who under the law also performs the duties of chief clerk.

*Education.*—The duties of the Commissioner of Education are to collect such statistics and facts as shall show the condition and progress of education in the several States and Territories, and to diffuse such information respecting the organization and management of schools and school systems and methods of teaching as shall aid the people of the United States in the establishment and maintenance of efficient school systems, and otherwise promote the cause of education throughout the country.

*Railroads.*—The Commissioner of Railroads is charged with the duty of prescribing a system of reports to be rendered to him by the railroad companies whose roads are in whole or in part west, north, or south of the Missouri river, and to which the United States have granted any loan or credit or subsidy in bonds or lands; to examine the books and accounts of each of said railroad companies once in each fiscal year, and at such other times as may be deemed by him necessary to determine the correctness of any report received from them; to assist the Government directors of any of said railway companies in all matters which come under their cognizance, whenever they may officially request such assistance, to see that the laws relating to said companies are enforced; to furnish such information to the several departments of the Government in regard to tariffs for freight and passengers and in regard to the accounts of said railroad companies as may be by them required, or, in the absence of any request therefor, as he may deem expedient for the interest of the Government; and to make an annual report to the Secretary of the Interior on the 1st day of November on the condition of each of said railroad companies, their road, accounts, and affairs, for the fiscal year ending June 30 immediately preceding.

*Geological Survey.*—The Director of the Geological Survey has charge of the classification of the public lands and examination of the geological structure, mineral resources, and products of the national domain, and of survey of forest reserves.

#### THE DEPARTMENT OF AGRICULTURE.

*Secretary of Agriculture.*—The Secretary of Agriculture exercises personal supervision of public business relating to the agricultural industry. He appoints all the officers and employees of the Department with the exception of the Assistant Secretary and the Chief of the Weather Bureau, who are appointed by the President, and directs the management of all the divisions, offices, and bureaus embraced in the Department. He exercises advisory supervision over the agricultural experiment

stations deriving support from the National Treasury, and has control of the quarantine stations for imported cattle, and of interstate quarantine rendered necessary by contagious cattle diseases, including the inspection and transportation of cattle and the inspection of cattle-carrying vessels.

He is charged especially with carrying out the chief purpose of the Department, which is "to acquire and diffuse among the people of the United States useful information on subjects connected with agriculture in the most comprehensive sense of that word and to procure, propagate, and distribute among the people new and valuable seeds of plants."

*Assistant Secretary of Agriculture.*—The Assistant Secretary of Agriculture performs such duties as may be required by law or prescribed by the Secretary, and has immediate supervision of the work of the Division of Seeds, the Section of Seed and Plant Introduction, the Supply Division, the Library, and the Museum of the United States Department of Agriculture. He also becomes the Acting Secretary of Agriculture in the absence of the Secretary.

*Chief Clerk.*—The Chief Clerk has the general supervision of the clerks and employees; of the order of business, records, and correspondence of the Secretary's office; of all expenditures from appropriations for contingent expenses, stationery, etc.; of the enforcement of the general regulations of the Department; and of the buildings occupied by the Department of Agriculture.

*The Weather Bureau.*—The Chief of the Weather Bureau, under the direction of the Secretary of Agriculture, has charge of the forecasting of weather; the issue of storm warnings; the display of weather and flood signals for the benefit of agriculture, commerce, and navigation; the gaging and reporting of rivers; the maintenance and operation of seacoast telegraph lines, and the collection and transmission of marine intelligence for the benefit of commerce and navigation; the reporting of temperature and rainfall conditions for the cotton interests; the display of frost and cold-wave signals; the distribution of meteorological information in the interests of agriculture and commerce, and the taking of such meteorological observations as may be necessary to establish and record the climatic conditions of the United States or as are essential for the proper execution of the foregoing duties.

*Bureau of Animal Industry.*—The Bureau of Animal Industry makes investigations as to the existence of dangerous communicable diseases of live stock; superintend the measures for their extirpation, and makes original investigations as to the nature and prevention of such diseases. It inspects live stock and their products slaughtered for food consumption; has charge of the inspection of import and export animals, of the inspection of vessels for the transportation of export cattle, and of the quarantine stations for imported meat cattle; generally supervises the interstate movement of cattle and reports on the condition and means of improving the animal industries of the country.

*Division of Statistics.*—The Statistician collects information as to crop production and the numbers and status of farm animals, through a corps of county and township



correspondents and State agents, and obtains similar information from foreign countries through special agents, assisted by consular, agricultural, and commercial authorities. He records, tabulates, and co-ordinates statistics of agricultural production, distribution, and consumption, the authorized data of Governments, institutes, societies, boards of trade, and individual experts; and issues a monthly crop report for the information of producers and consumers.

*Foreign Markets.*—The Section of Foreign Markets has for its object the extension of the agricultural export trade of the United States. It investigates the requirements of foreign markets, studies the conditions of demand and supply as disclosed by the records of production, importation, and exportation, inquires into the obstacles confronting trade extension, and disseminates through printed reports and otherwise the information collected.

*Chemistry.*—The Division of Chemistry makes investigations of soils, fertilizers, and agricultural products, and such analyses as pertain in general to the interests of agriculture. It investigates the composition and adulteration of foods and the composition of field products in relation to their nutritive value and to the constituents which they derive from the soil, fertilizers, and the air. It co-operates with the chemists of the agricultural experiment stations in all matters pertaining to the relations of chemistry to agricultural interests. It also co-operates with all the other scientific divisions of the Department in all matters pertaining to chemistry in their work, and, through the Secretary of Agriculture, conducts investigations of a chemical nature for other Departments of the Government at the request of their respective Secretaries.

*Experiment Stations.*—The Office of Experiment Stations represents the Department in its relations to the agricultural colleges and experiment stations, which are now in operation in all the States and Territories, and directly manages the experiment stations in Alaska. It seeks to promote the interests of agricultural education and investigation throughout the United States. It collects and disseminates general information regarding the colleges and stations, and publishes accounts of agricultural investigations at home and abroad. It also indicates lines of inquiry, aids in the conduct of co-operative experiments, reports upon the expenditures and work of the stations, and in general furnishes them with such advice and assistance as will best promote the purposes for which they were established. It is also charged with investigations on the nutritive value and economy of human foods and on irrigation, which are largely conducted in co-operation with the colleges and stations.

*Entomology.*—The Entomologist obtains and disseminates information regarding injurious insects; investigates insects sent him in order to give appropriate remedies; conducts investigations of this character in different parts of the country, and mounts and arranges specimens for illustrative and museum purposes.

*Biological Survey.*—The Division of Biological Survey studies the geographic distribution of animals and plants, and maps the natural life zones of the country; it also investigates the economic relations of birds and mammals, recommends measures for the preservation of beneficial

and the destruction of injurious species, and has been charged with carrying into effect the provisions of the Federal law for the importation and protection of birds, contained in the act of Congress of May 25, 1900.

*Bureau of Forestry.*—The Bureau of Forestry investigates methods and trees for planting in the treeless West, gives practical assistance to tree planters, and to farmers, lumbermen, and others in the conservative handling of forest lands; studies commercially valuable trees to determine their special uses in forestry, and investigates forest fires and other forest problems.

*Bureau of Plant Industry.*—The Bureau of Plant Industry studies plant life in all its relations to agriculture. It includes vegetable, pathological and physiological investigations, botanical investigations and experiments, pomological investigations, grass and forage plant investigations, experimental gardens and grounds, the Arlington experimental farm, Congressional seed distribution, seed and plant introduction, and tea culture experiments.

*Bureau of Soils.*—The Bureau of Soils has for its object the investigation of soils in their relation to crops, the mapping of soils, the investigation and mapping of alkali lands, and investigations of the growth, curing, and fermentation of tobacco.

*Public-Road Inquiries.*—The office of Public-Road Inquiries collects information concerning the systems of road management throughout the United States, conducts investigations and experiments regarding the best methods of road making and road-making materials, and prepares publications on this subject.

## THE DEPARTMENT OF COMMERCE AND LABOR.

*Secretary of Commerce and Labor.*—The Secretary of Commerce and Labor is charged with the work of promoting the commerce of the United States, and its mining, manufacturing, shipping, fishery, transportation and labor interests. His duties also comprise the investigation of the organization and management of corporations (excepting railroads) engaged in interstate commerce; the gathering and publication of information regarding labor interests and labor controversies in this and other countries; the administration of the lighthouse service and the aid and protection to shipping thereby; the taking of the census and the collection and publication of statistical information connected therewith; the making of coast and geodetic surveys; the collecting of statistics relating to domestic and foreign commerce; the inspection of steamboats and the enforcement of laws relating thereto for the protection of life and property; the supervision of the fisheries as administered by the Federal Government; the supervision, and control, of the Alaskan fur-seal, salmon and other fisheries; the jurisdiction over merchant vessels, their registry, licensing, measurement, entry, clearance, transfers, movements of their cargoes and passengers, and laws relating thereto, and to seamen of the United States; the supervision of the immigration of aliens and the enforcement of the laws relating thereto; the custody, construction, maintenance and application of standards of weights and measures; and the gathering and supplying of information regard-

ing industries and markets for the fostering of manufacturing.

His office is organized with a Chief Clerk, Bureau of Corporations, Bureau of Labor, Bureau of the Census, Light House Board, Coast and Geodetic Survey, Bureau of Statistics, Steamboat Inspection Service, Bureau of Fisheries, Bureau of Navigation, Bureau of Immigration, and Bureau of Standards.

*Director of the Census.*—The Director of the Census supervises the taking of the census of the United States, Alaska, and the Hawaiian Islands, and the subsequent arrangement, compilation, and publication of the statistics collected. The census of 1900 (the Twelfth Census) was taken under the act of Congress approved March 3, 1899.

*The Light-House Board.*—The Light-House Board has charge of all administrative duties relating to the construction and maintenance of light-houses, light-vessels, beacons, fog signals, buoys, and their appendages, and has charge of all records and property appertaining to the light-house establishment.

*Commissioner of Navigation.*—The Commissioner of Navigation is charged with general superintendence of the commercial marine and merchant seamen of the United States, except so far as supervision is lodged with other officers of the Government. He is specially charged with the decision of all questions relating to the issue of registers, enrollments, and licenses of vessels and the filing of those documents, with the supervision of laws relating to the admeasurement, letters, and numbers of vessels, and with the final decision of questions concerning the collection and refund of tonnage taxes. He is empowered to change the names of vessels, prepares annually a list of vessels of the United States, and reports annually to the Secretary the operations of the laws relative to navigation.

*Coast and Geodetic Survey.*—The Coast and Geodetic Survey is charged with the survey of the Atlantic, Gulf, and Pacific coasts of the United States, including the coasts of Alaska and other coasts under the jurisdiction of the United States; the survey of rivers to the head of tide-water or ship navigation; deep-sea soundings, temperature and current observations along the said coasts and throughout the Gulf Stream and Japan Stream flowing off from them; magnetic observations and gravity research; determinations of heights by geodetic leveling, and of geographical positions by lines of transcontinental triangulation, which, with other connecting triangulations and observations for latitude, longitude, and azimuth, furnish points of reference for State surveys and connect the work on the Atlantic coast with that on the Pacific.

Results of the survey are published in the form of annual reports, which include professional papers of value; bulletins which give information deemed important for immediate publication; notices to mariners, issued monthly; tide tables, issued annually; charts upon various scales, including harbor charts, general charts of the coast, and sailing charts; chart catalogues and Coast Pilots.

*Steam Vessels.*—The Supervising Inspector-General superintends the administration of the steamboat-in-

spection laws, presides at the meeting of the Board of Supervising Inspectors, receives all reports, and examines all accounts of inspectors.

The Board of Supervising Inspectors meets in Washington annually, on the third Wednesday in January, to establish regulations for carrying out the provisions of the steamboat-inspection laws.

*Marine-Hospital Service.*—The Supervising Surgeon-General is charged with the supervision of the marine hospitals and other relief stations of the service, and the care of sick and disabled seamen taken from the merchant vessels of the United States (ocean, lake, and river), and from the vessels of the Revenue-Marine and Light-House services. This supervision includes the purveying of medical and other supplies, the assignment of and orders to medical officers, the examination of requisitions, vouchers, and property returns, and all matters pertaining to the service.

Under his direction all applicants for pilots' licenses are examined for the detection of color-blindness. Ordinary seamen, on request of a master or agent, are examined physically to determine their fitness before shipment, and a like examination is made of the candidates for admission to the Revenue-Marine Service and candidates for appointment as surfmen in the United States Life-Saving Service.

He examines also and passes upon the medical certificates of claimants for pensions under the laws of the Life-Saving Service.

Under the act of February 15, 1893, he is charged with the framing of regulations for the prevention of the introduction of contagious diseases and the prevention of their spread; and he is also charged with the conduct of the quarantine service of the United States. He has the direction of laboratories established to investigate the cause of contagious diseases, and publishes each week, under the title of "Public Health Reports," sanitary reports received from all parts of the United States and (through the State Department) from all foreign countries.

Under the law of March 28, 1890, known as the interstate quarantine law, he is charged with preparing the rules and regulations, under direction of the Secretary, necessary to prevent the introduction of certain contagious diseases from one State to another, and he has also supervision of the medical inspection of alien immigrants, which, under the law of March 3, 1891, is conducted by the medical officers of the Marine-Hospital Service.

*Bureau of Immigration.*—It is the duty of the Commissioner-General of Immigration to prepare and revise all regulations pertaining to immigration and to supervise the expenditures of the appropriations for "Expenses regulating immigration" and the "Enforcement of the alien contract-labor laws." All inspection and other officers in the service after appointment will be assigned to duty by the Commissioner-General, and their official duties and conduct will be supervised by him; and all correspondence connected with immigration shall be conducted by him. All appeals from the decisions of the boards of special inquiry at the several ports, touching the right of an alien to land in the United States, shall be decided by him, subject to the approval or disap-



proval of the Secretary. He shall cause all alleged violations of the alien contract-labor laws to be investigated and submit such evidence as he may be able to obtain to the proper United States district attorney for prosecution, if deemed advisable.

*Life-Saving Service.*—It is the duty of the General Superintendent to supervise the organization and government of the employees of the service; to prepare and revise regulations therefore as may be necessary; to supervise the expenditure of all appropriations made for the support and maintenance of the Life-Saving Service; to examine the accounts of disbursements of the district superintendents; to examine the property returns of the keepers of the several stations, and see that all public property thereto belonging is properly accounted for; to acquaint himself, as far as practicable, with all means employed in foreign countries which may seem to advantageously affect the interest of the service, and to cause to be properly investigated all plans, devices, and inventions for the improvement of life-saving apparatus for use at the stations which may appear to be meritorious and available; to exercise supervision over the selection of sites for new stations the establishment of which may be authorized by law, or for old ones the removal of which may be made necessary by the encroachment of the sea or by other causes; to prepare and submit to the Secretary of the Treasury estimates for the support of the service; to collect and compile the statistics of marine disasters contemplated by the act of June 20, 1874, and to submit an annual report of the expenditures of the moneys appropriated for the maintenance of the Life-Saving Service, and of the operations of said service during the year.

*Bureau of Statistics.*—The chief of the Bureau of Statistics collects and publishes the statistics of our foreign commerce, embracing tables showing the imports and exports, respectively, by countries and customs districts; the transit trade inwards and outwards by countries and by customs districts; imported commodities warehoused, withdrawn from, and remaining in warehouse; the imports of merchandise entered for consumption, showing quantity, value, rates of duty, and amounts of duty collected on each article or class of articles; the inward and outward movement of tonnage in our foreign trade and the countries whence entered and for which cleared, distinguishing the nationalities of the foreign vessels.

The publications of the Bureau are as follows: Annual Report on Commerce and Navigation; Annual Statistical Abstract of the United States; Monthly Reports on Commerce and Finance; Monthly Reports of Total Values of Foreign Commerce and Immigration; Monthly Report of Exports of Breadstuffs, Provisions, Petroleum, and Cotton.

The divisions of the Bureau are as follows: Division of Examination and Revision; Division of Compilation; Miscellaneous Division; Library and Files.

J. R. G. HASSARD.

Revised by W. FLETCHER JOHNSON.

## THE CONSTITUTION.

The respective powers of the President, the Congress, and the Supreme and other courts, and the general organization of the Federal government, the relations be-

tween it and the States, and the relations of the States among themselves, are set forth in the Constitution, the full text of which is herewith given:

## Constitution of the United States of America.

Adopted 1787.

### PREAMBLE.

We, the people of the United States, in order to form a more perfect union, establish justice, insure domestic tranquillity, provide for the common defense, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity, do ordain and establish this Constitution for the United States of America.

### ARTICLE I.

SECTION I. 1. All legislative powers herein granted shall be vested in a Congress\* of the United States, which shall consist of a senate and house of representatives.

SEC. II. 1. The house of representatives shall be composed of members chosen every second year by the people of the several states; and the electors in each state shall have the qualifications requisite for electors of the most numerous branch of the state legislature.

2. No person shall be a representative who shall not have attained to the age of twenty-five years, and been seven years a citizen of the United States, and who shall not, when elected, be an inhabitant of that state in which he shall be chosen.

3. Representatives and direct taxes shall be apportioned among the several States which may be included within this Union, according to their respective numbers,† which shall be determined by adding to the whole number of free persons, including those bound to service for a term of years, and excluding Indians not taxed, three-fifths of all other persons.‡ The actual enumeration shall be made within three years after the first meeting of the Congress of the United States, and within every subsequent term of ten years, in such manner as they shall by law direct. The number of representatives shall not exceed one for every thirty thousand, but each State shall have at least one representative; and until such enumeration shall be made, the State of New Hampshire shall be entitled to choose three; Massachusetts, eight; Rhode Island and Providence Plantations, one; Connecticut, five; New York six; New Jersey, four; Pennsylvania eight; Delaware, one; Maryland, six; Virginia, ten; North Carolina, five; South Carolina, five; and Georgia, three.

4. When vacancies happen in the representation from any State, the executive authority thereof shall issue writs of election to fill such vacancies.

5. The house of representatives shall choose their speaker and other officers, and shall have the sole power of impeachment.

Sec. III. 1. The senate of the United States shall be composed of two senators from each State, chosen by the legislature thereof, for six years; and each senator shall have one vote.

2. Immediately after they shall be assembled in consequence of the first election, they shall be divided, as equally as may be, into three classes. The seats of the senators of the first class shall be vacated at the

\* The body of senators and representatives for each term of two years for which representatives are chosen is called *One Congress*. Each Congress expires at noon of the 4th of March next succeeding the beginning of its second regular session, when a *new Congress begins*.

† The apportionment under the census of 1880 is one representative to every 154,325 persons.

‡ This refers to slaves, and is no longer in force (see Amendment XIII.).

expiration of the second year; of the second class at the expiration of the fourth year; and of the third class, at the expiration of the sixth year, so that one-third may be chosen every second year; and if vacancies happen, by resignation or otherwise, during the recess of the legislature of any State, the executive thereof may make temporary appointments until the next meeting of the legislature, which shall then fill such vacancies.

3. No person shall be a senator who shall not have attained to the age of thirty years, and been nine years a citizen of the United States; and who shall not, when elected, be an inhabitant of that State for which he shall be chosen.

4. The vice-president of the United States shall be president of the senate; but shall have no vote, unless they be equally divided.

5. The senate shall choose their other officers, and also a president *pro tempore*, in the absence of the vice-president, or when he shall exercise the office of president of the United States.

6. The senate shall have the sole power to try all impeachments. When sitting for that purpose, they shall be on oath or affirmation. When the president of the United States is tried, the chief justice shall preside; and no person shall be convicted without the concurrence of two-thirds of the members present.

7. Judgment, in case of impeachment, shall not extend further than to removal from office, and disqualification to hold and enjoy any office of honor, trust, or profit under the United States; but the party convicted shall, nevertheless, be liable and subject to indictment, trial, judgment, and punishment, according to law.

SEC. IV. 1. The times, places, and manner of holding elections for senators and representatives, shall be prescribed in each State by the legislature thereof; but the Congress may, at any time, by law, make or alter such regulations, except as to the places of choosing senators.

2. The Congress shall assemble at least once in every year: and such meeting shall be on the first Monday in December, unless they shall by law appoint a different day.

SEC. V. 1. Each house shall be the judge of the elections, returns, and qualifications of its own members; and a majority of each shall constitute a quorum to do business; but a smaller number may adjourn from day to day, and may be authorized to compel the attendance of absent members, in such manner and under such penalties as each house may provide.

2. Each house may determine the rules of its proceedings, punish its members for disorderly behavior, and, with the concurrence of two-thirds, expel a member.

3. Each house shall keep a journal of its proceedings, and from time to time publish the same, excepting such parts as may, in their judgment, require secrecy; and the yeas and nays of the members of either house, on any question, shall, at the desire of one-fifth of those present, be entered on the journal.

4. Neither house, during the session of Congress, shall, without the consent of the other, adjourn for more than three days, nor to any other place than that in which the two houses shall be sitting.

SEC. VI. 1. The senators and representatives shall receive a compensation\* for their services, to be ascertained by law, and paid out of the treasury of the United States. They shall in all cases, except treason, felony, and breach of the peace, be privileged from

arrest during their attendance at the session of their respective houses, and in going to and returning from the same; and for any speech or debate in either house they shall not be questioned in any other place.

2. No senator or representative shall, during the time for which he was elected, be appointed to any civil office, under the authority of the United States, which shall have been created, or the emoluments whereof shall have been increased, during such time; and no person holding any office under the United States shall be a member of either house during his continuance in office.

SEC. VII. 1. All bills for raising revenue shall originate in the house of representatives; but the senate may propose or concur with amendments, as on other bills.

2. Every bill which shall have passed the house of representatives and the senate shall, before it become a law, be presented to the president of the United States. If he approve, he shall sign it; but if not, he shall return it, with his objections, to that house in which it shall have originated, who shall enter the objections at large on their journal, and proceed to reconsider it. If, after such reconsideration, two-thirds of that house shall agree to pass the bill, it shall be sent, together with the objections, to the other house, by which it shall likewise be reconsidered, and if approved by two-thirds of that house, it shall become a law. But, in all such cases, the votes of both houses shall be determined by yeas and nays, and the names of the persons voting for and against the bill shall be entered on the journal of each house respectively. If any bill shall not be returned by the president within ten days (Sundays excepted) after it shall have been presented to him, the same shall be a law in like manner as if he had signed it, unless the Congress by their adjournment prevent its return, in which case it shall not be a law.

3. Every order, resolution, or vote, to which the concurrence of the senate and house of representatives may be necessary (except on a question of adjournment), shall be presented to the president of the United States; and before the same shall take effect, shall be approved by him, or, being disapproved by him, shall be repassed by two-thirds of the senate and house of representatives, according to the rules and limitations prescribed in the case of a bill.

SEC. VIII. The Congress shall have power—

1. To lay and collect taxes, duties, imposts, and excises, to pay the debts and provide for the common defense and general welfare of the United States; but all duties, imposts, and excises shall be uniform throughout the United States:

2. To borrow money on the credit of the United States:

3. To regulate commerce with foreign nations, and among the several States, and with the Indian tribes:

4. To establish a uniform rule of naturalization, and uniform laws on the subject of bankruptcies throughout the United States:

5. To coin money, regulate the value thereof, and of foreign coin, and fix the standard of weights and measures:

6. To provide for the punishment of counterfeiting the securities and current coin of the United States:

7. To establish post offices and post roads:

8. To promote the progress of science and useful arts, by securing, for limited times, to authors and inventors, the exclusive right to their respective writings and discoveries:

9. To constitute tribunals inferior to the supreme court:

\*The present compensation is \$5,000 a year, with 20 cents for every mile of travel by the most usually traveled post route to and from the national capital.



10. To define and punish piracies and felonies committed on the high seas, and offenses against the law of nations:

11. To declare war, grant letters of marque and reprisal, and make rules concerning captures on land and water:

12. To raise and support armies; but no appropriation of money to that use shall be for a longer term than two years:

13. To provide and maintain a navy:

14. To make rules for the government and regulation of the land and naval forces:

15. To provide for calling forth the militia to execute the laws of the Union, suppress insurrections, and repel invasions:

16. To provide for organizing, arming, and disciplining the militia, and for governing such part of them as may be employed in the service of the United States, reserving to the States respectively the appointment of the officers, and the authority of training the militia according to the discipline prescribed by Congress:

17. To exercise exclusive legislation, in all cases whatsoever, over such district (not exceeding ten miles square) as may, by cession of particular States, and the acceptance of Congress, become the seat of government of the United States;\* and to exercise like authority over all places purchased, by the consent of the legislature of the State in which the same shall be, for the erection of forts, magazines, arsenals, dockyards, and other needful buildings: and

18. To make all laws which shall be necessary and proper for carrying into execution the foregoing powers, and all other powers vested by this constitution in the government of the United States, or in any department or officer thereof.

SEC. IX. 1. The migration or importation of such persons as any of the States now existing shall think proper to admit, shall not be prohibited by the Congress prior to the year one thousand eight hundred and eight; but a tax or duty may be imposed on such importation, not exceeding ten dollars for each person.†

2. The privilege of the writ of habeas corpus shall not be suspended, unless when, in cases of rebellion or invasion, the public safety may require it.

3. No bill of attainder, or ex post facto law, shall be passed.

4. No capitation or other direct tax shall be laid, unless in proportion to the census or enumeration hereinbefore directed to be taken.

5. No tax or duty shall be laid on articles exported from any State.

6. No preference shall be given, by any regulation of commerce or revenue, to the ports of one State over those of another; nor shall vessels bound to or from one State be obliged to enter, clear, or pay duties in another.

7. No money shall be drawn from the treasury but in consequence of appropriations made by law; and a regular statement and account of the receipts and expenditures of all public money shall be published from time to time.

8. No title of nobility shall be granted by the United States, and no person holding any office of profit or trust under them shall, without the consent of the Congress, accept of any present, emolument, office, or title of any kind whatsoever, from any king, prince, or foreign state.

SEC. X. 1. No State shall enter into any treaty, alliance, or confederation: grant letters of marque and reprisal; coin money; emit bills of credit; make

anything but gold and silver coin a tender in payment of debts; pass any bill of attainder, ex post facto law, or law impairing the obligation of contracts; or grant any title of nobility.

2. No State shall, without the consent of the Congress, lay any imposts or duties on imports or exports, except what may be absolutely necessary for executing its inspection laws; and the net produce of all duties and imposts, laid by any State on imports or exports, shall be for the use of the treasury of the United States, and all such laws shall be subject to the revision and control of the Congress. No State shall, without the consent of Congress, lay any duty of tonnage, keep troops or ships of war in time of peace, enter into any agreement or compact with another State, or with a foreign power, or engage in war, unless actually invaded or in such imminent danger as will not admit of delay.

## ARTICLE II.

SECTION I. 1. The executive power shall be vested in a President of the United States of America. He shall hold his office during the term of four years, and, together with the Vice-President, chosen for the same term, be elected as follows:

2. Each State shall appoint, in such manner as the legislature thereof may direct, a number of electors equal to the whole number of senators and representatives to which the State may be entitled in the Congress; but no senator, or representative, or person holding an office of trust or profit under the United States, shall be appointed an elector.

[3. The electors shall meet in their respective States, and vote by ballot for two persons, of whom one, at least, shall not be an inhabitant of the same State with themselves. And they shall make a list of all the persons voted for, and of the number of votes for each; which list they shall sign and certify, and transmit sealed to the seat of the government of the United States, directed to the president of the senate. The president of the senate shall, in the presence of the senate and house of representatives, open all the certificates, and the votes shall then be counted. The person having the greatest number of votes shall be the president, if such number be a majority of the whole number of electors appointed; and if there be more than one who have such majority, and have an equal number of votes, then the house of representatives shall immediately choose, by ballot, one of them for president; and if no person have a majority, then, from the five highest on the list, the said house, shall, in like manner, choose the president. But, in choosing the president, the votes shall be taken by States, the representation from each State having one vote; a quorum for this purpose shall consist of a member or members from two-thirds of the States, and a majority of all the States shall be necessary to a choice. In every case, after the choice of the president, the person having the greatest number of votes of the electors shall be the vice-president. But, if there should remain two or more who have equal votes, the senate shall choose from them, by ballot, the vice-president.]\*

4. The Congress may determine the time of choosing the electors, and the day on which they shall give their votes; which day shall be the same throughout the United States.†

\* This clause, within brackets, has been superseded by the 12th amendment. See p. 6035.

† The electors are chosen on the Tuesday next after the first Monday in November preceding the expiration of a presidential term, and vote for president and vice-president on the first Wednesday of the December following. The votes are counted and declared in Congress the second Wednesday of the following February.

\* The District of Columbia.

† This has reference to the foreign slave trade.

5. No person, except a natural born citizen, or a citizen of the United States at the time of the adoption of this constitution, shall be eligible to the office of president, neither shall any person be eligible to that office who shall not have attained to the age of thirty-five years, and been fourteen years a resident within the United States.

6. In case of the removal of the president from office, or of his death, resignation, or inability to discharge the powers and duties of the said office, the same shall devolve on the vice-president; and the Congress may, by law, provide for the case of removal, death, resignation, or inability, both of the president and vice-president, declaring what officer shall then act as president; and such officer shall act accordingly, until the disability be removed, or a president shall be elected.\*

7. The president shall, at stated times, receive for his services a compensation, which shall neither be increased nor diminished during the period for which he shall have been elected; and he shall not receive within that period any other emolument from the United States, or any of them.†

8. Before he enter on the execution of his office, he shall take the following oath or affirmation:—

“I do solemnly swear (or affirm) that I will faithfully execute the office of President of the United States, and will, to the best of my ability, preserve, protect and defend the Constitution of the United States.”

SEC. II. 1. The president shall be commander-in-chief of the army and navy of the United States, and of the militia of the several States, when called into the actual service of the United States; he may require the opinion, in writing, of the principal officer, in each of the executive departments, upon any subject relating to the duties of their respective offices; and he shall have power to grant reprieves and pardons for offenses against the United States, except in cases of impeachment.

2. He shall have power, by and with the advice and consent of the senate, to make treaties, provided two-thirds of the senators present concur; and he shall nominate, and by and with the advice and consent of the senate shall appoint ambassadors, other public ministers and consuls, judges of the supreme court, and all other officers of the United States whose appointments are not herein otherwise provided for, and which shall be established by law. But the Congress may, by law, vest the appointment of such inferior officers as they think proper in the president alone, in the courts of law, or in the heads of departments.

3. The president shall have power to fill up all vacancies that may happen during the recess of the senate, by granting commissions which shall expire at the end of their next session.

SEC. III. 1. He shall, from time to time, give to the Congress information of the state of the Union, and recommend to their consideration such measures as he shall judge necessary and expedient; he may, on extraordinary occasions, convene both houses, or either of them, and, in case of disagreement between them with respect to the time of adjournment, he may adjourn them to such time as he shall think proper; he shall receive ambassadors and other public ministers; he shall take care that the laws be faithfully

\*After the assassination of Garfield the Congress availed itself of its constitutional powers, and settled the succession on the cabinet officers in the order of their precedence, as follows: Secretary of state, secretary of treasury, secretary of war, secretary of navy, attorney-general, postmaster-general, secretary of interior, commissioner of agriculture.

†The salary of the president was \$25,000 a year until 1872, when it was increased to \$50,000. That of the vice-president is \$8,000 a year.

executed; and shall commission all the officers of the United States.

SEC. IV. 1. The president, vice-president, and all civil officers of the United States, shall be removed from office on impeachment for, and conviction of treason bribery, or other high crimes and misdemeanors.

#### ARTICLE III.

SECTION I. The judicial power of the United States shall be vested in one Supreme Court, and in such inferior courts as the Congress may, from time to time, ordain and establish. The judges both of the supreme and inferior courts, shall hold their offices during good behavior; and shall, at stated times, receive for their services a compensation which shall not be diminished during their continuance in office.

SEC. II. 1. The judicial power shall extend to all cases in law and equity, arising under this constitution, the laws of the United States, and treaties made, or which shall be made, under their authority; to all cases affecting ambassadors, other public ministers, and consuls; to all cases of admiralty and maritime jurisdiction; to controversies to which the United States shall be a party; to controversies between two or more States; between a State and citizens of another State;\* between citizens of different States; between citizens of the same State claiming lands under grants of different States; and between a State, or the citizens thereof, and foreign States, citizens, or subjects.

2. In all cases affecting ambassadors, other public ministers, and consuls, and those in which a State shall be a party, the supreme court shall have original jurisdiction. In all the other cases before mentioned, the supreme court shall have appellate jurisdiction, both as to law and fact, with such exemptions, and under such regulations as the Congress shall make.

3. The trial of all crimes, except in cases of impeachment, shall be by jury, and such trial shall be held in the State where the said crimes shall have been committed; but when not committed within any State, the trial shall be at such place or places as the Congress may by law have directed.

SEC. III. 1. Treason against the United States shall consist only in levying war against them, or in adhering to their enemies, giving them aid and comfort. No person shall be convicted of treason, unless on the testimony of two witnesses to the same overt act, or on confession in open court.

2. The Congress shall have power to declare the punishment of treason; but no attainder of treason shall work corruption of blood, or forfeiture, except during the life of the person attainted.

#### ARTICLE IV.

SECTION I. 1. Full faith and credit shall be given in each State to the public acts, records, and judicial proceedings of every other State. And the Congress may, by general laws, prescribe the manner in which such acts, records, and proceedings shall be proved, and the effect thereof.

SEC. II. 1. The citizens of each State shall be entitled to all privileges and immunities of citizens in the several States.

2. A person charged in any State with treason, felony, or other crime, who shall flee from justice, and be found in another State, shall, on demand of the executive authority of the State from which he fled, be delivered up, to be removed to the State having jurisdiction of the crime.

3. No person held to service or labor in one State, under the laws thereof, escaping into another, shall in consequence of any law or regulation therein, be

\*See Amendment, Art. XI.



discharged from such service or labor; but shall be delivered up on claim of the party to whom such service or labor may be due.

SEC. III. 1. New States may be admitted by the Congress into this Union; but no new States shall be formed or erected within the jurisdiction of any other State, nor any State be formed by the junction of two or more States, or parts of States, without the consent of the legislature of the States concerned, as well as of the Congress.

2. The Congress shall have power to dispose of, and make all needful rules and regulations respecting the territory or other property belonging to the United States, and nothing in this constitution shall be so construed as to prejudice any claims of the United States, or of any particular State.

SEC. IV. 1. The United States shall guarantee to every State in this Union a republican form of government, and shall protect each of them against invasion; and on application of the legislature, or of the executive (when the legislature cannot be convened), against domestic violence.

#### ARTICLE V.

1. The Congress, whenever two-thirds of both houses shall deem it necessary, shall propose amendments to this constitution; or, on the application of the legislatures of two-thirds of the several States, shall call a convention for proposing amendments, which, in either case, shall be valid to all intents and purposes, as part of this constitution, when ratified by the legislatures of three-fourths of the several States, or by conventions in three-fourths thereof, as the one or the other mode of ratification may be proposed by the Congress; provided, that no amendment which may be made prior to the year one thousand eight hundred and eight shall in any manner affect the first and fourth clauses in the ninth section of the first article; and that no State, without its consent, shall be deprived of its equal suffrage in the senate.

#### ARTICLE VI.

1. All debts contracted and engagements entered into before the adoption of this constitution, shall be as valid against the United States under this constitution as under the Confederation.

2. This constitution, and the laws of the United States which shall be made in pursuance thereof, and all treaties made, or which shall be made under the authority of the United States, shall be the supreme law of the land; and the judges in every State shall be bound thereby, anything in the constitution or laws of any State to the contrary notwithstanding.

3. The senators and representatives before mentioned, and the members of the several state legislatures, and all executive and judicial officers, both of the United States and of the several States, shall be bound by oath or affirmation to support this constitution; but no religious test shall ever be required as a qualification to any office or public trust under the United States.

#### ARTICLE VII.

1. The ratification of the conventions of nine States shall be sufficient for the establishment of this constitution between the States so ratifying the same.

#### AMENDMENTS TO THE CONSTITUTION.

\*ART. I. Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble and to petition the government for a redress of grievances.

\*The first ten amendments were proposed in 1789, and declared adopted in 1791.

ART. II. A well-regulated militia being necessary to the security of a free state, the right of the people to keep and bear arms shall not be infringed.

ART. III. No soldier shall, in time of peace, be quartered in any house without the consent of the owner; nor in time of war, but in a manner to be prescribed by law.

ART. IV. The right of the people to be secure in their persons, houses, papers, and effects against unreasonable searches and seizures, shall not be violated; and no warrants shall issue but upon probable cause, supported by oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.

ART. V. No person shall be held to answer for a capital or otherwise infamous crime unless on a presentment or indictment of a grand jury, except in cases arising in the land or naval forces, or in the militia, when in actual service, in time of war or public dangers; nor shall any person be subject for the same offense to be twice put in jeopardy of life or limb; nor shall be compelled, in any criminal case to be a witness against himself; nor be deprived of life, liberty or property, without due process of law; nor shall private property be taken for public use, without just compensation.

ART. VI. In all criminal prosecutions the accused shall enjoy the right to a speedy and public trial, by an impartial jury of the State and district wherein the crime shall have been committed, which district shall have been previously ascertained by law, and to be informed of the nature and cause of the accusation; to be confronted with the witnesses against him; to have compulsory process for obtaining witnesses in his favor; and to have the assistance of counsel for his defense.

ART. VII. In suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved; and no fact tried by a jury shall be otherwise reexamined in any court of the United States than according to the rules of the common law.

ART. VIII. Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted.

ART. IX. The enumeration in the constitution of certain rights shall not be construed to deny or disparage others retained by the people.

ART. X. The powers not delegated to the United States by the constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people.

\*ART. XI. The judicial power of the United States shall not be construed to extend to any suit in law or equity, commenced or prosecuted against one of the United States, by citizens of another State, or by citizens or subjects of any foreign state.

†ART. XII. The electors shall meet in their respective States, and vote by ballot for president and vice-president, one of whom, at least, shall not be an inhabitant of the same State with themselves: they shall name in their ballots the person voted for as president, and in distinct ballots the person voted for as vice-president, and they shall make distinct lists of all persons voted for as president, and of all persons voted for as vice-president, and of the number of votes for each, which list they shall sign and certify, and transmit, sealed, to the seat of the government of the United States, directed to the president of the senate;

\*The eleventh amendment was proposed in 1794, and declared adopted in 1798.

†The twelfth amendment was proposed in 1803, and declared adopted in 1804.

the president of the senate shall, in the presence of the senate and house of representatives, open all the certificates, and the votes shall then be counted, the person having the greatest number of votes for president shall be the president, if such number be a majority of the whole number of electors appointed; and if no person have such a majority, then from the persons having the highest numbers, not exceeding three, on the list of those voted for as president, the house of representatives shall choose immediately, by ballot, the president. But, in choosing the president, the votes shall be taken by States, the representation from each State having one vote; a quorum for this purpose shall consist of a member or members from two-thirds of the States, and a majority of all the States shall be necessary to a choice. And if the house of representatives shall not choose a president, whenever the right of choice shall devolve upon them, before the fourth day of March next following, then the vice-president shall act as president, as in the case of the death or other constitutional disability of the president. The person having the greatest number of votes as vice-president, shall be the vice-president, if such number be a majority of the whole number of electors appointed; and if no person have a majority, then from the two highest numbers on the list the senate shall choose the vice-president; a quorum for the purpose shall consist of two-thirds of the whole number of senators, and a majority of the whole number shall be necessary to a choice. But no person constitutionally ineligible to the office of president, shall be eligible to that of vice-president of the United States.

\*ART. XIII. SEC. I. Neither slavery nor involuntary servitude, except as a punishment for crime, whereof the party shall have been duly convicted, shall exist within the United States, or any place subject to their jurisdiction.

SEC. II. Congress shall have power to enforce this article by appropriate legislation.

†ART. XIV. SEC. I. All persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the United States and of the State wherein they reside. No State shall make or enforce any law which shall abridge the privileges or immunities of the citizens of the United States; nor shall any State deprive any person of life, liberty, or property, without due process of law, nor deny to any person within its jurisdiction the equal protection of the laws.

SEC. II. Representatives shall be apportioned among the several States according to their respective numbers, counting the whole number of persons in each State, excluding Indians not taxed. But when the right to vote at any election for the choice of electors for president and vice-president of the United States, representatives in Congress, the executive or judicial officers of a State, or the members of the legislature thereof, is denied to any of the male inhabitants of such State, being twenty-one years of age and citizens of the United States, or in any way abridged, except for participation in rebellion or other crime, the basis of representation therein shall be reduced in the proportion which the number of such male citizens shall bear to the whole number of male citizens twenty-one years of age in such State.

SEC. III. No person shall be a senator or representative in Congress, or elector of president or vice-president, or hold any office, civil or military, under

the United States, or under any State, who, having previously taken an oath as a member of Congress, or as an officer of the United States, or as a member of any State legislature, or as an executive or judicial officer of any State, to support the constitution of the United States, shall have engaged in insurrection or rebellion against the same, or given aid or comfort to the enemies thereof. But Congress may, by a vote of two-thirds of each house, remove such disability.

SEC. IV. The validity of the public debt of the United States, authorized by law, including debts incurred for payment of pension and bounties for services in suppressing insurrection or rebellion, shall not be questioned. But neither the United States nor any State shall assume or pay any debt or obligation incurred in aid of insurrection or rebellion against the United States, or any claim for the loss or emancipation of any slave; but all such debts, obligations, and claims shall be held illegal and void.

SEC. V. Congress shall have power to enforce, by appropriate legislation, the provisions of this article.

\*ART. XV. SEC. I. The rights of citizens of the United States to vote shall not be denied or abridged by the United States, or by any State, on account of the race, color, or previous condition of servitude.

SEC. II. Congress shall have power to enforce this article by appropriate legislation.

#### THE POST OFFICE DEPARTMENT.

The great product of modern times in the United States, in management, steady improvement and results to the public, is the postal service. In whatever country the traveler finds himself he will be able very accurately to measure its advancement by the condition and efficiency of this first and most important branch of the public service. This, in this country, has been of steady and wonderful growth, and has for many years been the most efficient known. The postal service is a vast human machine, in which all the working parts accurately fit. The railway postal service of this country is one of the wonders of the age, growing and extending as the country has grown, and illustrating everywhere the marvelous celerity and accuracy to which human brains and hands may be trained. The machine of the postal service is so complicated, apparently, that a lifetime might be spent in an attempt to unravel its intricacies; yet it goes on from year to year, unbroken, almost inerrant, its details unknown except to the army of trained experts by whom its feats are performed. There is not space to give a detailed account of the workings of this system.

This vast department had, in 1901, 76,945 offices, and its routes covered 511,808 miles. It cost in that year, \$115,554,920. That is to say that the vast complication was kept in order, and all its functions were caused to be perfectly performed, at less than the cost to each citizen of the coffee he drank.

#### PUBLIC LANDS.

The homestead land entry law, known as the Homestead Bill, was passed by Congress in 1854. It was momentous in its results, which were largely unforeseen. These are shown by the fact that there had been up to the end of 1901, 9,497,275 acres of land taken up, and necessarily occupied and improved, under that law. Some of these lands are now the most valuable in the republic, and a small area the most valuable of the world because the sites of cities whose growth and commercial importance are phenomenal. Of all this growth many men still engaged in active pursuits can recall the very beginnings in this

\*The thirteenth amendment was proposed and adopted in 1865.

†The fourteenth amendment was proposed in 1866, and adopted in 1868.

\*The fifteenth amendment was proposed in 1869, and adopted in 1870.



now renowned attempt of Congress to dispose of a then useless public domain.

The following tables, bearing partly upon the commerce of the country for the year 1901, and partly showing some of the facts of the present not usually given in tables, are appended for the information of the inquirer and casual reader.

#### COMMERCE FOR 1901.

Before referring to the tables the reader is reminded that in the United States any study of a fact, or a tabulated statement of facts, is a study of growth. We began to trade, to import and export, about one hundred years ago, having then conquered our environment to the extent that we had something to sell, and something wherewith to buy what we had not of people who had.

In the year 1789—one hundred and twelve years before the date of the following table—our exports amounted in value to \$20,194,794. Our imports for the same year were to the value of \$23,000,000. In 1901 our imports were to the value of \$823,172,165. Our exports were of the value of \$1,460,462,806. The following table is to June 30, 1901:

#### IMPORTS.

ARTICLES.	QUANTITY.	VALUE.
Animals .....		\$4,478,955
Art works .....		3,304,546
Books, maps, etc. ....		3,792,536
Bristles, lbs. ....	1,684,575	1,730,197
Chemicals, drugs, dyes, and medicines .....		53,508,157
Clocks and watches .....		2,038,239
Coal, bituminous, tons .....	1,977,238	5,381,474
Cocoa, crude, and shells of, lbs .....	45,924,353	6,472,829
Coffee, lbs. ....	854,871,310	62,861,399
Copper .....		9,940,463
Cork wood .....		2,270,995
Cotton, manufactures of .....		40,246,935
Cotton, unmanufactured, lbs. ....	46,631,283	6,787,828
Earthen, stone, and china ware .....		9,472,869
Feathers, flowers, etc. ....		3,674,384
Fibres, vegetable, manufactures of .....		32,762,608
Fibres, vegetable, unmanufactured .....		22,932,506
Fruits, including nuts .....		19,566,708
Furs .....		11,019,658
Glass and glassware .....		5,010,675
Hats, bonnets, and materials for .....		2,798,109
Hides and skins, lbs. ....	280,909,837	48,220,013
India rubber, crude, lbs .....	64,927,176	28,835,178
Iron and steel .....		17,874,789
Jewelry and precious stones .....		24,216,407
Lead, lbs. ....	251,183,836	4,832,737
Leather, and manufactures of .....		11,887,012
Oils .....		7,097,431
Paper, and manufactures of .....		4,002,989
Silk, manufactures of .....		26,842,138
Silk, unmanufactured .....		30,051,365
Spices .....		3,563,109
Spirits, distilled .....		4,162,149
Sugar, lbs. ....	3,975,005,840	90,487,800
Tea, lbs. ....	89,806,453	11,017,876
Tin, in bars, blocks, or pigs, lbs. ....	73,091,890	19,805,551
Tobacco, lbs. ....	26,851,853	16,290,387
Tobacco, manufactures of .....		2,480,139
Toys .....		3,830,311
Vegetables .....		3,719,679
Wines .....		8,219,236
Wood, and manufactures of .....		19,754,205
Wool, manufactures of .....		14,585,306
Wool, unmanufactured, lbs. ....	103,583,505	12,529,881
All other articles .....		98,791,412
Total imports of merchandise .....		\$823,172,165
Specie, gold .....		66,051,187
Specie, silver .....		36,386,521
Total imports .....		\$925,609,873

#### EXPORTS.

Year Ending June, 1901.

ARTICLES.	QUANTITY.	VALUE.
Agricultural implements .....		\$16,313,424
Animals .....		52,058,876
Books, maps, and other printed matter .....		3,472,343
Breadstuffs—		
Wheat, bushels .....	132,066,667	96,771,743
Corn, bushels .....	177,817,965	82,527,983
Wheat-flour, bbls. ....	18,650,979	69,459,296
Chemicals, drugs, dyes, and medicines .....		14,384,453
Clocks and watches .....		2,340,751
Coal, anthracite, tons .....	1,912,080	8,425,803
Coal, bituminous, tons .....	5,763,469	13,891,693
Cotton, unmanufactured, lbs. ....	3,330,890,448	313,673,443
Cotton, manufactures of .....		20,272,418
Fertilizers .....		5,425,960
Fibres, vegetable, and textile grasses, manufactures of .....		4,302,876
Fruits—		
Apples, green or ripe bbls. ....	883,673	2,058,964
All other kinds, nuts, etc. ....		8,767,687
Furs, fur skins .....		4,404,448
Instruments, scientific .....		7,361,231
Iron and steel, manufactures of .....		17,319,320
Leather, manufactures of .....		27,923,653
Musical instruments .....		2,780,796
Naval stores .....		12,580,950
Oil cake meal, lbs. ....	1,713,842,177	18,591,898
Oils, animal, gals. ....	2,399,469	1,018,431
Oils, mineral, crude, gals. ....	138,448,430	6,686,929
Oils, mineral, refined .....		64,425,859
Oils, vegetable .....		19,035,686
Paper, and manufactures of .....		7,488,901
Paraffine and paraffine wax, lbs .....	129,184,962	6,857,288
Provisions—		
Beef products, lbs. ....	538,462,660	44,225,319
Hog products, lbs. ....	1,462,369,849	119,961,503
Oleomargarine, lbs. ....	166,642,112	12,330,874
Other meat products .....		11,038,219
Dairy products .....		9,403,732
Railroad cars & horse vehicles .....		10,920,931
Seeds, clover, lbs. ....	11,998,674	1,003,506
Seeds, all other .....		5,321,309
Spirits, proof gals. ....	2,958,338	3,054,723
Starch .....		2,005,865
Sugar molasses, syrup, gals. ....	17,587,950	2,526,077
Sugar, refined, lbs. ....	8,727,639	437,523
Tobacco, unmanufactured, lbs. ....	315,787,782	27,656,475
Tobacco, manufactures of .....		5,092,603
Vegetables .....		2,598,717
Wood, and manufactures of .....		52,445,585
All other articles .....		62,792,802
Total Export of Dom. Mdse. ....		\$1,460,462,806
Specie, Gold .....		53,185,177
Specie, Silver .....		64,285,180
Foreign Merchandise .....		27,302,185
Total Exports .....		\$1,605,235,348

Aside from the enormous traffic between the States, or, better stated, between sections of the United States and others, of which habitually we take no account, the above tables of Imports and Exports serve to give the reader the best idea possible, to the latest date for which reliable statistics are obtainable, of the business transacted by the country. Some of the items unquestionably furnish food for thought. We sold of meat products in 1901, food to the amount of \$187,555,915. This product went to the feeding of the world at large, and was paid for in the sum named, and we may add to it the surplus dairy product, usually almost unconsidered except as an essential of domestic consumption, to the amount of more than thirteen millions of dollars. Some of the items of the table of Imports are quite as productive of reflection. The people of the United States seem to have paid for

sugar alone in the year mentioned the enormous sum of ninety-six millions of dollars, and for molasses five millions more, and these items are of course in addition to our own domestic supply. Having three times the coal territory of all the world besides, there are yet imported more than three million dollars worth of soft coal. Having salt supplies that are not worked, and a capacity to supply all mankind with that necessity, we yet imported and paid for a small quantity of that, about a million dollars. We sold of cotton and cotton manufactures two hundred and fifty-two millions of dollars worth, but we bought again of manufactured cotton goods about thirty millions of dollars worth. The tobacco growers and manufacturers of the world, selling thirty-one millions worth in a year, we yet buy back again of our own tobacco, manufactured into various forms for use, and perhaps mixed to better suit our tastes with the product of other countries, nearly twenty-two millions of dollars worth. We sold of fruit of all kinds about six millions of dollars, but wanting variety we bought again from other countries more than twenty millions.

We bought fancy articles to the amount of nearly seven millions, but we sold of the same goods about six millions. This must illustrate the love of novelty which pervades the entire human family. Of clocks and watches, of which the American product is now found all over the world, we sold three and one-half millions of dollars; but we bought again from other countries more than two millions worth. We are not yet sellers of works of art of any kind. We buy from others most that we have, and pay for them annually more than two millions. The sum is small, we are either supplying our own wants in art, or we are largely going without. But we sell scientific instruments, an undoubtedly new manufacture, to the extent of a million and a half, buying again of those we have not none, unless the amount is so small that it is included among general merchandise. We sell no jewelry, but we buy to the amount of nearly a million and a half. This small sum spent in so costly a commodity indicates that most of our adornments are made at home. But then we must add the considerable sum we pay for the item of precious stones—diamonds uncut or mounted, etc.—which is nearly twelve and one-half millions.

Evidently the people of the United States are given to luxury in the way of feminine apparel. For silk fabrics we paid in 1901 the goodly sum of nearly twenty-seven millions of dollars, and must add to that the sum of thirty millions more for silk unmanufactured—fifty-seven millions, being in round numbers, one dollar each for every man, woman and child, of all colors and conditions, in the republic, for silks alone. The wines of our own vineyards are of course not counted in these tables. They now amount to many millions of gallons, none of which we are reported as exporting under that name. And besides all we make we pay nearly nine millions for that which we import.

But the most surprising statement to the inspector of statistics must be that for woollen manufactures we pay annually the enormous sum of nearly seventy-two millions. All the enormous grass-ranges of the west do not help us out of the fact. So far as our lack in this respect is to be inferred, we not only use all the wool we can ourselves produce, but purchase manufactured woollen goods besides to the extent stated.

We furnish agricultural implements to the other countries to the extent of nearly thirty-four millions annually, importing nothing of the kind in return, and carriages for use with horses and railroad cars to the

value of nearly five millions, and import neither of them. We import books, maps, etc., to the value of about four millions, but we export printed matter to the extent of more than forty-two millions. Our leather manufactures go abroad to the value of twelve and one-half millions, and we strangely import in return to the extent of a little more than that value. A tabulated statement of the kind sets on foot speculations, suggestions and inquiries that can only be answered by extensive investigations, if at all, and such a table goes far to show that, not individually only, but sometimes on a colossal scale, not the necessities, but the caprices and fashions of mankind, may establish or annul the industries in one or another branch of a nation's enterprise.

*Tariff.*—For 1901, the gross receipts from customs of the tariff was \$238,585,456.

*Packing* in the cities of the United States. To September of 1901 there were packed for market in the cities named below the number of swine set opposite the name of the place. This business, very large and of great importance, is not controlled by actual nearness to the product, but by circumstances extraneous, chiefly by the aggregation of capital expended in facilities, and still more by the convenience and number of lines of transportation.

Chicago, 7,268,515; Kansas City, 2,981,288; Omaha, 2,241,599; St. Louis, 1,566,550; Indianapolis, 1,185,600; Cincinnati, 617,032; Milwaukee, 911,256; St. Joseph, 1,723,377; Sioux City, 733,754; St. Paul, 514,385; Louisville, 360,425; Cleveland, 500,785; Boston, 1,370,000; other western cities, 1,731,053; other eastern cities, 1,046,000.

Total packed and marketed (1901), 28,980,000.

The total value of farm animals in the United States at the end of 1900 was \$3,078,050,041.

There were in number: horses, 18,280,007; mules, 3,366,724; cattle, all kinds, 67,822,336; sheep and lambs, 61,605,811; swine, 62,876,108.

*Agricultural Exports, 1901.*—The value of all agricultural exports in 1901 was \$943,811,020.

*Telegraphs.*—Industrial progress may be now measured by new agencies, such as the mileage and business of telegraph and telephone lines. Of telegraph and telephone lines there were in 1880, 233,534 miles of wire; 1892, 739,105 miles of wire; 1901, 972,766 miles of wire.

There were offices: 1866, 2,520; 1880, 9,077; 1892, 20,700; 1901, 23,238.

The receipts of these lines were: 1880, \$12,782,895; 1892, \$23,706,405; 1901, \$26,354,150.

The expenses of telegraph lines were: 1880, \$6,948,957; 1892, \$16,307,857; 1901, \$19,668,902.

The percentage of increase in ten years is remarkable, to be accounted for by an increase of population and the building of communities and towns to which it was necessary to extend lines, not because required by law, but because of demand and profit.

There was in 1901 an average toll per message of 30.9 cents, costing the company 25.1 cents, leaving a profit of 5.8 cents per average message.

#### TELEPHONE SERVICE.

The following figures apply to the Bell company alone, that having a practical monopoly of the telephone business. There were in 1901, 627,897 miles of wire on poles; 16,833 miles of wire on buildings, and 705,269 miles of wire under ground. Making a total of 1,354,202 miles of wire.

There were in that year 932,150 subscribers, or reg-



ular users of the lines, and there were 32,837 employees.

All companies have 440,750 miles of wire, with \$92,000,000 invested in telephone wires and fixtures.

#### RAILROADS IN 1901.

The total mileage of railroads in the United States in 1901 was 192,161 miles.

The value of these was (stock and bonds) \$11,562,939,004.

Their gross earnings was \$1,501,695,378.

Their reported net earnings was \$483,247,526. From freight, \$1,052,835,811. From passengers, \$331,402,816. They paid in dividends, \$140,343,653. There are no comprehensive figures upon railroads prior to 1871. These given were compiled for the United States census from annual reports of the roads.

#### COLLEGES AND INSTITUTIONS OF LEARNING.

Figures covering the Public School system of the country have been already given of as late date as is reliable from accessible authorities. The following statements give briefly the status of colleges in the United States outside of the common school system.

There were in 1901, 480 Universities and Colleges, with teachers to the number of 10,116, and there were 129,922 students.

Of *Colleges for Women* there were, 1901, 141, with 2,441 teachers, and 23,365 students.

Of *Theological Schools* there were, 1900, of all denominations, 154, with 994 teachers and 8,009 students.

Of these schools the Catholics have the largest number, 17. The Lutherans and Baptists come next, each with 17. The Methodist Episcopal church has 16. The Presbyterians are third with 14. There are unsectarian theological schools to the number of 2.

*Medical Schools*.—The three principal schools of medicine in the United States are the "Regular," the Homeopathic and the Eclectic. The "Regular" branch of the profession has 121 medical colleges, with 22,752 students. The Homeopathic branch has 22 colleges, with 1,909 students, and the Eclectic branch has 8 colleges and 552 students. The scattering, and the various beginnings here and there are not included in these figures, but only such schools as have furnished data by the issuing of catalogues and reports.

*Law Schools*.—There were in 1900 96 organized schools of law, with 1,004 teachers and 12,516 students.

*Production of Precious Metals*.—In 1901 there was produced in the United States by mining, in coining value, gold, \$2,049,854,219. Silver, \$812,392,172. In this connection the *Commercial Ratio* of silver to gold through a series of years is interesting.

In 1860, it was	15-20	In 1877, it was	17-22
" 1861, " "	15-50	" 1878, " "	17-94
" 1862, " "	15-35	" 1879, " "	18-40
" 1863, " "	15-37	" 1880, " "	18-05
" 1864, " "	15-37	" 1881, " "	18-16
" 1865, " "	15-44	" 1882, " "	18-19
" 1866, " "	15-43	" 1883, " "	18-64
" 1867, " "	15-57	" 1884, " "	18-57
" 1868, " "	15-59	" 1885, " "	19-41
" 1869, " "	15-60	" 1886, " "	20-78
" 1870, " "	15-57	" 1887, " "	21-13
" 1871, " "	15-57	" 1888, " "	21-99
" 1872, " "	15-63	" 1889, " "	22-09
" 1873, " "	15-92	" 1890, " "	19-75
" 1874, " "	16-17	" 1891, " "	20-92
" 1875, " "	16-59	" 1892, " "	22-70
" 1876, " "	17-88	" 1899, " "	34-36

*Proportion of Females to Males in Population*.—The census of 1900 gives to the United States a total population of 76,303,387. Of these there were

Males, 39,059,242.  
Females, 37,244,145.

Preponderance of Males—1,815,097.

It will be seen that the speculations regarding the growing discrepancy between males and females in numbers are local and groundless. In a large immigration from foreign countries those who come first would very naturally be males where they do not come together, and this fact alone would account for the present discrepancy in numbers.

*Indians*.—Only in very recent years has the "Indian Question" assumed the form of a permanent settlement. There were in 1892, 144,496 square miles of land occupied by the various tribes of Indians as reservations. Upon these reservations were settled 248,340 Indians. So far as any reports can be obtained Indian births number per annum about 3,508 persons, and 3,660 Indians die. The real character of the Indian remains largely unchanged so far as all adults are concerned, but a strong effort is making to educate the youth of all the tribes, a fair proportion of them, and the experiment is most interesting from the view point of philanthropic effort. There were, 1892, 275 Indian schools, in which the attendance has numbered 16,167 persons. These schools cost for maintenance in 1892, \$1,859,119.03.

*Patents*.—The growth of the patent office has been in keeping with the national progress. In 1641 the General Court of Massachusetts granted a patent for ten years to one Samuel Winslow for a process of making salt, and several of the New England States did the same thing in succeeding years. This was the beginning, our national system of patents beginning with the U. S. statute of 1790. Beginning then upon nothing, and gradually and steadily increasing since, there were in 1900, 47,789 applications for patents. Of these there were allowed 26,499. The receipts for these applications and issues were an aggregate of \$1,350,828.53, and expenditures were \$1,260,019.62. The curiosities of American patents, their numbers and utilities, the enormous capital invested in them and their results, their effect upon industry, etc., would form the subject of an extensive article alone.

*Pensions*.—To June 30, 1901, there was paid for that year to the date named, the sum of \$139,582,231.98 for military pensions.

The history of this vast pension outlay is particularly interesting. In 1816 the "total pension" for privates was fixed at \$8 per month; for second lieutenant \$15; first lieutenant \$17; captain \$20; major \$25; and lieutenant-colonel and all officers of higher rank \$30. Like rates were fixed for naval officers of the same relative rank. Fractional ratings were given for lesser degrees of disability.

In 1866 Congress created three grades above that of "total pension." What is known as the "first grade pension" includes cases of permanent disability in a degree requiring the regular aid and attendance of another person. This grade entitles the beneficiary to \$50 per month. On June 16, 1880, an act was passed increasing the pension of all who were then on the roll at \$50 to \$72. The "second grade pensions" include cases of permanent incapacity for the performance of any manual labor. The pension for these cases is \$30 per month. The "third grade pensions" are for disability equivalent to the loss of a hand or foot, the

rate being \$24 per month. For disability below these grades the rates range from \$2 to \$18 per month for privates, non-commissioned officers and lieutenants, the maximum in the cases of officers above the rank of lieutenant being the old "total of rank." There is also a class of "permanent specific" disabilities, such as the loss of both hands, both feet, or both eyes. For these cases the pension is fixed at \$72 per month. For amputation at the shoulder or hip joint, or so near the joint that no artificial limb can be used, \$45 per month is paid; for total disability of an arm or leg, loss of one hand and one foot, or total disability of the same, or amputation at or above the knee, \$36; for the loss of a hand or foot, or total disability of the same, or for total deafness, \$30 per month.

Widows of privates receive \$12 per month, and \$2 additional for each child of the deceased soldier. When no widow survives, minor children receive their pension jointly. Dependent parents receive \$12 per month; widows and dependent parents of commissioned officers receive the "total of rank."

We give here the United States pension law which is in force at present. It was approved March 4, 1890.

**UNITED STATES PENSION LEGISLATION.—Pensions to the Totally Helpless.**—This act provides that all soldiers, sailors and marines who have since the 16th day of June, 1880, or who may hereafter become so totally and permanently helpless from injuries received or disease contracted in the service and line of duty as to require the regular personal aid and attendance of another person, or who, if otherwise entitled, were excluded from the provisions of "An act to increase pensions of certain pensioned soldiers and sailors who are utterly helpless from injuries received or disease contracted while in the United States service," approved June 16, 1880, shall be entitled to receive a pension at the rate of \$72 per month from the date of the passage of this act or of the certificate of the examining surgeon or board of surgeons showing such degree of disability made subsequent to the passage of this act.

**The Dependent Parents and Disability Act.**—The act provides that in considering the pension claims of dependent parents, the fact of the soldier's death by reason of any wound, injury, casualty or disease which, under the conditions and limitations of existing laws, would have entitled him to an invalid pension, and the fact that the soldier left no widow or minor children having been shown as required by law, it shall be necessary only to show by competent and sufficient evidence that such parents or parent are without other means of support than their own manual labor or the contributions of others not legally bound for their support: Provided, that all pensions allowed to dependent parents under this act shall begin from the date of the filing of the application hereunder, and shall continue no longer than the existence of the dependence.

**SEC. 2.** That all persons who served ninety days or more in the military or naval service of the United States during the late war of the rebellion, and who have been honorably discharged therefrom, and who are now or who may hereafter be suffering from mental or physical disability of a permanent character, not the result of their own vicious habits, which incapacitates them from the performance of manual labor in such a degree as to render them unable to earn a support, shall, upon making due proof of the facts according to such rules and regulations as the Secretary of the Interior may provide, be placed upon the list of invalid pensioners of the United States, and be entitled to receive a pension not exceeding \$12 per month and not less than \$6 per month, proportioned to the

degree of inability to earn support; and such pension shall begin from the date of filing of the application in the Pension Office, after the passage of this act, upon proof that the disability then existed, and shall continue during the existence of the same: Provided, That persons who are now receiving pension under existing laws, or whose claims are pending in the Pension Office, may, by application to the Commissioner of Pensions, in such form as he may prescribe, showing themselves entitled thereto, receive the benefit of this act; and nothing herein contained shall be so construed as to prevent any pensioner thereunder from prosecuting his claim and receiving his pension under any other general or special act: Provided, however, That no person shall receive more than one pension for the same period: And, provided further, That rank in the service shall not be considered in applications filed under this act.

**SEC. 3.** That if any officer or enlisted man who served ninety days or more in the army or navy of the United States during the late war of the rebellion, and who was honorably discharged has died, or who shall hereafter die, leaving a widow without other means of support than her daily labor, or minor children under the age of sixteen years, such widow shall upon due proof of her husband's death, without proving his death to be the result of his army service, be placed on the pension roll from the date of the application therefor under this act at the rate of \$8 per month during her widowhood, and shall also be paid \$2 per month for each child of such officer or enlisted man under sixteen years of age, and in case of the death or remarriage of the widow, leaving a child or children of such officer or enlisted man under the age of sixteen years such pension shall be paid such child or children until the age of sixteen. Provided, That in case a minor child is insane, idiotic or otherwise permanently helpless, the pension shall continue during the life of said child, or during the period of such disability, and this proviso shall apply to all pensions heretofore granted or hereafter to be granted under this or any former statute and such pension shall begin from the date of application therefor after the passage of this act. And, provided, further, That said widow shall have married said soldier prior to the passage of this act.

**SEC. 4.** That no agent, attorney or other person engaged in preparing, presenting, or prosecuting any claim under the provisions of this act, shall, directly or indirectly, contract for, demand, receive, or retain for such services in preparing, presenting or prosecuting such claim a sum greater than ten dollars, which sum shall be payable only upon the order of the Commissioner of Pensions by the pension agent making payment of the pension allowed, and any person who shall violate any of the provisions of this section, or who shall wrongfully withhold from a pensioner or claimant the whole or any part of a pension or claim allowed or due such pensioner or claimant under this act, shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall for each and every such offense be fined not exceeding five hundred dollars or be imprisoned at hard labor not exceeding two years, or both, in the discretion of the court.

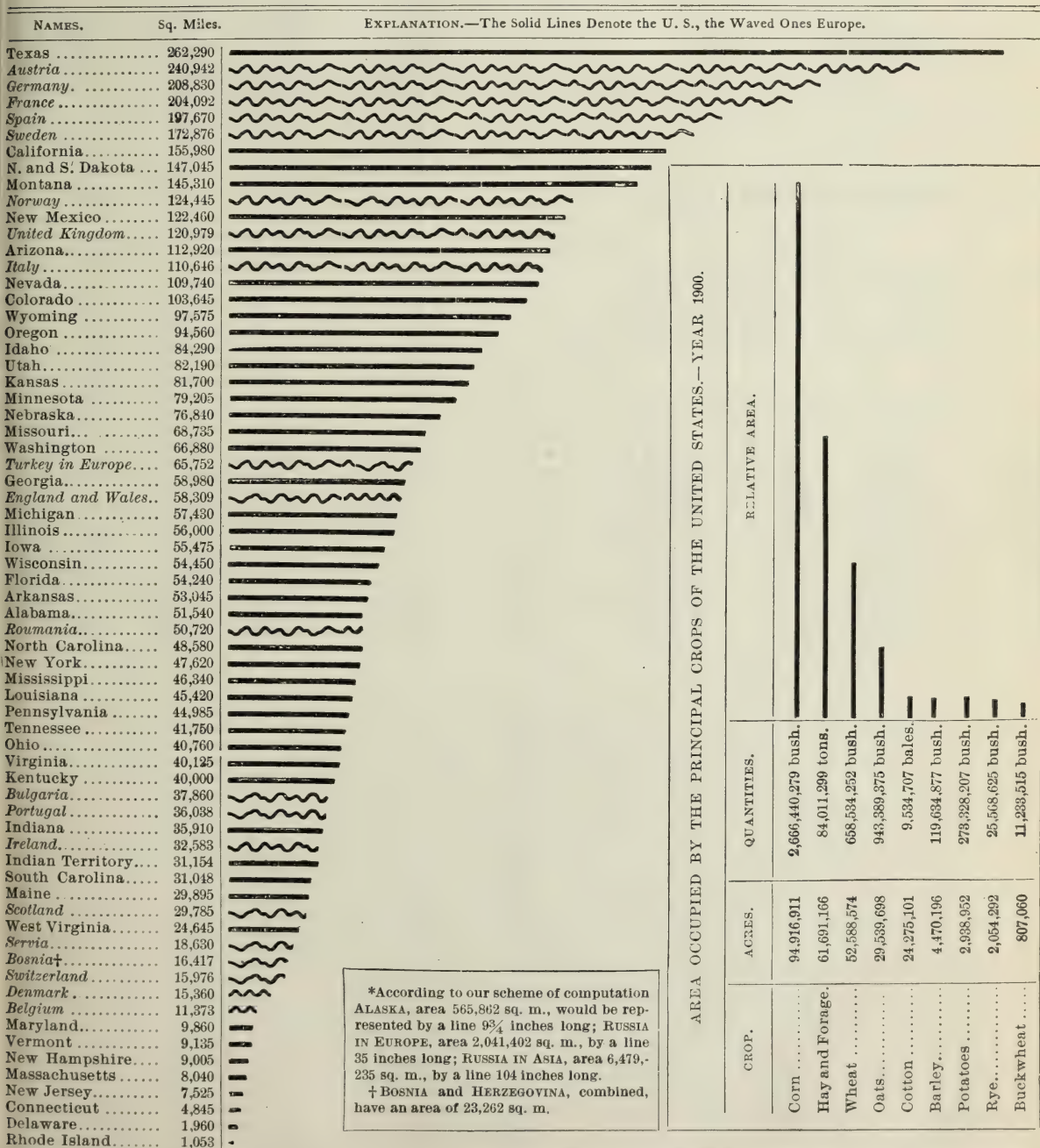
The following list shows the number of pensioners in 1901 and the amount of money paid by the United States Government for pensions in that year:

Year ending June 30, 1901.		Number of pensioners.	Annual value of pensions.
Army.....	{ Invalids .....	293,186	\$50,542,333
	{ Widows, etc. ....	86,513	13,396,911
Navy .....	{ Invalids .....	4,489	811,674
	{ Widows, etc. ....	2,298	449,496
Army, act June 27, 1890.	{ Invalids .....	422,481	46,382,792
	{ Widows, etc. ....	138,490	14,328,250
Navy, act June 27, 1890.	{ Invalids .....	15,633	1,657,362
	{ Widows, etc. ....	6,621	670,944
War of 1812..	{ Survivor .....	1	96
	{ Widows .....	1,527	220,716
War with Mexico .....	{ Survivors .....	7,568	911,124
	{ Widows .....	8,109	792,172
Total, including Spanish-American war, Indian wars, etc.....		997,735	\$131,568,216



# OUR NATIONAL DOMAIN.

Graphical Presentation of the Comparative Land Surface Areas of the States and Territories of the United States and the Countries of Europe, omitting Russia and Alaska.\*



FRANCE \$6,217,626,266

RUSSIA \$4,614,836,860

GREAT BRITAIN AND IRELAND \$3,262,720,525

AUSTRIA-HUNGARY \$3,047,979,980

ITALY \$2,451,400,000

UNITED STATES (See below.)

SPAIN \$1,146,701,644

TURKEY \$815,330,410

INDIA \$539,026,045

GERMANY \$495,330,312

## PUBLIC DEBT OF THE UNITED STATES.

(1791-1901.)

*Statement of outstanding Principal of the Public Debt of the United States on January 1 of each Year from 1791 to 1842, inclusive; on July 1 of each Year from 1843 to 1886, inclusive; on December 1 of each Year from 1887 to 1892, inclusive, and on November 1, 1893, 1894, 1895, and 1901.*

From the Annual Report of the Secretary of the Treasury on Finances.

1791.....\$	75,463,476 52	1804.....\$	86,427,120 88
1792.....	77,227,924 66	1805.....	82,312,150 50
1793.....	80,352,634 04	1806.....	75,723,270 66
1794.....	78,427,404 77	1807.....	69,218,398 64
1795.....	80,747,587 39	1808.....	65,196,317 97
1796.....	83,762,172 07	1809.....	57,023,192 09
1797.....	82,064,479 33	1810.....	53,173,217 52
1798.....	79,228,529 12	1811.....	48,005,587 76
1799.....	78,408,669 77	1812.....	45,209,737 90
1800.....	82,976,294 35	1813.....	55,962,827 57
1801.....	83,038,050 80	1814.....	81,487,846 24
1802.....	86,712,632 25	1815.....	99,833,660 15
1803.....	77,054,686 30	1816.....	127,334,933 74

1790	1817.....\$	123,491,965 16	1857.....\$	28,699,831 55
	1818.....	103,466,633 83	1858.....	44,911,881 03
	1819.....	95,529,648 28	1859.....	58,496,837 88
	1820.....	91,015,566 15	1860.....	64,842,287 88
	1821.....	89,987,427 66	1861.....	90,580,873 72
	1822.....	93,546,676 98	1862.....	524,176,412 13
	1823.....	90,875,877 28	1863.....	1,119,772,138 63
	1824.....	90,269,777 77	1864.....	1,815,784,370 57
	1825.....	83,788,432 71	1865.....	2,680,647,869 74
	1826.....	81,054,059 99	1866.....	2,773,236,173 69
	1827.....	73,987,357 20	1867.....	2,678,126,103 87
	1828.....	67,475,043 87	1868.....	2,611,687,851 19
	1829.....	58,421,413 67	1869.....	2,588,452,213 94
	1830.....	48,565,406 50	1870.....	2,480,672,427 81
	1831.....	39,123,191 68	1871.....	2,353,211,332 32
	1832.....	24,322,235 18	1872.....	2,253,251,328 78
	1833.....	7,001,698 83	1873.....	2,234,482,993 20
	1834.....	4,760,082 08	1874.....	2,251,690,468 43
	1835.....	37,513 05	1875.....	2,232,284,531 95
	1836.....	336,957 83	1876.....	2,180,395,067 15
	1837.....	3,308,124 07	1877.....	2,205,301,392 10
	1838.....	10,434,221 14	1878.....	2,256,205,892 53
	1839.....	3,573,343 82	1879.....	2,340,567,232 04
	1840.....	5,250,875 54	1880.....	2,128,791,054 63
	1841.....	13,594,480 73	1881.....	2,077,389,253 58
	1842.....	20,601,226 28	1882.....	1,926,688,678 03
	1843.....	32,742,922 00	1883.....	1,892,547,412 07
	1844.....	23,461,652 50	1884.....	1,838,904,607 57
	1845.....	15,925,303 01	1885.....	1,872,340,557 14
	1846.....	15,550,202 97	1886.....	1,783,438,697 78
	1847.....	38,826,534 77	1887.....	1,664,461,536 38
	1848.....	47,044,862 23	1888.....	1,680,917,706 23
	1849.....	63,061,858 69	1889.....	1,617,372,419 53
	1850.....	63,452,773 55	1890.....	1,549,206,126 48
	1851.....	68,304,796 02	1891.....	1,546,961,695 61
	1852.....	66,199,341 71	1892.....	1,563,612,455 63
	1853.....	59,803,117 70	1893.....	1,549,556,353 63
	1854.....	42,242,222 42	1894.....	1,626,154,037 68
	1855.....	35,586,858 56	1895.....	1,717,481,779 90
	1856.....	31,972,537 90	1901.....	2,151,585,743 89
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## PHYSICAL GEOGRAPHY.

The United States occupy the central part of the northern half of the western continent. They are bounded and washed on the east by the Atlantic Ocean, on the west by the Pacific, on the north by the chain of the great lakes, and on the south by the Gulf of Mexico. The territory embraced in the domain of the government extends through  $24^{\circ} 30'$  of latitude, and  $57^{\circ}$  of longitude. The southernmost point of the country is Key West, Florida, and the northernmost the country abutting on the Georgian strait in Washington. The southernmost and northernmost parallels of latitude are  $24^{\circ} 32'$  and  $49^{\circ}$ , respectively, and the easternmost and westernmost meridians of longitude are the 67th and 124th. The greatest breadth of the country is about 2,700 miles, and its greatest length from north to south about 1,600 miles; the entire area of the country being thus, in round numbers, about 3,025,000 square miles. Of course, Alaska has not been considered in the foregoing. The area of Alaska, as given in the official reports of the United States, is about 532,000 square miles, thus giving to the entire possessions of the United States an area of 3,557,000 square miles. Of this area over 55,000 square miles are occupied by water, consisting of bays, gulfs, sounds, rivers, lakes and ponds.

The boundaries of the United States, both north and south, are partly natural and partly artificial. The line between Canada and the States in the northeast is artificial until it reaches the St. Lawrence system, when that becomes the line of demarcation between the two countries for a portion of its extent, and beyond the Lake of the Woods it again becomes an artificial line extending along the 49th parallel. The boundary between the United States and Mexico is partly marked by the Rio Grande and partly by an artificial irregular line extending in a southeasterly direction from the southernmost limit of California across to the Rio Grande at a point where it leaves the Territory of New Mexico.

The coast line of the United States may be said to be distinctively different on its two sides, although its contour on both is far more regular than that of Western Europe. On the western coast there are very few indentations, no bays or gulfs existing worthy of the name between Puget Sound and San Francisco. At the latter point there is a commodious harbor, and further south, at San Diego, the sea encroaches on the land to form San Diego Bay. These, with Puget Sound and the estuary of the Columbia river, comprise all the navigable indentations on the Pacific coast. On the northeastern coast the case is different; the sea line becomes so broken that there are almost innumerable indentations and harbors. None of the bights have a great depth of water, but most of them are sufficiently large and sheltered to afford good anchorage to shipping—the type of this class of harbors being that of Portland. The projection of Cape Cod, which stands out boldly at right angles to the mainland into the sea, forms a bay of considerable size, but the harbor of Boston, which lies at the lower end of the bay, while commodious, is not a specially good or accessible refuge for ships. The principal harbor in the United States (commercially) is that of New York, which city owes its preëminence to its advantages of situation, lying as it does at a point which is the natural terminus of the traffic of the great water-highway afforded by the St. Lawrence river and its system of great lakes. It would, at first glance, seem that a more northern point—one nearer the mouth of the St. Lawrence—would fulfill these conditions better than New York, but owing to the fact that the river flows in a northeasterly direction, entering a region more or less sterile and unfertile, coupled with

the fact that Long Island Sound affords the best harbor thereabouts, trade naturally sought the outlet afforded by the city. In this connection it may be as well to notice Long Island, the only island of considerable size on the eastern coast of the United States. This body of land is about 120 miles long, and runs parallel to the mainland, from which it is separated by the Sound. Several smaller islands lie near it, and are believed at one time, in common with Long Island, to have formed a portion of the mainland, from which they were separated by a cataclysm. To the south of New York lies Delaware Bay, the expanded mouth of the river of the same name, the next indentation into the land being the Chesapeake Bay, into which the waters of several large rivers discharge—the Susquehanna, the Patapsco, the Potomac, the Rappahannock, the York, and the James. Philadelphia's situation gives it the advantage of the trade of the Delaware, while Baltimore commands most of that of the Chesapeake. Of late years, however, the heavy shipments of cotton and the coaling of steamers have been centered at Norfolk, Va., at the lower end of the Chesapeake Bay, instead of seeking its outlet at Baltimore, over 200 miles higher up. The next indentations to be considered are Albemarle and Pamlico sounds on the Carolina coast, both of which, together with Hatteras inlet, become dangerous, in certain seasons, to shipping, and are always more or less dreaded by mariners. The Gulf of Mexico, the largest inlet into the American coast, is of great importance, both commercially and climatologically. The surrounding country is more or less miasmatic and unhealthy. Particularly is this true of the southern portion of Florida, which is at times almost uninhabitable.

Although the coast line of the United States is comparatively limited when the size of the country is considered, this lack is fully compensated by the numerous navigable rivers and the chain of great lakes on the northern frontier, with which communication is now open from the ocean, thus, as it were, extending the coast line for a distance of more than 3,000 miles. As there are but few inlets of the sea, so there are comparatively few capes and headlands encroaching on the ocean. On the western coast there are none worth mentioning, while on the east, Capes Cod, May, Charles, Henry, and Hatteras, and the peninsula of Florida are the most prominent. Among the others may be mentioned Capes Ann, Henlopen, Lookout, Fear, Canaveral, Florida, Sable. Capes Roman and St. Blas extend out into the Gulf of Mexico.

The islands of the United States are numerous, and lie both to the east and west of the mainland. Most of these give evidence that they were at one period portions of the mainland and have been reduced to their insular condition from various causes. Those north of Cape Cod are mostly of granitic formation and are raised to a considerable height above the sea level. Of these, Mount Desert, off the coast of Maine, with an area of about 150 square miles, is the largest. To the south of this point, and particularly along the coast of the Southern States and in the Gulf of Mexico, the character of the islands changes, and they become low and sandy. These islands form an almost continuous chain for several hundred miles, enclosing practically land-locked sounds. The largest island on the coast, as has been said (*supra*) is Long Island, with an area of 1,450 square miles. Among the others are Nantucket and Martha's Vineyard, which lie east of Long Island, while in the far south we have the Tortugas and the Florida reefs. On the western coast the principal group which claims our attention are the Santa Barbaras, in which group are found several good harbors.

We now come to the consideration of the surface systems of the country. Extending across the United States from the Atlantic to the Pacific—the entire breadth of the continent—three physical regions may be noted. These are: the middle portion of the Cordilleran (or Pacific system), the Valley of the Mississippi, and the Appalachian system, with the Atlantic coast plain. We will reverse the order in which these sections are enumerated here and consider, first,

*The Appalachian System.*—This system, the oldest geologically, extends from the shores of Nova Scotia to northern Alabama and Georgia, and in its course takes a range almost parallel to the sea coast. It is divided into three distinct portions by depressions, one of which occurs in the region of the Hudson river and Lake Champlain, and the other in the vicinity of the Mohawk river. If the height of the ocean should augment 400 feet, these three sections of the system would appear as islands, and the country, thus rising above the waste of waters, would be thus roughly defined: 1. The New England States from the Gulf of St. Lawrence to the Hudson river and Lake Champlain. 2. The section of territory in the Adirondacks lying between the Hudson and Mohawk rivers, approximating a triangle in shape; and (3) the southern section including the Middle and Southern States from the Mohawk river to northern Georgia and Alabama. The physical peculiarities of these three sections may be properly here briefly adverted to. The New England section is represented by the Green Mountains, a range stretching from the Hudson river to the Connecticut river and its outlying cognate group, the White Mountains, situated east of the Connecticut river. The Green Mountains, while nowhere attaining a great altitude, are important as forming the watershed between the Atlantic slope and the St. Lawrence system. None of them attain the height of 5,000 feet, the peaks of the White Mountains surpassing them in this respect. The highest peak in the White Mountain range is Mount Washington, which reaches an altitude of 6,300 feet.

The second section of the Appalachian range consists of the Wilderness region of New York. The mountains here receive the name of the Adirondacks, running from south-southwest to north-northeast. This range has another subdivision, the Au Sable range, which contains the highest peak of the group—Mount Marcy, which attains a height of 5,400 feet. The region hereabout contains a large number of beautiful lakes, and is densely clothed with timber of various kinds. It is considered one of the most picturesque portions of the world, and is called the "Switzerland of America." The third division of the Appalachian range is much larger than the other two, and comprises the entire region along the range from the Hudson and Mohawk rivers to Northern Georgia and Alabama. It is subdivided into a large number of ranges which run parallel to each other. They attain their point of widest separation in Virginia, but their points of greatest elevation are further south. The highest peaks occur in the Black Mountains, one of a number of transverse chains which separate and help to entirely inclose the valleys which are formed by the parallel ranges. The Black Dome, the highest peak of the system, reaches a height of 6,707 feet, while its nearest competitor, Mount Mitchell, has an altitude of 6,600. This section is traversed by a great valley which takes different names along its course. In Pennsylvania it appears as the Cumberland, while in Virginia it takes the name of the Shenandoah, and further south it is called the Tennessee. The eastern boundary of this great valley is formed by the following ranges, which, while really the same, have the following local names: The High-

lands of the Hudson, the ranges of Western New Jersey, the South Mountains of Pennsylvania, the Blue Ridge and Peaks of Otter in Virginia, the Blue Ridge of North Carolina, while between the Blue Ridge and the Alleghenies lie the Bald, Great Smoky, and Unaka mountains. To the west of the great valley the range takes the following names: The Catskills, the highest peak of which reaches a height of nearly 4,000 feet; the Shawagunk Mountains, the Kittatinny or Blue Mountains, the Alleghany Mountains, the Great North Mountain, Great Flat Top and Clinch mountains, Cumberland Mountains, and the Raccoon and Lookout mountains, with Missionary Ridge and a few others south of the Tennessee river in Northern Alabama and Georgia.

To the east of the Appalachian system, from the base of the system to the Atlantic Ocean, extends the Atlantic coast plain. This plain has a varying width, from 8 miles to 250. Its narrowest point is in New York, and its widest in North Carolina. The southern portion of this plain is divided into two distinct physical regions—the tidewater region and the middle or Piedmont district (as called in Virginia). The tidewater district is low, rarely reaching a height of more than one hundred feet above sea-level, and is of a sandy soil, the prevailing forest trees being of the pine family. Numerous large swamps appear, such as the Cypress swamp in Delaware, the Chickahominy and Dismal in Virginia, the Alligator and Green swamps in the Carolinas, and the Okefinokee and Everglades in Georgia and Florida. The Piedmont region is widely different in physical characteristics from the region just described. Its elevation ranges from 150 to more than 1,000 feet above the sea level, and throughout its extent it abounds in hills and valleys. The soil is fertile, the river-bottoms, particularly, being nowhere excelled in productiveness.

The line of division between these two districts is distinctly outlined by an accelerated declivity indicated by rapids in the different streams, as is exemplified in the various rivers flowing eastward from the Delaware river in the north to the Chattahoochee in the south. Below this point the country (particularly Florida) is nearly all included in the tidewater district.

The next point to be considered is that range of country known as the valley of the Mississippi, or the Central region of the United States. This tract of country may be roughly estimated as 1,250 miles square, which declines from the watersheds east and west to the grand central drainage system of the "Father of Waters," and from the headwaters of the river to the Gulf of Mexico.

According to the United States census the whole country is drained as follows: "Atlantic and Gulf, 2,178,210 square miles; Great Basin, 228,150; Pacific slope, 619,240. The drainage into the Atlantic and Gulf is distributed as follows: New England coast, 61,830 square miles; Middle Atlantic coast, 83,020; South Atlantic coast, 132,040; Great Lakes, 175,340; Gulf of Mexico, 1,725,980 (the Mississippi-Missouri basin being estimated at 1,240,039)."

From this statement it can be seen that the drainage system of the Mississippi far exceeds that of any other system within the limits of the United States, or of North America. The reason is obvious, when we consider the conformation of the surface of the country. We quote the words of an eminent authority in the following paragraphs, in order that the reader may comprehend the conditions attendant on the system of the Mississippi:

"The all-important fact in the topography of the North American continent in general, and of the



United States in particular, is the existence of a central comparatively low and level region, declining gently from a watershed in close proximity to the Great Lakes on the north, toward the Gulf of Mexico on the south.

"One may ascend the Mississippi to its junction with the Ohio, at Cairo—a distance of 1,100 miles from the Gulf of Mexico,—and the elevation attained will be only about 300 feet, an average ascent of about four inches to the mile. A journey of almost 1,000 miles farther, to Pittsburgh, at the junction of the Allegheny and Monongahela rivers, will only give a total rise of 700 feet above the sea-level. The head of the Mississippi is in a region entirely destitute of mountains, comprising an almost level area, covered in large part by lakes and swamps, and only about 1,500 feet in elevation. In ascending the Mississippi to St. Louis, a distance of 1,250 miles, we have reached an elevation of about 400 feet, and at St. Paul, 658 miles above the mouth of the Missouri, one of a little less than 700 feet. If we follow up the Missouri to the western line of the State of the same name, where the river flows from the north, we have the choice, if we wish to keep on directly west, of following either of its great branches from that direction—the Platte and the Kansas. Up either of these we may travel for fully 500 miles, rising so gradually that the difference of elevation from day to day is hardly perceptible, the country preserving all the characteristics of a plain, although declining gently to the east."

This valley may be regarded as extending from the great plains of the Cordilleran system to the Appalachians on the east. Its extent may be roughly set down as 300,000 square miles. Of this area a very large proportion is fertile, and while timber is not a prominent feature of the major part of the territory, the soil is capable of sustaining all kinds of vegetation, and it is among the vast prairies of this region that we find the greatest averages of productiveness in the Union. The rivers, which either flow toward the Gulf or to a confluence with the main central trunk, have worn for themselves in the soil deep depressions or troughs, in some cases contracting their width and leaving the "bluffs" several miles away from the present margins of the streams, and in others having them still close to the edges of the running waters. These "bluffs" are characteristic of the Missouri and Mississippi, in the cases of which rivers they stand close to the water's edge and appear as abrupt precipices. The following figures may be given as indicative of the general slope of the valley: At St. Paul the height of the land above the Gulf of Mexico is 870 feet; Fort Snelling, 828 feet; Davenport, Iowa, 485 feet; St. Louis, 400 feet; Columbus, Ky., 375 feet; Memphis, Tenn., 246 feet; confluence of Arkansas river, 162 feet; Natchez, Miss., 66 feet; Baton Rouge, 34 feet; New Orleans, 28 feet. This rise in height above the level of the Gulf is, as far as absolute level is concerned—*i.e.*, if a straight line were drawn from the head of the Mississippi—counteracted by the curvature of the earth in the long distance over which the stream flows, so that the river really runs up hill. Thus, it must be understood that, when we speak of the levels of the two points, we mean that a line drawn from the surface of the earth (for instance) at St. Paul to the center thereof, would be 870 feet longer than a line drawn from the surface to the center at the mouth of the river.

*The Cordilleran System.*—The Cordilleran system may be properly divided into the Rocky Mountain region, the region of the Great Basin, and the Basin ranges, the Columbian plateau, sometimes described as the Northern plateau, the Southern plateau, and the

Cascade, Nevada, and Pacific coast ranges. These divisions constitute the six regions included and treated under the above designated system. The first named is divided into sections and ranges, and forms the eastern boundary line of the system. These are subdivided into ranges or sections extending north and south, and they in turn into northeastern and northwestern extensions. Between these a range of elevation extends to a considerable distance, at a height of from one to several thousand feet, across the summit of which the route of the Pacific railway system was long since completed and improved. To the north of this are to be found mountain ranges, conspicuous for the wealth of their mineral deposits, also as the source of the Colorado, Missouri, and Columbia rivers. The division extending in a northerly and southerly direction approximates 700 miles in length by about 300 miles in breadth, rising from the foot-hills to the mountain heights by abrupt ascents. In the State of Colorado, the most celebrated and attractive system of elevated plateaus is embraced in Grand and Park counties between 36° and 41°. They consist of North, South, Middle, and San Luis Parks, situated at an elevation of from six to ten thousand feet and drained by the Rio Grande, Colorado, Platte and Arkansas rivers. The Middle Park is also drained by streams flowing into Grand river and is cut up by elevations. South Park is from thirty to forty miles in length and twenty miles wide, and North Park, which is more level than either of the preceding, is forty miles by twenty, and inclosed in lofty ranges, at some places 12,000 feet high.

The Colorado and Park ranges of Colorado are situated on the opposite sides of the Rio Grande. The former extends from 40° N. latitude to Pike's Peak, and contains the latter mountain, besides Gray's Peak, 14,341 feet in height, also Long's Peak, 14,271 feet. To the west of the source of the Arkansas lies the Saguache range, among the loftiest of the Rocky Mountains, averaging 14,000 feet, the highest points being Harvard Mountain, 14,375 feet, and the Holy Cross, 14,176 feet. This range is followed by the Continental Divide to 38° 20', whence it pursues a southwesterly direction for a distance of nearly one hundred miles, thence following the San Juan range. The latter is the western border of San Luis Park, and is characterized by a "broken country," culminating at Uncompahgre Peak, 14,235 feet high.

The Elk Mountain range lies west of the Saguache. It consists of pinnacles of volcanic matter, the highest of which is Castle Peak, 14,000 feet. In this range rise the streams which unite and form the Gunnison river.

The Park range above referred to is bounded on the northeast by the range of Sangre de Cristo, containing the highest point in the Rockies—Blanca Peak, 14,463 feet. The latter range is described as a continuation of the Saguache range and possesses similar geological features. The Garita hills are at the northwestern side of the San Luis valley. They are bounded by the Uncompahgre and San Juan ranges on the northwest and southwest respectively, and are irregular and broken. The Uintah range is to the west of North Park. It unites with the eastern side of the Wahsatch range, runs upward of one hundred miles in an easterly direction when it is absorbed by the Cretaceous and Tertiary masses west of the Park range. South of it is the Uintah valley, the extreme western boundary of the plateau sections of Colorado and drained by the streams which combine to form the Green and Grand rivers. The highest peaks of the Uintah are Gilberts, Wilsons, and Takewanna, severally 13,687, 13,235, and 13,458 feet.

The Wahsatch range forms the western boundary of the Rocky Mountain division of the Cordilleran system. It is among the most prominent of the ranges of that division, and at one point east of Salt Lake City attains a height of more than 12,000 feet, its altitude diminishing, however, to the north, and becoming less and less perceptible as a range west of Bear river, a stream originating in Uintah range, thence flowing first in a northerly direction, then in a southerly direction, until it finally empties into Salt Lake. North Logan is one of the lofty peaks of the range.

The division of the Rocky Mountains known as the "Northern Division" is made up of a number of ranges extending generally from the northwest to the southeast, and, excepting the Wind River range, not characterized by any remarkable peaks. This division has not been as fully explored as the southern division of the Rocky Mountains. The latter in Montana and Idaho is less regularly developed than in the south, but parks are nearly as numerous, and the water courses are thickly lined with sycamores and other forest trees. The soil of the parks is in some cases cultivable, and affords abundant pasturage. The Bitter Root Mountains occur between the Missouri and Columbia rivers, to the west of which, also to the northwest, are the Cœur de Alene and Lapwai ranges, by which the Rocky and Blue Mountains are connected, while to the east of the main range of the former, collections of mountain elevations are to be found. The range of Crazy Mountains, formed of sandstone, shales, volcanic rocks, etc., is north of the Yellowstone river, while to the northeast, in  $109^{\circ}$ - $110^{\circ}$  W. longitude, are to be seen the Judith Mountains; in the southeast are the Big-Horn, and east of these the Black Hills. The latter extend over a distance 120 miles long, and are from 30 to 50 miles wide; the highest peak, Mount Harney, has an elevation somewhat less than 10,000 feet. Geologically they are not dissimilar from the ranges in the northern division of the Rocky Mountains. The central deposits consist of "crystalline rocks." Potsdam stone supports "beds of Carboniferous age;" these are succeeded by a sandy stratum, sandstone, limestone, etc., gradually increasing in thickness toward the north, and attaining the greatest depth in the valley of Belle Fourché. The Jurassic is extensively developed in the Wind River range and vicinity, becoming thicker farther south, in the neighborhood of the Great Basin. The Cretaceous series is also extensively developed in the Wind River range, and are similar in some of their features to the Jurassic and Triassic. The topography of this region is described as "interesting," owing to the position of the groups of strata mentioned, a special and conspicuous incident of the same being the "Devil's Tower," upward of 600 feet in height.

A widely extended plateau, containing ranges of mountains running north and south, is characteristic of the "Great Basin." The latter is a roughly formed area of territory embracing nearly 250,000 acres of land, continuing from the northeastern part of California to the Uintah range. It is in the shape of a triangle with its base running east and west and its apex at the mouth of the Colorado river, drained in part by the affluents of Snake river, with summits of the Sierra Nevada occurring at intervals for a considerable distance in a southwesterly direction. Humboldt river has its origin 100 miles west of Salt Lake, and indicates a depression at the northern boundary of the basin, increasing its elevation as it runs south to a height of from 4,000 to 8,000 feet. The basin at the north is drained by Humboldt sink, and the valleys of the basin also form drainage channels. Vegetation does not thrive in the lower valleys, only sage grass growing in the more

favoured localities. The ranges extend north and south, many are conspicuous for some distance, while others are insignificant, the Humboldt being the most prominent. It begins in the basin's center and traverses in a northerly-northeasterly direction to the source of the Humboldt river, attaining its greatest elevation at Mount Bonpland, 11,321 feet. West of Humboldt river about 160 miles the Pah Ute range occurs, and at the western boundary of the Basin is Star Peak, the highest peak of the West Humboldt range. In none of the ranges does vegetation prosper, unless an exception is made in favor of the highest portions, in some of the cañons, where forest trees are abundant. Geologically, however, the Basin contains much of interest. The Alpine Trias is the most conspicuous formation, there seeming to be an exceptional lack of the Cretaceous, Tertiary, and other strata peculiar to the Rocky Mountain divisions. The formations are similar, in some particulars, to those of the Appalachian and Jura ranges. The ranges are monoclinal, anticlinal, or synclinal, and sometimes two or more of these are combined. There is an absence also of the features of Appalachian erosion, but the Basin ranges differ from the Appalachian and the Jura in the appearance of volcanic masses, in which respect the ranges of the Basin are not dissimilar from other portions of the Cordilleran system.

The area of territory in which is included the Columbia plateau is not entirely familiar to the public. It is bounded on the east by the Rocky Mountains, on the west by the Cascade range, and is drained by the Columbia and Snake rivers and their branches. The Cordilleran system is reduced in width in proportion as the north division of the Rocky Mountains advances in a northwesterly direction, and the area between the Cordilleran and Rocky Mountain systems is occupied with ranges but indifferently known, if the Blue River and Salmon River ranges are excepted. The Salmon River range runs from the western limits of the Rocky Mountains to the Snake river, the Blue River range occupying the angle caused by the Snake river, in its flow in a northerly direction to Columbia river. After the Columbia is joined by the Okanaga river, some sixty-five or seventy miles south of the boundary line of the United States, its course is parallel with the Cascade range to Great Bend, whence it proceeds in a westerly direction through that range to the Pacific. The country between the range and the river is mountainous, and that between the river and Clarke's Fork, specially so, the range rising from five to seven thousand feet. Volcanic deposits characterize the area of territory on the confines of the Great Basin between the Rocky Mountains and the Cascade range to the south of Columbia river. This formation extends in northerly and southerly directions into the Northwestern Territory, Nevada, up Snake river, and southwest into California. It is also to be found in Montana, and, as it proceeds further north, indicates the presence of "eruptive accumulations" which culminate in Mount Rainier. The beds of this material vary in dimensions and thickness, and are deposited promiscuously. They are frequently found to have been cut into by streams, and as frequently form the crest of an elevation over which falls of water are precipitated, presenting a picture at once picturesque and attractive. Among these are the Shoshone Falls. Other characteristics of these plateaus are collections of cones at intervals, though the greater proportion of the volcanic overflows is widely distributed in the form of lava, the volcanic rocks also covering an area of many thousand miles in the neighborhood of the Columbia river and the Cascade range. There are indications that a large moiety of this



area was at one time covered with water. Indeed, bodies of water are to be seen there at present, singly and in groups, many of them of large size, especially in portions of Oregon and California. The valleys contain small tracts of land susceptible of cultivation, but, as a rule, the soil of the plateaus is sterile. Geologically, the mountain ranges upon which volcanic masses have fallen are not unlike the rocks of the Sierra Nevada. Granite occurs in the Owyhee Mountains, supporting an extended range of sandstone, slate, etc., with frequent veins of gold and silver occurring in quartz deposits. The general indications at present point to a period at which volcanic eruptions seem to have been, not only frequent, but exceptionally active in many portions of the Sierra Nevada and Cascade ranges, and extending throughout a great expanse of territory in an easterly direction. This is supposed to have prevailed during the Post-Tertiary times, at least, such is the conclusion of scientists, who further insist that the eruptions of fluid lava were infrequent, if occurring at all.

As already related, there were in former times numerous table-lands in the regions bounded by the Rocky Mountains on the east, and the Sierra Nevada on the west, that contained numerous bodies of water of very large dimensions. The water in these lakes has since disappeared, either through drainage, absorption, evaporation, or otherwise, and the formations at the bottom of each, effected by erosive agencies at frequent localities, now exhibit their geological structures, which have become objects of special study and interest to scholars and scientists. They have also produced a description of scenery known under the name of "Mauvaises Terres," or Bad Lands. These occur in the country south and southwest of the Missouri river and along its affluents, and are described as the most wonderful formations to be seen in North America, from a geological standpoint, but from an agricultural point of view are of no value whatever. They are represented as large bodies of strata or layers of rocky material hundreds of feet thick, extending over a vast region of country, and possessing attractions of an unique and interesting character. The action of the water, or of unknown causes, has combined to cut into or separate these masses, thereby creating cañons, gorges, and other developments of a striking and suggestive character. The walls of many of these, notably the Grand Cañon of the Colorado, the Black Cañon of the Gunnison, Weber Cañon, Echo Cañon, etc., rise perpendicularly to a height of from one to several thousand feet, and are worn and sculptured into forms wonderfully realistic. These features of interest are rendered additionally attractive by the coloring with which the strata are tinted, presenting almost every shade, and completing a combination of hues of never-ending fascination to the student, the admirer of artistic development, and the traveler, as also a field for the study of the glacial period unsurpassed on the continent. These phenomena, if they may be so described, are part of the country to the south and east of the great basin, between the Colorado river and Great Salt Lake, and extend westwardly to the eastern boundary line of California, where they disappear. The dimensions of the area embracing the most conspicuous development are varied. The region in which the Grand Cañon is situated is 180 miles long by 125 miles wide. A rampart, so to speak, indicates the western boundary line similar to that exhibited by the Sierra Nevada and the ranges in Southern California, where the transition is said to be exceptionally abrupt. Four plateaus to the north of the Grand Cañon are drained by the latter, while a fifth is drained by the Marble Cañon. The former

namely, the Kanab, Uinkara, Kaibab and Sheavwits, are of Carboniferous strata, while the Paria, or fifth plateau, is at a lower level and covered with Triassic rocks.

A rampart also describes the southern boundary of the Grand Cañon district: indeed it is said that the western boundary line is a continuation of that on the south, and preserves the same general features for a distance of forty or fifty miles, thence changing its course to the southeast, traversing eastern Arizona to what is known as the Mogollon Mountains, whence it proceeds southwest, where the country descends from the horizontal platform into a lower country with geological formations similar to those which characterize the western country of the Sierras. On the western extension of the Sheavwits plateau and north of the Colorado, is an extensive valley known as the "Great Wash." Adjoining the Sheavwits, yet separated from it geologically by Hurricane Ledge, is the Uinkaret plateau. The rampart of the former plateau is a break along which the region to the east has been raised several thousand feet, while Hurricane Ledge marks a rise of from 1,500 to 2,000 feet in the land to the east of the latter. The Kanab is the broadest and the Kaibab the loftiest of these plateaus, being from eight to ten thousand feet in height, covered with parks and forests, which grow luxuriantly. It has a total length of ninety miles and an average width of thirty miles. The Paria plateau is in an easterly direction, and beyond it lies the Kaiparowitz. At the north are a series of plateaus, separated from each other, the physical conformation of the country being the product of simple attrition, together with numerous instances of seismic phenomena. Another area of plateau land is on the southern side of Colorado river, with an underlying stratum nearly horizontal, but unmarked by any of the features mentioned as occurring in the regions to the north, though they are located at a greater elevation than the latter. At a distance of about thirty miles, in a southerly direction from the Kaibab plateau, is what is known as "Red Butte," and sixty miles south of Colorado river are the San Francisco Mountains, among the loftiest in the West, the highest being 13,000 feet, surrounded by masses, cones, lava, etc. Judged by the bends and meanderings of the river the Grand Cañon of the Colorado is more than 200 miles in length, with an average depth of 2,000 feet and an average width of five miles. The most stupendous portion of the Cañon is the Kaibab division on the north, where it is more than a thousand feet deeper than anywhere else. The most remarkable and interesting phenomena of the topography in this region is partially owing to the manner in which the formations have been elevated or lowered between long faults, also to the amount of attrition to which the region has been subjected. The plateau region to the south of the Great Basin presents some striking contrasts to that at the north. In the latter section the corrugated and folded strata are filled with volcanic outflows, which have covered the lower portion of country, while in the plateau region, to the south of the Great Basin, the strata have been raised to a high elevation, without being hardened sufficiently to resist erosion, and possessing a variety of lithological character that gives complexity to resulting forms, which, affected by eroding agencies, have created the remarkable conditions they now exhibit. The cones of varied dimensions, which are to be seen in this plateau, are the accretions of lava which have been poured out from orifices in the mountains during the activity of volcanic agencies. Many of them are of huge dimensions, but there has been no such phenomenal overflows in the southern plateau as those which have characterized the northern volcanic regions

The most important and conspicuous member of the Cordilleran system is the Sierra Nevada range—not alone as a system, but also for the richness and variety of its mineral deposits, its temperature, climate, soil, productions, geological formations, forests, scenery, and the character and number of the inhabitants. It is the western boundary of the Cordilleran system, as also the widest and loftiest portion of that system east of California. From its western side it is specially notable, because it descends nearly to the sea level, while on the opposite side the plateau level is the extreme of its depression. Both the Sierra Nevada and Cascade ranges unite with what are called the Coast ranges, at certain points, and are separated from them at others by low but wide valleys, among which, and probably the most conspicuous, is the Great Valley of California.

This range, as already indicated, is composed of a granite core, inclosed by rocks of the Mesozoic period, the development of the latter increasing in the north, also in the section bordering upon the western declivity of the range and forming the auriferous belt of the Sierra. Another fact of importance is the presence of eruptive rocks of Tertiary and Post-Tertiary period in portions of the Cordilleran region. The volcanic materials are seen in large masses at places in the southern part of the Sierra, on the highest portion of the range, and at points where there are no slates nor mining nor washing for gold. The Sierra group diminishes in its altitude south of the Mount Whitney range, and at this point occurs the Kern River valley, containing several volcanic cones, which have the appearance of recent development, but are not known to have been in a condition of activity since the country was settled by the whites. Since 1870, however, the adjacent country appears to have been visited by earthquakes, and this very point was measurably affected by the earthquake of the spring of 1872. The region of volcanic cones and lava flows, however, is midway in Owens Valley on the east side of the Sierra, some distance from Lone Pine, and where the earthquake produced the most disastrous effects. Volcanic materials also cover the western part of the range further north, and from 39° 30' north the rocks are hidden by eruptive materials of a more modern date, through which channels of no inconsiderable depth have been worn by water, and furnish access to the auriferous deposits to be found in the gravel of the buried river systems. Signs of recent volcanic activity are apparent at Lassens Peak, a solitary volcanic cone in 40° 30' N. latitude, rising 10,537 feet above the surrounding country. Hot springs are also to be found in the same vicinity, in addition to mud lakes from which spouts of hot water and mud are thrown into the air to the height of several feet. In the immediate vicinity of Lassens Peak is a lake of hot water of large dimensions, wherein mud volcanoes are of frequent occurrence. Indeed, there are no points along the south crest of the Sierra where such striking indications of latent volcanic activity are to be seen as those at Lassens Peak. The range there is broken through by a fault, and south of it high ranges and deep cañons have cut through the volcanic strata and are deeply imbedded in the rocks underneath; to the north a depression exists filled with volcanic rocks that extend to the north and northeast for hundreds of miles, and become part of the plateau region in that section. Northwest of Lassens Peak is Mount Shasta, 14,440 feet high, furnishing evidences, near its summit, of volcanic activity at some remote period, nearly as pronounced as those seen in the vicinity of the Peak. As late as 1862 steam and gases were to be seen exuding from orifices at a point fully 425 feet below the summit.

The Cascade range to the north of Shasta is characterized by phenomena the same as that existing between Lassens Peak and Shasta. This continues beyond the northern boundary line of the United States. The ridge, however, that is the principal one of the range is not elevated, but volcanic cones of more than average dimensions rise at intervals. To the north of Mount Shasta what are apparently volcanic peaks dot the landscape, and many of them are conspicuous. Among these Mount Pitt and Mount Jefferson are prominent. Some of these groups exhibit conical forms while others do not. Equidistant between Pitt and Jefferson are a number of groups, the leading of which are the "Three Sisters," and throughout this portion of the range the presence of craters and outflows of lava give evidence of volcanic action at a recent date. To the north of Mount Jefferson, at a distance approximating 100 miles, the volcanic masses of the Cascade range have been cut through by the Columbia river; and at the Dalles, having an elevation at the east side of the range, the volcanic plateau of the Columbia commences. Mount Shasta, Mount Helena, and Mount Hood—the two former located on the north side of the river, and Mount Hood on the south side—are the most clearly defined volcanic cones of the range. All of these have an elevation of more than 10,000 feet. Mount Rainier is seventy-six miles from the Columbia river to the north, and next to Shasta is the most celebrated in the Cascade range. Owing to its location at a distance from traveled roads, surrounded by dense forests, etc., it is comparatively inaccessible. North of the latter peak is Mount Baker, conspicuous from all directions, having an altitude of 10,755 feet.

Notwithstanding the evidences of volcanic action, at a date not far distant, throughout the entire range, the condition of the eruptive agencies at present cannot be clearly described. There does not seem to be any indication of a recent overflow of lava in either the Cascade or Sierra Nevada ranges, such at least as would harden into rock when cooled. The rocks of these ranges are basaltic, and, in the strata beneath, evidences of vegetation of the Pliocene and Miocene ages are visible. The animal remains there, however, have not been identified.

There is an absence of indications tending to show that lava, or ashes, cinders, etc., have been cast out from the volcanic cones of the Sierra Nevada range at a comparatively recent period, but in some of the cones of the Cascade range such evidence is not wanting, particularly in respect to Mount Baker, where eruptions have occurred at intervals from 1843 to 1870—also at Mount Hood, with appearances of a somewhat similar description in other cones of the range.

What are known as the "coast ranges of California" are described as differing from the Sierra Nevada and Cascade ranges, being less elevated but more broken through by granite masses, and less infrequently covered with the products of volcanic eruptions. Their upheaval occurred at a date subsequent to that of the Sierra range, during the Tertiary period it is claimed, and has continued into the Post-Pleocene. To the south of San Francisco Bay, considerable areas of cretaceous rock are to be found, such being particularly the case to the east of the Monte Diablo range, becoming more and more pronounced further north, where the areas of Tertiary diminish in extent and volume. A number of features of geological interest are reported in connection with the Coast range, notably the metamorphosis which has been going on among the rocks, giving them an appearance that would indicate they belonged to an older part of the geological series, also the existence of serpentine and serpentinitoid rocks in considerable groups. In these metamorphosed



rocks, veins of quicksilver have been discovered and profitably worked at various points to the north and south of San Francisco Bay. Chromic iron also occurs, and in southern California gold has been found. To the south of the bay bituminous slate, several hundred feet in thickness, characterizes the range, and in the vicinity of Santa Barbara and Los Angeles, considerable amounts of bituminous matter have appeared upon the surface, which has hardened into a material strongly resembling asphalt. Efforts to develop these into producing wells of petroleum have not been attended with sufficiently pronounced results to justify operations upon any very extensive scale. Another product which has rewarded investigation into the resources of the range is an excellent quality of coal. This has been discovered in the range both in California and Oregon, and mines are at present successfully worked near Seattle, Washington, on Vancouver's Island, and elsewhere. The Sierra and Coast ranges become united in the northern part of California, and so continue into southern Oregon; but the development of the ranges is most effectively and comprehensively reached west of the San Joaquin and Sacramento rivers. South of the valleys of the San Joaquin and Sacramento the ranges become topographically united. In California the Coast range is 400 miles long, with a width of from fifty to sixty miles, according to the range of coast line; the mountains in this area consisting of sub-ranges plainly defined, as also of inconspicuous ones. From Cape Mendocino to Point Conception these sub-ranges follow the direction of the coast, the elevation, more especially near the Bay of San Francisco, ranging from 2,900 to 4,100 feet in height, with Mount Helena, Mount Hamilton, Monte Diablo, and Mount Bache, severally, 3,790, 4,440, 3,856 and 4,343 feet high, being the more conspicuous of the peaks. In both directions, north and south of San Francisco Bay, the heights of the peaks increase; Mount Bailey to the north is 6,357 feet and the peak of San Carlos, to the south, approximates 5,000 feet. Geologically the range south of the bay consists of rocks of the Pliocene period. They are in very extensive masses and many hundred feet in thickness. Those extending east and west on the channel of Santa Barbara are lofty and abrupt, the most prominent being the Santa Inez and the Santa Monica, the latter consisting of stratified rock of the Miocene period, with a mass of granite extending through it, elevating the range to a lofty angle in the vicinity of the eruptive rock, where it becomes metamorphosed and from which, in both directions, it gradually recovers its normal condition and position. The ranges are more broken along the coast to the south, and the peaks attain to a lofty altitude, San Bernardino, San Jacinto and others being prominent.

*Rivers and Lakes of the United States.*—In number and magnitude of the lakes and rivers of the United States are unsurpassed by any country in the world. The river systems are distinguished by peculiarities of their own, of which the following are the most salient: The slope of the beds of most of the streams are in that happy medium which insures a steady flow seaward and gives a constant and certain drainage and yet at the same time, while guarding against stagnation, presents no impediment to navigation up stream by reason of too swift a current. The second feature is that the narrowness of the water sheds allows the head waters of rivers, flowing in opposite directions, to lie close to each other, thus presenting but a small portage or distance for land carriage in order to secure navigation or water carriage from one distant point to another, thereby providing the most complete and extensive internal navigation in the world.

The rivers of the United States may be divided into four classes: Those emptying into the Gulf of Mexico; those emptying into the Atlantic ocean; those emptying into the Pacific ocean; and the rivers of the Great Basin. We will consider these in the order named. Beginning from the West, we have the streams draining the Texas slope of the great plains. These are the Rio Grande, Neuces, San Antonio, Rio Colorado, Brazos, Trinity, and Sabine. The Rio Grande is the only one among these worth special mention. It has a length of 1,500 miles, and, rising in San Luis Park, flows first south between the peaks of the Rocky Mountains, and then, breaking through the range near El Paso, it flows southeast, emptying into the Gulf near Brownsville, forming the boundary between this country and Mexico for a portion of its course. The other rivers mentioned rise generally in the great Staked Plains, and among the foothills of the Rockies. They are usually of no magnitude, being shallow and having their navigation impeded by shallows and sand bars. Sometimes, however, in rainy seasons they are navigable for greater or less distances.

The next river to claim our attention is the mighty Mississippi. Although the basin of this stream is inferior in extent to that drained by its mighty South American congener, it has, together with its tributaries, a length of navigable waters aggregating over 25,000 miles. The physical characteristics of this river deserve notice. The limit of navigation is reached about 400 miles from its head, where, in the Height of Land at the falls of St. Anthony, the river is broken by a succession of rapids and cascades with a maximum declivity of sixty-five feet in less than a mile. From this point its course is marked by windings through fertile bottoms, the width of which varies at different points, and which are bounded on both sides by the bluffs created by the erosion of the river. These bluffs diminish in height and recede from the stream as they approach the mouth of the river, until, in the lower portions of its course, the intervening lands are subject to overflow, and must be protected by levees. The water of the stream is not much polluted with earthy matter until the Missouri river is passed, when the stream becomes turbid and muddy, owing to the vast amount of sediment swept from the bed and banks of the Missouri in its swift course to its confluence with the Mississippi. The velocity of the current of the Mississippi varies greatly with the season of the year—in the springtime, when the snow melts in the vast territory drained by it, being a resistless, swift-flowing torrent, and in the summer season, when the water is low, being somewhat sluggish. One singular character of the stream deserves especial mention, and that is its tendency to often change its course. The boundaries between several of the States along its border have been thus materially changed. Sometimes it will take a short cut over a bend instead of following its old course around it, and thus in a few days it may shorten itself by a distance of many miles, and render what before was a part of the main shore an island. Often the land thus torn away contains a large amount of timber, and the trees which are sometimes deposited in the river by the attrition of the soil surrounding them, become the "snags" and "sawyers," which are so dangerous to navigation by steamers. The Mississippi, however great it may be in itself, is not of more importance for any other reason than for the great number of magnificent tributaries which go to make up the vast flood it sends into the Gulf. Many of these streams are navigable to their heads among the mountains of the Cordilleran and Appalachian systems, in which the majority of them rise. From the west the affluents are in succession the

Minnesota, which rises in the Coteau des Prairies; the Iowa and the Des Moines, rising between the Missouri and the Mississippi; and the largest tributary of the stream, the Missouri. The Missouri rises in the Rocky Mountains, its headwaters mingling with those of the Columbia, and then flows away over a course of nearly 3,000 miles. Of this distance it is navigable for over two-thirds, or nearly to the Great Falls, which are about 100 miles below the Gate of the Rockies. It receives in its course the waters of many tributaries, among them being the Yellowstone, the two forks of the Platte or Nebraska, and the Kansas or Kaw river, which rises in the alkaline Great Plains. South of the Missouri river the volume of the Mississippi is again augmented by the influx on the western side of the Arkansas and the Red rivers. The former river rises in the South Park of the Rocky Mountains, and has no commercial importance, being almost unnavigable its entire length. The Red river rises in the great Staked Plains and is navigable above and below a point about 500 miles from its mouth, where it is choked with a vast accumulation of drift wood called the Great Raft. On the eastern side the Mississippi also receives some important tributaries. The principal of these are the Wisconsin, the Rock, the Illinois, the Ohio, and the Yazoo. The Wisconsin rises near the watershed between the Mississippi and the St. Lawrence system and traverses a region of great fertility. The Rock river rises also in the great Lake region, while the Illinois, formed by the junction of the Kankakee and Desplaines rivers, flows through Illinois and Indiana, thus passing through one of the richest agricultural territories in the world. The Ohio is, next to the Missouri, the largest tributary of the Mississippi. Commercially it is the most important, as annually millions of dollars' worth of freight are borne on its bosom from the northern and eastern country to the southern river country. This stream together with its tributaries furnishes over five thousand miles of navigable water. It is formed by the confluence of the Monongehela and Alleghany rivers, which unite at Pittsburgh, and from this point to its mouth, a distance of nearly 1,000 miles, is a navigable stream. It has numerous affluents besides the two mentioned, the principal being the Muskingum, the Scioto, and the Miami from the State of Ohio, the Wabash from Illinois, and the Kentucky, Cumberland, and Tennessee from Kentucky. The Tennessee is in turn the recipient of the Holston and Clinch rivers, which flow through the great Appalachian valley of East Tennessee. The rivers merging into the Ohio on the south side of that stream to a great extent take their rise either among the Alleghanies proper or their foothills, and on account of the slope of their beds, are most of them obstructed by rapids and falls. To obviate this difficulty numerous dams and locks have been constructed. Those flowing into it from the other side, with the exception of the Alleghany and the Wabash, are useful only to supply water to the canals which have been constructed along their course, they being almost unnavigable. By means of these canals the interior of the Ohio basin is in communication with the entire Mississippi and Ohio valleys. Several other rivers may be mentioned as part of the drainage system of the Gulf. These are the Mobile, the product of the union of the Alabama and Tombigbee; and the Appalachianicola, which is formed by the Chattahoochee and the Flint. These complete the drainage of the Gulf system; it being, of course understood that numerous minor streams exist here, of which no mention is made.

We will now consider the Atlantic drainage system. The streams which compose this system take their rise either in the eastern side of the main chain of the Appalachians or in the footlands of the range. In their

initial course they are usually shallow and rapid, but when they reach the lower lands of the coast their character changes and they become broad and sluggish, and are generally navigable and subject to influences of tides. Beginning at the southern extremity of the continent, and going north, the most important rivers are the St. John's in Florida; the Altamaha, formed by the confluence of the Oconee and Ocmulgee; the Savannah; the Santee, formed by the Congaree and Wateree; the Great and Little Pedee, Cape Fear, Neuse, and Roanoke. These are generally of a sluggish character, and their banks are heavily timbered with almost all kinds of swamp forest, while the country they drain usually has a heavy growth of yellow pine and other trees. In Virginia we have the James, rising in the Appalachians, and flowing past Richmond (the head of tide water and of navigation) it empties into the Chesapeake Bay. North of this is the York, formed by the Mattaponi and Pamunky. Next comes the Rappahannock and then the Potomac. The most northern affluent of Chesapeake Bay is the Susquehanna, which, rising in New York, traverses a portion of that State and then through Pennsylvania to its mouth. The Delaware river rises in the Catskills and, flowing through New York and washing Delaware, finds its entrance into the sea through the bay of the same name. Next comes the beautiful Hudson, which rises in the Adirondacks and, after a course whose natural beauty is unexcelled anywhere in the world, empties into Long Inland Sound at New York city. This stream is navigable to Troy, a distance of 150 miles from its mouth, and from this point it is connected by canal with the St. Lawrence system; thus giving uninterrupted water communication between New York city and Chicago and remote Canadian localities. East of the Hudson is the Connecticut, draining the beautiful valley of the same name; next come the Merrimac, the Kennebec and the Penobscot. We now come to the great St. Lawrence system. This comprises the five great lakes, the most magnificent lacustrine aggregation in the world, and approached by no similar natural features anywhere on earth, unless it may possibly be that of Central Africa—as yet unsurveyed and undelineated. The rivers of this plexus are insignificant, so that any consideration of the Laurentian system entails the discussion of the great lakes. For commercial purposes these lakes are as valuable to the people of the United States as are the eastern and western coasts. They afford navigation for the largest vessels, and their shores are dotted with large cities, between which an immense amount of traffic is carried on. The length of their coast line within the United States is over 3,000 miles, and by means of the different canals which have been constructed, joining them, a vessel can sail from Duluth to London, England, without trouble. This practically gives the United States 3,000 miles additional sea coast. In addition to the five great lakes, lakes Champlain, George, and the lakes of central New York, besides Winnebago Lake in Wisconsin, are tributaries of the St. Lawrence system.

Of the river systems of the Union there yet remains to be considered that of the Pacific. The Columbia, a mighty stream, is formed by the confluence of Lewis river with Clarke river (or forks, as they are both called). Its principal tributary, the Willamette, flows through the fertile valley of the same name, lying between the Coast and Cascade ranges. The Sacramento river rises in the Great Basin, and, after a course through a fertile country, empties into the bay of San Francisco. On its way it receives several tributaries from the Sierra Nevada. The San Joaquin also flows into the bay of San Francisco. It rises in the Sierra Nevada, from which it also receives several tributaries. The



Colorado river rises in the Wind River Mountains, where it takes the name of the Green river, and, after a course of 300 miles through one of the most remarkable gorges or cañons in the world, empties into the Gulf of California, 150 miles from its point of emergence from the cañon. The walls of the cañon are in some places 6,000 feet in depth. Along its course it receives as tributaries the Grand, Little Colorado, and the Gila rivers, all of which take their rise in the Rockies. Beside the rivers mentioned before, the Red River of the North flows for a portion of its course through the United States. It rises in Elbow Lake, in Minnesota, and flows northwesterly into Lake Winnipeg. A peculiarity of this stream is the large number of lakes that are tributary to it and occur in the first one hundred miles of its course.

A remarkable feature of the two great systems of the Mississippi and the St. Lawrence is the contiguity of their head water, Lake St. Louis, the head of the latter river being but a short distance from Lake Itasca, the source of the former.

There is, in the Great Basin of the Rockies, a river and lake system peculiar to that region. The rivers have no outlet to the ocean, and find their termination in a lake, or, as in one or two instances, lose themselves in the earth. Reese River and Humboldt River are the principal rivers of this region, both of them emptying their waters into Humboldt Lake.

Among the lakes the most remarkable is the Great Salt Lake, in Utah, the counterpart of the Dead Sea. This body of water is seventy miles long and thirty miles wide. Its waters are extremely salty. It receives the waters of the Jordan, and several other small rivers and creeks. The Jordan connects it with Lake Utah, a considerable body of fresh water. Bear Lake and Lake Sevier may also be mentioned as forming a portion of this system.

#### CLIMATIC CONDITIONS.

The United States may be said to include three grand climatic divisions, distinct and well-marked in their characteristics. The larger of these by far is that which extends from the Atlantic coast to the foot-hills of the Rocky Mountains, and embraces three-fifths of the entire country. The second division includes the Cordilleran mountains and their elevated plateau; and the third, differing in many essentials from both the others, includes the narrow strip between the Sierra Nevada and Cascade Mountains and the Pacific coast.

In the first or Eastern division, the lines of equal mean temperature run approximately east and west, and preserve a certain amount of regularity. The isothermals are deflected in passing over the Cordilleran range, and vary greatly with the altitude, extent, and even with the trend of the mountain ranges. In the third or Pacific division the isotherms tend to parallelism with the direction of the coast, but their character is greatly modified by the position of the two parallel ranges, the Coast Mountains and the Sierra Nevada, and by the warm Japan current on the one hand and the cold Arctic current on the other.

Treating first of the grand central division, its fifteen degrees of latitude are included between the annual isothermals of  $44^{\circ}$  and  $68^{\circ}$ , a total range of  $24^{\circ}$ ; or an average of  $1.6^{\circ}$  difference of temperature for each degree of latitude. The transition from one type of climate to the other, although rapid, is uniform. The difference of mean annual temperature between the Atlantic coast of the United States and that of Europe is much greater in the higher latitudes than in the lower ones. New York, in latitude  $40^{\circ} 42'$ , has a mean annual temperature  $10.6^{\circ}$  lower than

Naples, in latitude  $40^{\circ} 48'$ . But Norfolk, Va., almost in the same latitude as San Fernando, Spain, has a mean annual temperature only  $4.3^{\circ}$  lower than the Spanish city. About latitude  $30^{\circ}$ , the latitude of St. Augustine, Fla., and New Orleans, in the United States, and in Africa of Southern Morocco, the two sides have nearly the same mean temperature, although, owing to the great differences in the amount of precipitation, the unlikeness of climate is very great. In passing south from the Canada line along the Atlantic seaboard, there is a rapid increase of temperature, due to the warm currents from the Gulf of Mexico, and to the prevalence of southwesterly winds.

At the north, places in the same latitude on the Atlantic and Pacific coasts have approximately the same temperature, but the southern Atlantic regions are decidedly warmer than their parallels on the western coast. The vast body of water contained in the Gulf of Mexico has, of course, a considerable effect upon the peninsular projection of Florida, and this State, which extends south to  $25^{\circ}$ , has a higher mean temperature than any other part of the country. The extreme south end of Florida has a mean of over  $72^{\circ}$ , and over the whole of the State and along the Gulf into Texas the annual mean exceeds  $68^{\circ}$ .

The range of the isothermals is as follows: that of  $40^{\circ}$  passes through central Maine, northern New Hampshire and Vermont into Canada, thence reenters the United States at the west end of Lake Superior, passes through central Minnesota, thence trends south in eastern Dakota, and thence northwesterly until it crosses the boundary line in  $107^{\circ}$  west longitude. Between the isothermals of  $44^{\circ}$  and  $52^{\circ}$  lie New England, New York, all the Middle States, nearly all Michigan, southern Wisconsin, southern Minnesota, nearly all Nebraska and South Dakota. West of the Appalachians the isothermal of  $52^{\circ}$  follows the Ohio river to Cincinnati, passes in an undulatory westerly direction through Indiana, Illinois, northern Missouri and northern Kansas to Colorado. As it nears the Rocky Mountains it turns abruptly south a distance of more than four hundred miles. The isothermal of  $60^{\circ}$  runs parallel with that of  $64^{\circ}$ , but is deflected to the south between the meridians of  $83^{\circ}$  and  $87^{\circ}$ . The isothermal of  $64^{\circ}$  leaves the Atlantic on the boundary of North and South Carolina, and runs on the line of  $34^{\circ}$  latitude, almost due west of the 100th parallel, where it, like all the other isothermals, is deflected southward by the mountains. Within this central region, which extends from Northern Dakota to New Orleans, there is a vast range of temperature. At Fort Sully, in latitude  $44^{\circ} 39'$  the mean yearly extremes are  $-25.2^{\circ}$  and  $108.7^{\circ}$ ; at New Orleans, in latitude  $30^{\circ}$ , they are  $23.2^{\circ}$  and  $96.2^{\circ}$  respectively. The isothermals for the summer months are much more irregular than those for the year. This is principally caused by the southerly winds from the heated waters of the Gulf of Mexico, which blow unchecked over the whole central plain and divert the summer isotherms to the northwest in a surprising manner. That of  $72^{\circ}$  has been known in July and August to reach latitude  $45^{\circ}$  in northern Dakota. Florida, the Gulf States and greater part of Texas have a mean summer temperature of over  $80^{\circ}$ , while the country from Tennessee and Georgia north to the great lakes and west into Iowa, Kansas, and Nebraska lies between the summer isotherms of  $68^{\circ}$  and  $76^{\circ}$ . As the most practical method of furnishing information in regard to the temperature and rainfall of the United States, the following carefully prepared table is given. It shows:

First, the mean average rainfall (M. A. R.).

Second, the mean average temperature (M. A. T.).

Third, the highest recorded temperature (H. R. T.).

Fourth, the lowest recorded temperature (L. R. T.).

STATIONS.	M.A.R.	M.A.T.	H.R.T.	L.R.T.
Alabama, Montgomery.....	52.7	65.2	107	5
Arizona, Phoenix.....	6.9	69.2	119	12
Arkansas, Little Rock.....	53.6	61.5	106	12
California, San Francisco.....	23.7	55.8	100	29
Colorado, Denver.....	14.5	49.4	105	14
Connecticut, New Haven.....	47.9	49.4	104	10
Florida, Jacksonville.....	54.1	69.0	104	8
Georgia, Atlanta.....	50.4	61.2	100	28
Idaho, Boise City.....	14.4	50.6	111	22
Illinois, Springfield.....	38.0	52.3	107	25
Indiana, Indianapolis.....	43.0	52.7	106	20
Iowa, Des Moines.....	33.1	48.5	109	26
Kansas, Dodge.....	19.8	53.1	108	20
Kentucky, Louisville.....	45.8	50.7	107	7
Louisiana, New Orleans.....	60.5	68.8	102	17
Maine, Portland.....	42.3	45.7	97	13
Maryland, Baltimore.....	44.0	55.2	104	24
Massachusetts, Boston.....	45.0	48.6	101	41
Michigan, Detroit.....	32.3	48.1	101	22
Minnesota, St. Paul.....	27.5	43.3	104	1
Mississippi, Vicksburg.....	55.7	65.3	101	17
Missouri, St. Louis.....	41.1	55.6	107	42
Montana, Helena.....	13.2	43.1	103	32
Nebraska, Omaha.....	31.7	49.6	106	28
Nevada, Winnemucca.....	8.5	48.6	104	11
New Hampshire, Manchester.....	43.1	45.9	96	7
New Jersey, Atlantic City.....	42.7	51.9	99	13
New Mexico, Santa Fe.....	14.2	48.3	97	18
New York, Albany.....	37.9	48.2	100	2
North Carolina, Raleigh.....	46.1	59.1	103	44
North Dakota, Bismarck.....	18.4	39.6	106	20
Ohio, Columbus.....	38.9	52.1	104	17
Oklahoma, Oklahoma City.....	31.1	59.4	104	2
Oregon, Portland.....	46.8	52.5	102	6
Pennsylvania, Philadelphia.....	39.8	53.4	103	89
Rhode Island, Block Island.....	44.2	49.1	89	7
South Carolina, Charleston.....	50.7	65.8	104	13
South Dakota, Yankton.....	26.8	45.8	107	4
Tennessee, Nashville.....	50.1	59.3	104	108
Texas, San Antonio.....	29.7	68.5	108	20
Utah, Salt Lake City.....	16.2	51.3	102	25
Vermont, Burlington.....	32.9	45.3	97	6
Virginia, Lynchburg.....	42.9	56.9	102	12
Washington, Seattle.....	35.9	51.5	95	15
Washington, D. C.....	43.5	54.7	104	27
West Virginia, Parkersburg.....	41.0	54.4	102	100
Wisconsin, Milwaukee.....	32.1	45.0	100	38
Wyoming, Cheyenne.....	12.2	44.4	100	

' Indicates temperature below zero.

Thus it may be said with truth that near the Pacific coast we have a difference of only 12° in mean temperature in a range of over sixteen degrees of latitude. From the immediate vicinity of the coast, in latitude 35°, into the San Joaquin and Sacramento valleys, the mean temperature is not below 60°, and nowhere much higher. The causes of this are the proximity of the great area of water over which the prevailing winds blow, the modification which the temperature of this ocean undergoes near the American coast by the Asiatic coast current and the northern or Arctic coast current, and the position of the mountain ranges near the coast. Uniformity of climate along the edges of the land is still further aided by the peculiar nature of the currents along this coast. The influence of the warm Asiatic current—the Kuro-Siwo—is distinctly felt in raising the temperature as far south as the northern part of California.

Peculiar meteorological conditions exist in the United States, producing in the winter intense cold and in the summer extreme heat, while occasionally, especially in the West, great variations of temperature are noticed within a very brief space. What are known as "cold waves" generally proceed from the valley of the Saskatchewan and the prairies of Manitoba. The north wind sweeps over Wyoming and Colorado, Minnesota and Wisconsin and sometimes reaches as far south as

Kentucky and Tennessee. A strong breeze, sometimes blowing with a velocity of thirty to forty miles an hour, carries with it the icy blast of the frozen North, and causes a fall in temperature of twenty, thirty, even forty degrees in a single day or night. The effect of these cold waves has even been felt in Florida, where a few years ago the orange groves suffered severely. But on the exposed prairies of Iowa and Nebraska the full force of the wind is experienced, and the loss of stock, and sometimes of human life, is great. These "cold waves" are seldom of long duration. In the Rocky Mountains and the foothills there is often a fall of 40° in one day, sometimes in a few hours.

The "hot wave" usually occurs in July and often extends over large tracts from the seaboard to Dakota or Colorado. This affliction, happily, is usually of brief duration, seldom lasting more than three or four days, although spells of hot weather may follow each other with brief intervals of lower temperature. In such cases the thermometer may record 90° to even 100° F., not only in the Middle and Southern States, but as far north as Yankton. Little is known of the cause of these phenomenal heated terms, but they are most severe in the inland districts, where there are no mountains to induce precipitation, and neither sea nor lake breezes modify the torrid heat.

The prevailing winds in the entire Atlantic and Central region are westerly the year round. In winter they are chiefly northwesterly; in summer, southwesterly. Between the Alleghanies and the Mississippi, and from the lakes, south to the Cumberland Mountains, southwesterly and westerly winds prevail the year through. In the extreme southwest, the summer winds are mostly southerly, those of the winter mostly north and northwest. On the Pacific coast the winds are mostly westerly, especially in summer. California has very strong winds from the northwest in summer, and from the southwest in winter. San Francisco enjoys an evening sea-breeze, which renders it one of the most desirable of residential cities. The Atlantic seaboard, as far inland as the Appalachians, is equally favored; while in the interior the great lakes temper the summer heat, and modify the winter's cold.

The rainfall of the United States may be defined as divided into two sections by the 100th parallel of longitude. East of that parallel it is generally ample and sufficiently well distributed; west of it (except on the Pacific coast-belt) the supply is insufficient and irregular. The region of greatest precipitation is that of the Atlantic coast and the Gulf of Mexico. In the North and East there is at least thirty-two and sometimes as much as forty-four inches of rain per annum. Further south along the coast the precipitation may equal fifty inches, and from South Carolina and Tennessee to the Gulf of Mexico it ranges from forty-eight to fifty-four inches. Florida counts, as a rule, on a precipitation of fifty-six inches in its southern division. Nowhere in the United States does an amount of rain fall to equal the precipitation of the Scotch islands or of Ireland. It must be remembered that regions in which anything less than twenty inches of rain falls in the year can only be utilized for pastoral purposes, and that where the amount is much below this they cannot be cultivated at all except by irrigation. Where the precipitation averages above twenty inches, but does not exceed twenty-five inches, cereal cultivation is possible, and in certain years good crops may be grown. But, unless the average is fully maintained and the precipitation occurs at the proper times, there will be in such districts total or partial failure of crops, sometimes for several years in succession, for droughts, like heated terms and terms of extreme cold, appear to run in cycles.



Consultation of a carefully prepared rainfall chart will show that the entire eastern division of the United States is well supplied with rain. An isohyetal of twenty-six inches may be considered as forming the dividing line between a sufficiently and an insufficiently watered area. This isohyetal enters the United States from the north to the northwest of Lake Superior and runs southwesterly to the 97th meridian, which it strikes in the latitude of  $45^{\circ}$ . Thence, from about St. Paul, Minn., it runs south with a slight westward inclination until it enters Texas on the 99th meridian. On this line—it continues through four degrees of latitude, until that of  $31^{\circ}$  is reached, when the isohyetal again advances about four degrees to the westward, and thence runs southeast to the Gulf of Mexico, at the mouth of the Rio Grande. To the east of this line therefore are all the Atlantic and Middle States and all those east of the Mississippi river. Included also in this moister region is the greater part of Minnesota, eastern Nebraska, eastern Kansas, the Indian Territory, including Oklahoma, and the eastern half of Texas. The isohyetal curve of thirty-two inches, or that marking the line of abundant precipitation, runs generally parallel to that of twenty-six inches, and not more than three degrees of longitude to the east of it. In other words, everything east of a line drawn from the southern line of Lake Superior to the Gulf on the meridian of  $94^{\circ}$  is included in the district whose average rainfall ranges between twenty-six and thirty-two inches per annum, or exceeds that amount. Almost all of Minnesota lies within these lines, but a small part of eastern Wisconsin, and of eastern Michigan, receive less than their full share of the precipitation.

The heaviest rainfall in the United States occurs in the country bordering on the Gulf of Mexico and on the southern Atlantic coast. Along the Gulf, between longitude  $85^{\circ}$  and  $92^{\circ}$ , the annual fall exceeds 56 inches, and the isohyetal of 56 takes in parts of Georgia, Arkansas, Tennessee, and South Carolina. Southern Florida has 54 to 56 inches, and eastern North Carolina 50 inches. The isohyetal of 44 inches runs nearly parallel to the coast, and at no great distance from it, as far south as latitude  $37^{\circ}$ , when it trends to the west. The greater part of the eastern division of the United States thus has an average precipitation of from 32 to 44 inches, while small areas in several States receive more. This rainfall is distributed pretty uniformly throughout the year along the Atlantic coast, in the valley of the Ohio and along the Mississippi and in the Hudson River valley. In the sea-coast region, from Massachusetts to Maryland, the maximum fall occurs in May, August, and December, while in the Hudson valley the maxima occur in July and October, and February is the driest month. In the Ohio River valley the maximum fall is in June, the minimum in February. In the lower Mississippi valley the maximum and minimum occur in December and October, respectively. Along the Gulf coast the principal fall is in July, the secondary maximum in December, while October and April are the driest months. Along the upper Mississippi the greatest precipitation occurs in summer, much to the advantage of the crops, and the winter is a season of drought. The same is true as to the Hudson valley, and from that westward, except that the range is greatest in Minnesota and Wisconsin.

The conditions of the rainfall on the Pacific slope are peculiar and varied. Along the coast of California, and in the interior of that State, and on the western slope of the Sierra Nevada the maximum precipitation occurs in December, and scarcely any rain falls in the summer months. The mean annual fall at San Diego is less than ten inches; that at San Francisco twenty-two

inches. But in the north, around Puget Sound, there is an annual fall of over seventy inches. In the north, also, there is a great increase in the amount of the summer precipitation, which, in northeast Washington, amounts to ten or twelve inches in the three summer months. In San Francisco the largest annual rainfall recorded in twenty-five years was thirty-six inches; the lowest twelve inches. In the mountain country the precipitation takes the form of snow, and we know very little about its amount, though it is believed to be but small. But the precipitation is decidedly higher on the mountain ranges than in the valleys.

Elsewhere, under the appropriate headings (see METEOROLOGY, Vol. VI., p. 4183, and TORNADO, Vol. VIII., p. 5870), we have treated of the abnormal disturbances of the atmosphere, which produce cyclonic storms. With regard to ordinary storms of wind accompanied by rain, the United States is not particularly subject to these. On the Atlantic coast ocean-born storms occur, and, especially in the winter season, blow with considerable velocity, and cause damage to shipping. This is characteristic, however, of all seaboard countries, and calls for no special notice. Throughout the central and eastern regions the ordinary storms are of simple character and practically of uniform origin and development. They begin with the formation of areas of low barometer in the extreme west, or more often in the southwest, and move east or northeast with a velocity of from twenty-five to thirty miles per hour. Their rate of speed varies with the season, being greatest in January and February and least in August. If these storms arise in the northwest they move in a direction somewhat south of east; if they originate in the southwest they travel practically northeast. The progress of these storms is marked by heavy rainfall, usually extending over a wide area. Often there are noticed independent rain centers within the storm area.

The tornadoes or cyclones, for it is difficult to discriminate scientifically between the two forms, are not strictly confined to any one season, but are most frequent in summer and least so in January and December. They most often occur between four and six o'clock P.M., and their generation is coincident with a disturbance of the barometric conditions, and with great contrasts of temperature in subjacent areas. Five-sixths of the recorded destructive tornadoes moved from southwest to northeast, and the whirling motion of the storm vortex is invariably from right to left. The width of a tornado may be less than fifty feet, and has been known to exceed a mile. The velocity of progression of the main storm cloud may vary from twenty to sixty miles an hour, the average being thirty miles. The velocity within the storm vortex defies estimation or measurement, but has been variously guessed at from 70 to 500 miles an hour. The prairie country, especially when far removed from bodies of water, is much the most subject to destructive tornadoes. It has been an article of faith that tornadoes never strike near streams or lakes, but the experience of Louisville, in the spring of 1890, has shattered this belief.

#### VEGETATION.

No country upon earth includes such a variety of forest and field production as the United States. From the rye and barley of the northern temperate zone to the corn and cotton of the southern temperate regions, and the oranges, pine-apples, and bananas, the palm-trees and the magnolias of Florida, the luxuriant vegetation of this favored country knows neither scope nor limit. Of timber trees the range is from the pine-clad forests of Maine to the cedars and cypresses of the South, while

the Pacific coast contributes the *Sequoia Gigantea* and its magnificent eucalypti, and every species of deciduous and coniferous tree abounds. Except on the topmost heights of the Cordilleras and on isolated peaks of the northeastern range, forest trees of great value clothe the summits. The great prairie country of the central region makes up by the luxuriance of its cereal and root products for the comparative absence of forest vegetation.

Beginning with the northern mountain system, we find the Adirondacks densely wooded to their summits. The portion of the United States first settled by the English was, without exception, a densely-forested region, mostly of hard-wood trees. Among these, the sugar-maple (*Acer saccharinum*) is of the greatest economical importance in New England, but ranges as far west as the great lakes, and south to Alabama. In the higher portions of the country, and around the lakes, large areas are occupied by the birds-eye maple, of great value for making furniture. The soft and red maple, of less importance economically, have even a wider range. The oaks are spread in countless variety of species over the whole seaboard forest region, from Maine to Florida, and west as far as arboreal vegetation extends. The white oak (*Q. Alba*) reaches its greatest development along the western portion of the Appalachians, and in the valley of the Ohio and its tributaries. The burr oak has almost as wide a range as the white oak, extending far to the west and northwest, and forms with the scarlet oak the principal growth of the prairie "oak openings." The red oak (*Q. rubra*) has a wide range to the north. The live oak (*Q. virens*) is an evergreen tree of great value, widely distributed along the Gulf coast, and extending into Texas and Mexico. The chestnut oak, the bark of which is of great value for tanning, is found from northern New York to the Alabama line, and abounds in Tennessee and Kentucky. Of ash there are many species. The white ash ranges east and west, from Maine to Minnesota, and southwest to Texas, and finds its highest development in the bottom lands of the lower Ohio valley. The range of the red ash is almost as wide as that of the white, except in the southwest, where the places of both are taken by the green ash.

The chestnut, including many varieties, extends from Maine to Alabama, and grows luxuriantly on the North Carolina mountains. Birch flourishes in New England and all along the coast to Alabama, and is found west as far as Minnesota. The hickory, the butternut, the black walnut and the American elm are widely distributed and have considerable economic importance. South of Indiana is found the pecan tree, and from New Jersey to North Carolina the tulip tree flourishes. Space would fail to tell of the magnolias, acacias, laurels and the varieties of locusts which form adornments to the landscape.

Coniferous trees are widely spread over the whole country, from Maine to southern Georgia, and of these the genus *Pinus* is at once the most valuable and the widest distributed. The chief is the white pine (*P. strobus*), which attains its maximum development in Maine and Michigan, and grows to a greater height than any other species of the eastern forest region. The most important pinneries of the Eastern States are in Maine, where this species occurs, scattered through the deciduous forests, and where the most easily accessible trees of large size have already been pretty well thinned out; Michigan and Wisconsin are the chief pine-producing States of the western and northwestern region. Saginaw Bay, on Lake Huron, may perhaps be designated as the headquarters of the northwestern

pine lumber industry. The somewhat less valuable southern pine (*P. palustris*), called also hard, yellow, long-leaved, and Georgia pine, is, in contrast with the white pine, decidedly a southern species, ranging from southern Virginia south to Florida, and southwest through the Gulf States to the valley of the Red river in Louisiana and that of the Trinity in Texas. It occurs over extensive areas, forming the "pine-barrens" of Georgia and the Carolinas. The wood is hard and tough and the tree furnishes immense quantities of tar, pitch, rosin and turpentine. The yellow pine (*P. mitis*) has a range from Connecticut to Florida and through the Gulf States to Texas.

Another important conifer, next to *Pinus palustris* the most characteristic tree of the southeastern coast timber belt, is the cypress (*Taxodium distichum*), which ranges from Delaware south along the coast to Florida, and southwest to Texas, forming extensive forests in the southern Atlantic and Gulf States, and also extending up the Mississippi to Southern Illinois. The cypress is a marked feature in the swamp country which extends along the coast from Virginia through North and South Carolina, of which the Great Dismal Swamp, on the borders of Virginia and North Carolina, may be taken as the type. These swamps are locally known through the region where they occur as "dismals" or "pocosins." The largest continuous area of swamp in North Carolina lies between Albemarle and Pamlico Sounds, covering an area of nearly 3,000 square miles. The prevalent growth of the best swamp lands is the black gum (*Nyssa sylvatica*), tulip tree or poplar, cypress, ash, and maple, the proportion of cypress increasing as the soil becomes more peaty. These so-called swamps—in large part at least—differ essentially from what is usually called a swamp, being considerably elevated above the adjacent streams; they are, in fact, immense accumulations of decaying vegetation, often peaty in character with more or less fine sand intermingled, and with a very considerable variety of forest vegetation. Portions of these swampy areas have been successfully drained and brought under cultivation; other portions have resisted all attempts of the kind, although there has been a large amount of money expended in endeavoring to reclaim them. Besides the pines, there are to be mentioned here the spruces, firs, larches, and cedars, which together form a marked zone of vegetation decidedly northern in character, extending through the northern part of New England, through Canada to the Upper Lakes, and far to the north and northwest, where it unites with the forest belt of the Rocky Mountains, in almost the extreme northerly extension of this range within the United States. The northern forms of coniferous trees also occur in the highest portion of the Appalachians as far south as North Carolina, and are found along the most elevated ridges of the Rocky Mountain range, from the extreme north through to Arizona and New Mexico, and along the culminating portion of the Sierra Nevada nearly to the southern border of California.

A characteristic type of northern coniferous trees is the balsam-fir, which extends from Maine west to the base of the Rocky Mountains, and produces what is known as "Canada balsam." Spruce and hemlock are characteristic northern trees. The bark of the latter furnishes material for tanning. The larch, or tamarack, and the white cedar are widely spread, and in the prairie country the cottonwood and the willow grow along the water courses.

The flora of California and the Cordilleran region differ considerably from that of the Atlantic and Middle States, although including many species in common.



The forests found in the western portions of the United States are unrivalled in all the world. Nowhere else do they attain so enormous a size, or, space considered, are so numerous. Speaking from an æsthetic standpoint, it is impossible to describe the magnificent grandeur of the forest effects. Travellers from the four corners of the earth visit the stately aisles and are without words to convey the impression left upon them. Here, indeed, are found what may be worthily termed "God's first temples." Looked upon from a utilitarian standpoint, the effect, though different, is not less impressive when the beholder considers the infinite resources for man's need here conserved.

Dense forests clothe the western slopes of the Sierra Madra Mountains throughout their entire length. In Washington and Oregon particularly, the fir and pine trees are of largest growth and seemingly inexhaustible in number. To-day the lumber business of the great Northwest is the largest and most important of the region. Laying adjacent to Puget Sound, transportation is comparatively a simple matter, thus facilitating the business. There are in this region two varieties of trees that are chiefly used for lumber, the Douglas fir (*Pseudotsuga Douglasii*), and yellow pine (*pinus ponderosa*). The latter grows further inland, being found on the eastern slopes of the Sierra Nevada, covering the Cascades, and occasionally occurring in the Rocky Mountains, growing all the way from British Columbia to Arizona.

No description of the trees of this region is complete without mention of the famous redwood, the largest of all plant growths. There are two varieties, which are found only in California, generally not far distant from the coast. A vivid description of their phenomenal size and beauty is given by the famous traveller and lecturer, John L. Stoddard, who says:

"Who has not heard of the 'Big Trees' of California? They are another proof of the fact that the western portion of our country is a region marvelously endowed by Nature. There are in the area here which has been set aside by Congress 'for public use, resort and recreation,' more than 600 trees, which have in respect to size no rivals in the world. A stage-coach, with driver, passengers and horses, can be driven through the upright hollow trunk of one of these forest giants, which nevertheless is still sufficiently alive to bear leaves on its branches 300 feet above the ground! Even more enormous than those still flourishing here are some prostrate monsters, one of which must have had a circumference of 120 feet and a height of 400! The largest tree now standing here has a circumference of about 100 feet and its first branch (six feet in diameter) is 200 feet from the ground! It is an extraordinary fact that the cones of these trees are no larger than walnuts, and their seeds are only about a quarter of an inch in length. One feels himself a pigmy as he stands beside these forest Titans, not only in comparison with their prodigious size, but as he measures his brief life with the long line of thirteen centuries, of whose slow march their annual rings and weird colossal limbs give proof."

In the Rocky Mountains are comparatively few forests. What there are, are scattered here and there in small groves. As might be expected, they flourish best at the base of the mountains where there is the greatest amount of moisture. There is no comparison between the forests of the Sierra Madra and Cascade ranges and those of the Rockies, the former far out-shadowing the latter. The tree most commonly found is the aspen, more popularly called the cottonwood. This tree is found growing over a greater extent of territory than any other in North America. It is at home in cold and bleak Newfoundland as well as in the equally barren but torrid regions of Arizona and New Mexico. Other trees of the Rocky Mountains are the scrub oak, white oak and black oak.

It only remains to speak of the vast central prairies which extend over so large a portion of the area of the United States, and which, but for the cottonwoods and dwarfed oaks along the water-courses, were originally practically treeless. Large areas in the more southern States—Arkansas, Alabama, Mississippi, and Louisiana—are also prairies, portions of which are entirely destitute of forests, while others have small "clumps" of trees sparsely scattered over their surface. This is in a region of the largest rainfall, that of fifty-six inches and upward. The cause of the absence of trees on the prairies is the physical character of the soil, and especially its exceeding fineness, which is prejudicial to the growth of anything but a superficial vegetation, the smallness of the particles of soil being an insuperable barrier to the necessary access of air to the roots of a deeply rooted vegetation. Wherever in the midst of the extraordinarily fine soil of the prairies coarse or gravelly patches exist, there dense forests occur.

Since the settlement of the great States west and northwest of Ohio a vast change has been wrought in this region. Especially of recent years the necessity of supplementing nature by art and of planting groves of useful timber has been brought to the mind of the agriculturist. The value of timber as a shelter and as inducing and regulating rainfall is well known. States and counties have by publication and legislation, and by the grant of lands conditioned on the planting of timber, encouraged such action and with the most gratifying results. In States like Illinois, Iowa, and Nebraska hundreds of thousands of acres have been planted with timber, and so far as they are concerned the treeless prairie is a thing of the past. In some of these States a day is annually set apart for the planting of timber, and is known as "Arbor Day."

The United States occupies a favored position among the nations in the variety and abundance of the products of the field. Every cereal of the temperate zone, the rice and cotton of the tropics, the potato and the yam, the sugar cane and the tobacco plant all flourish luxuriantly in the various divisions of the country. The apple, pear and plum, and the hardier fruits of the north, are supplemented by the orange and the banana of Florida, and the olive, peach, and fig of California, while the vine extends over thousands of miles of territory. The native and cultivated grasses furnish sustenance for millions of cattle, horses, and sheep, while root crops are grown in every part of the country.

The northern tier of States, from the Atlantic inland to the Great Lakes, supplies the hardier cereals in great perfection. Rye, oats, and barley thrive in New York and the Eastern States; wheat constitutes a most valuable crop from the Canada line south to the Ohio river. But it is on the virgin prairies of Minnesota and the Dakotas that the great wheat fields of the world are to

be found. Soil and climate combine to produce the chief cereal in a quantity and of a quality unsurpassable anywhere. Modern improvements in agricultural machinery enable wheat-farming to be carried on upon a gigantic scale and at a low cost, while the development of the railroad system and the facilities offered by the Great Lakes afford ready access to the markets of the world.

In the States to the south of this section "corn is king." This invaluable food-plant, indigenous to the American continent, flourishes with the utmost luxuriance in the fertile river-bottoms of Illinois and Indiana, and on the spreading prairies of Iowa, Nebraska, and Kansas. Missouri, too, grows an immense acreage of corn, and all through the Mississippi and Gulf States a full supply for home necessities is grown. South Carolina and the Gulf States produce the best rice in the world, and side by side with this grows the cotton, which forms the chief staple of the south. Virginia, Tennessee, and Kentucky are the leading producers of tobacco, although this is grown to a greater or less extent in many other States, and even as far north as the valley of the Connecticut. Sub-tropical Florida has a fauna of her own, and here oranges and lemons, bananas, pine-apples, and other fruits of the southern temperate and neo-tropical zones flourish. Owing to the improvements in the means of communication these products of bountiful nature can be placed in the markets of the North and West within forty-eight hours, and certainly there is no country in which the vegetable productions of so vast a region can be found grouped at any central market.

California, in addition to the wheat and barley which rival those of all countries, has developed of late years a capacity as a fruit-growing region, which has become the foundation of an enormous industry. The cultivation of the vine on the Pacific slope is being carried on intelligently and with great vigor, while fruit farms have been established by the thousand.

The United States also possesses in the seas which wash her shores, a food-producing potentiality of almost incalculable value. The cod-fisheries of the North; the oyster-beds of almost the entire Atlantic coast, and the deep sea fishing of two oceans occupy thousands of vessels and furnish an unlimited supply of cheap and wholesome food. Not only has the United States an ample sufficiency of the best for its people, but it is enabled to export annually tens of millions of bushels of the cereals to Europe, in addition to supplying foreign countries with vast quantities of meats, from animals fed upon the produce of her boundless prairies.

#### MINERALOGY.

The wealth of a country is to a large degree dependent upon the number and quality of its mineral productions. The United States in this respect surpasses almost every other country in the world; in fact, it may be stated that in regard to precious metals no other country is so favored as this. Although at the present time the mineral resources of the United States have been but partially developed, enough has been done to demonstrate that no other country in the world has such an extensive variety and excellent quality of mineral wealth.

The mineral productions of the country may be considered under the three following heads: Precious stones and metals; the ordinary metals and ores, including coal, graphite, rock oil, and salt; and building stones.

Precious stones are occasionally found, although the specimens are of comparatively little value. Diamonds have been found in some of the States—California,

North Carolina, Georgia—and a fine specimen was recently found near Richmond, Va. They are said also to occur sparingly in Idaho. They are usually found either at the bottom of a river, or inclosed in granular rock of laminated structure. Agates and cornelians are found in large quantities and of comparatively good quality along the banks of the Upper Mississippi and in the region of Lake Superior. Beryls are also found in various portions of the United States. Rubies and sapphires have been found in New Jersey, and in isolated instances in other portions of the country.

The precious metals of the United States may be classed as platinum, gold and silver. The first, although it is sometimes found in a pure state, is usually discovered in combination with other rare metals, such as gold, iridium, osmium, and palladium. It has been found in California and North Carolina, and in small quantities in Pennsylvania. The characteristics of platinum are too well known to require description here. Its chief value lies in its faculty of resistance to the action of chemicals and acids. It furnishes a non-corrosive material for the construction of chemical instruments and vessels.

Gold is found principally in two regions, namely, the Appalachian and the Californian. It is found in small quantities in the territory around Lake Superior and Lake Michigan, but the product is unimportant. In the Appalachian region the gold district extends from Georgia as far north as Canada. The richest mines are located in North Carolina; others exist in the north and northwestern parts of Georgia and South Carolina, the western part of North Carolina, and the central parts of Virginia and Maryland. It is found in limited quantities toward the north, and occasionally in Pennsylvania, Massachusetts, Virginia, New Hampshire, and Maine, while further north the deposits increase both in extent and richness, in Canada considerable quantities being produced. In Tennessee and Alabama small deposits are known to exist. In the California region the gold belt extends along the Mountain System from the Peninsula of Lower California, northward throughout the entire extent of the Pacific Coast of the United States. The deposits are richest in California, in the valleys lying between the Coast Mountains and the Sierra Nevada and Cascade ranges, through which flow the Sacramento and the San Joaquin rivers and their tributaries. There are also rich mines in various parts of Mexico, New Mexico, Arizona, Colorado, Utah, and Idaho, and in portions of the Humboldt region in Nevada, also throughout Washington and Oregon. It is chiefly obtained from alluvial washings, or from quartz. The method of separation used is generally that of amalgamation with mercury.

Silver is found as native or metallic silver in the Lake Superior copper region, in Michigan, Idaho, and Nevada, which last is the richest silver producing country in the world. It is found here principally in combination with native gold or in connection with lead. Native gold almost always contains a small percentage of silver, hence where the production of gold is great, the amount of silver thus obtained in connection with the gold is not inconsiderable. Silver-bearing lead ore is also found to a considerable amount in some sections. North Carolina, which at one time produced a large amount of valuable silver ore, seems at present to have been exhausted.

The principal base metals of the country are iron, copper, lead, zinc, mercury, tin, chromium, nickel, cobalt, bismuth, antimony and manganese. Of these iron is the most widely distributed, very few of the geological formations being free from it. From its universal use



it has more commercial value than any other metal. It rarely occurs in a native or pure state, but is generally found in combination with some other element. When found pure it is generally as meteoric iron, or as an alloy with nickel. The most valuable ores of iron are oxides or carbonates, that is, iron in combination with oxygen or carbonic acid. On account of the almost universal distribution of the ores of iron, space forbids more than a mere enumeration of the most important regions. Immense deposits occur around Lake Superior. In Missouri the supply is so rich as to literally form two iron mountains, one of which is 600 feet high, and the other 228 feet high. In New York abundant deposits occur in the southeast, east and north. The region of the Adirondacks is especially rich. Extensive deposits of various iron ores occur in all the New England States, many of the Middle and Southern States, and very generally throughout the Western States and Territories. In fact, few districts of the United States are wanting in large and valuable deposits of some form of iron ores. The most valuable, however, occur in Pennsylvania. Although these deposits are not as rich as some others, yet on account of their availability—their nearness to beds of coal and limestone—they render that State able to compete with any other country in the world, both in regard to the quantity and quality of its productions.

The activity in the development of the southern iron industry, which was so conspicuous in the latter half of 1885 and in 1886, has been continued up to the present date. This activity has been chiefly displayed in the erection of blast furnaces for the manufacture of pig iron.

Since the beginning of 1886 there have been built in the States south of the Potomac and the Ohio rivers twenty-one large and well equipped furnaces, and fourteen furnaces were in course of erection in those States on July 1, 1888. Fifteen of the completed furnaces have been finished. Of the twenty-one completed furnaces eighteen were built to use coke and three to use charcoal as fuel; of the fourteen building, ten will use coke and four will use charcoal as fuel. These thirty-five new furnaces, built and building, are situated in the following States: Alabama, thirteen coke furnaces built and ten coke and three charcoal furnaces building; Virginia, three coke furnaces built; Tennessee, one coke and three charcoal furnaces built; Kentucky, one coke furnace built; Georgia, one charcoal furnace building. Preparations are also being made to remove a coke furnace from Missouri to Kentucky. All of these new furnaces are of large capacity, and most of them rank among the best in the country.

Discarding all abandoned furnaces, the total number of completed furnaces in the States south of the Potomac and the Ohio, not including Missouri, which were in blast on July 1, 1889, or in a condition to be readily put in blast, was 109, and, as above stated, fourteen furnaces were in course of erection in those States on that date. Of the completed furnaces fifty-seven use coke and fifty-two use charcoal as fuel. They are situated in the following States: Alabama, twenty-three coke and ten charcoal furnaces; Virginia, twelve coke and twenty-one charcoal furnaces (and one of the charcoal furnaces is being changed to a coke furnace); Tennessee, ten coke and ten charcoal furnaces; West Virginia, six coke and three charcoal furnaces; Kentucky, four coke and three charcoal furnaces; Georgia, two coke and two charcoal furnaces; North Carolina, two charcoal furnaces; and Texas, one charcoal furnace. In the whole country there were on January 1, 1889, 583 completed furnaces, not counting those abandoned.

Copper is found either in a native state or in combi-

nation with other substances. This country is exceedingly rich in its deposits of this metal. There are three principal regions of its production. These are the Atlantic, the Interior and the Western regions. The Atlantic region extends along the Atlantic border from Vermont to Tennessee. The most productive mines in this region are those located in Vermont, Connecticut, New Jersey, Pennsylvania, Maryland, and Tennessee. The Interior region occupies the country along the Mississippi Valley and around Lake Superior. Rich mines occur in various localities along the valley of the Mississippi, but the deposits are most abundant in Wisconsin and Missouri. The copper region of Lake Superior covers an extensive range of country round Keweenaw Point. The metal occurs native in veins in trap. This region is the richest in the world. Large masses of almost pure copper have been taken from the mines, one of which weighed 420 tons and contained more than 90 per cent. of pure copper. The yield of metal from this region averages about 3,000 tons per year. The Western region comprises large tracts of country along the Pacific coast. Native copper has been found in California and Arizona.

Lead never occurs native except in rare instances, when it is regarded as a mineralogical curiosity. Its principal ores are sulphides and oxides. The most abundant ore is galena, a sulphide. The deposits of lead, like those of copper, are exceedingly rich and numerous, and are distributed into three regions. In the first of these, the Atlantic region, the deposits are located in Maine, New Hampshire, Vermont, Massachusetts, Connecticut, New York, Pennsylvania, Virginia, and North Carolina. In the Interior region they are generally confined to the Valley of the Mississippi. Here the deposits are of the most extensive character. They occur principally in conjunction with the limestone formations in the States of Wisconsin, Iowa, Illinois, and Missouri. Veins of this metal are also found in Tennessee. The mines of Missouri are exceedingly productive. They have been known for 170 years. They occur generally south of the Missouri river, in the neighborhood of the iron mountains. The mines of Iowa, Wisconsin, and Illinois lie mostly in the region bounded by the Mississippi, Wisconsin, and Rock rivers, and extend to several counties of Iowa. The profuse abundance of the deposits in this neighborhood may be judged from the fact that from a spot not more than fifty yards square over 3,000,000 pounds of ore have been obtained. Lead is also found to a limited extent in the Lake Superior copper region. The Western region, which is composed of California, Nevada, Arizona, and Colorado, contains large and valuable deposits of galena. This region, however, has been less developed than the Atlantic and Interior regions.

Zinc rarely occurs native, and is usually found either as a sulphide or oxide, sometimes in connection with the carbonates and silicates. Large and valuable deposits exist along the Atlantic slope in the New England, Middle, and middle Atlantic States, and in Tennessee. Considerable quantities are also found in connection with the lead deposits of the Mississippi Valley.

Mercury occurs native, and also in combination with various substances. The principal form of ore from which the mercury of commerce is obtained is cinnabar, which is a sulphide. The principal industrial uses for this metal occur in connection with the gold mining operations in California, where it is used for the separation of gold from its ore, and in the manufacture of glass mirrors. There are extensive deposits of quicksilver in various parts of California, and range along the coast from Lake Clear in the north, to San Luis Obispo in the south. The mines of New Almaden, southeast

of San Francisco, are the most important. There are also deposits in Idaho.

Tin is found principally in conjunction with sulphur, and as an oxide. The oxides are the most important, and are most productive of the tin of commerce. Small quantities of the ores of the tin have been found in various parts of the country, but not in sufficiently large quantities to warrant the mines being developed. These traces have been observed in Maine, New Hampshire, Massachusetts, Virginia, California, and Idaho. The New Hampshire deposits are the most extensive and important, and at some future day, when the cost of production will be considerably lower, they may be of value.

Chromium is generally found as an oxide, and in combination with the oxide of iron. Its principal points of deposit are Vermont, Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, and Maryland. It is of great commercial value for the purpose of manufacturing fine yellow and green paints.

Nickel occurs native in masses of iron of a meteoric character. The principal ore from which it is obtained is the arseniate. It is also found in combination with iron and sulphur. Nickel is but sparingly found in the United States. The principal localities of its deposit are Connecticut and Pennsylvania. The Pennsylvania deposits are the most extensive, and the yield of reduced metal is now considerable. The principal use of the metal is for the manufacture of philosophical instruments; on account of its non-liability to rust it is preferable to steel for this purpose. It is also used in the coinage of the nickel half-dimes and three-cent pieces of our fractional money.

Cobalt does not occur native, and is generally found associated with nickel. It is not used in the metallic state, its principal use being to impart a blue color to glass. It is found principally in Connecticut and Missouri.

Bismuth and antimony are also found in small quantities in some of the States, and manganese occurs in Vermont and in many of the other States. Coal is found in greater abundance in the United States than in any other country in the world. The coal areas of the country, as described by Professor Dana, are as follows:

First, the Appalachian coal-fields, which cover parts of Pennsylvania, Ohio, and Virginia, together with Eastern Kentucky, Eastern Tennessee, and Alabama. The area of this region is estimated at 60,000 square miles. In Pennsylvania both bituminous and anthracite deposits occur, the eastern field containing anthracite and the western bituminous. The second area is the Illinois and Missouri field, which includes portions of Illinois, Indiana, Kentucky, Iowa, Missouri, Kansas and Arkansas. Its area is about 50,000 square miles. The third section comprises the Michigan area, near the center of the State of Michigan. The fourth, or Texas area, covers the northern and western parts of the State of Texas. The fifth, or Rhode Island area, includes the State of Rhode Island and part of Massachusetts. This is the southern limit of the large area which lies to the northeast of this in Nova Scotia and New Brunswick. Besides the regions here enumerated, indications of coal are abundant in western sections of the Mississippi valley, and throughout the Rocky Mountains. The total area of the productive coal-fields of the United States is estimated at 125,000 square miles, or nearly seven times as great as the coal area of Great Britain, Ireland, Spain, France, and Belgium combined.

Graphite is a substance allied to coal, of nearly the same chemical constituency, being, however, generally associated with iron. It is extensively mined in Sturbridge, Mass., in Essex and Dutchess counties, N. Y.,

at Brandon, Vt., and at Wake, N. C. There are small deposits in other States.

The principal use of graphite is in the manufacture of lead pencils.

Petroleum, or coal-oil, is the name given to the oil which exudes from the wells throughout various portions of the coal-oil area of the United States. As its name indicates, it was formerly thought to be purely coal-oil, but it is now believed to be a decomposition of vegetable and animal substances, which occurs most frequently in clayey shales or sandstones. It is sometimes found floating on the surface of bodies of water or rising from the rocks as oil springs, but it is most frequently obtained by boring, when it rushes up from the depths of the earth, usually to a considerable height, in a manner analogous to the flowing of water from the artesian wells. The discovery of the wells of Pennsylvania was first made in 1859, while sinking a well for salt in Venango county. The oil flowed from the well at the rate of 1,000 gallons a day for several weeks. Since that time immense quantities have been obtained from other portions of the coal fields of that State. Deposits occur in various portions of the coal regions, including western Pennsylvania, western Virginia, Ohio, and Michigan. It is also sparingly found in Kentucky, Tennessee, California, and other States. In connection with the petroleum there is usually a large flow of natural hydrocarbon gas.

Recently gas wells have been bored in various portions of the country and especially in the vicinity of Pittsburgh, from which gas is conducted in pipes to mills, houses, etc., to be consumed as fuel.

The prominence which natural gas has recently attained as a fuel in the manufacture of iron and steel in the United States naturally directs attention to its relation to other kinds of fuel which are used in this great American industry.

It may be premised that no other country, not even Great Britain, is so richly endowed as this country with fuel adapted to the various processes used in the manufacture of iron and steel, in both their crude and finished forms. We have in some sections extensive forests for the supply of charcoal; in others there is an abundance of bituminous coal, much of which makes excellent coke; in eastern Pennsylvania are extensive fields of anthracite coal; and in western Pennsylvania and neighboring territory is the natural gas region. As iron ore is also widely distributed in the United States, no natural obstacles exist to prevent this country from becoming in all respects the most conspicuous leader in the world's iron and steel industries, and this position it is rapidly attaining, as the figures already given abundantly show. In many respects it has already attained this distinction.

Originally all our iron and steel was made with charcoal, which remained our principal fuel for making iron and steel for many years. In the last century bituminous coal was sparingly used in heating furnaces; in the early part of this century it began to be used in puddling furnaces; in 1839 we commenced to make pig iron with bituminous coal in the form of coke, and in 1845 we successfully introduced the use of raw coal in the blast furnace. To-day most of our pig iron is made with coke, either alone or as a mixture with anthracite or raw bituminous coal. In the early part of this century we began to use anthracite coal in the heating furnace, and subsequently in the puddling furnace. A few years before 1840 we successfully experimented with the use of anthracite coal in the blast furnace, and in that year its use in the manufacture of pig iron was fully established. Anthracite coal is no longer used in puddling furnaces, except in very rare instances, and its use is



heating furnaces is rapidly yielding to the encroachments of bituminous coal. Except where natural gas is used, bituminous coal is generally used in our puddling and heating furnaces. Charcoal is still used in the manufacture of "charcoal" blooms, whether made from ore or pig iron and scrap, and it is used in the manufacture of our very small annual product of cemented steel, but it is not used in the manufacture of any other finished forms of iron or steel. In the production of gas for use in Siemens's and other regenerative heating furnaces our dependence was chiefly upon bituminous coal and slightly upon anthracite coal until the advent of natural gas.

In 1854 the United States made more pig-iron with charcoal than with anthracite coal. The next year charcoal was passed by anthracite coal, and in 1869 it was passed by bituminous coal. Anthracite continued, however, to be the leading fuel until 1875, when it, too, was passed by bituminous coal, which has since continued to be the favorite blast-furnace fuel.

The development of natural gas in this country as a fuel in the manufacture of the finished forms of iron and steel dates from 1874. (It is scarcely necessary to say that natural gas is not used in the manufacture of pig-iron.) At the Siberian rolling mill of Rogers & Burchfield, at Leechburg, in Armstrong county, Penn., natural gas, taken from a well 1,200 feet deep, was first used as a fuel in connection with our iron and steel industries. In the fall of 1874 it was announced that during the preceding six months the gas had furnished all the fuel required for puddling, heating, and making steam at these works, not one bushel of coal having been used. Between 1874 and 1881 natural gas for puddling was successfully used at the same rolling mill; at the mills of Spang, Chalfant & Co., and Graff, Bennett & Co., in Allegheny county, Penn.; and at the rolling mill of the Kittanning Iron Company, at Kittanning, Penn. In each instance the gas used at these works was obtained from wells that were sunk for oil, but were found to produce only gas. In 1883 the substitution of natural gas for bituminous coal in rolling mills and steel works received much attention at Pittsburgh, owing to the discovery of natural gas in large quantities at the neighboring town of Murrysburg, in Westmoreland county, Penn., but as late as September, 1884, there were in all only six rolling mills and steel works in the United States which were using the new fuel. During the next two years the use of natural gas in the manufacture of iron and steel made rapid progress. In August, 1886, there were sixty-eight rolling mills and steel works which used the new fuel. During the next fifteen months still further progress was made. In November, 1887, there were ninety-six rolling mills and steel works which wholly or in part used natural gas as fuel, and over one hundred are now using it. The whole number of rolling mills and steel works in the United States in November, 1889, completed or in course of erection, was 463, of which nearly one-fourth used natural gas as fuel.

Salt generally occurs associated with gypsum, or with clays and sandstones. It also occurs in the form of pure rock salt in considerable quantities in Pennsylvania, Virginia, Oregon, Nevada. Most of the salt of this country, however, is obtained by manufacturing the water of certain saline or brine springs. The richest of these are found in Michigan and New York. Other springs exist in western Pennsylvania, Kanawha valley, Virginia, Kentucky, and in various portions of the South and West, as Alabama, Arkansas, Texas, New Mexico, Utah, and California. Some of these wells have sufficient strength to produce an average of one bushel of salt from forty gallons of water—nearly ten times the strength of sea water.

The principal building stones of the United States are granite, gneiss, mica-schist, sandstone, slate, marble and limestone. Granite and gneiss are the most valuable for building material. They are composed of feldspar, mica and quartz. The difference is solely in their structure; gneiss being a stratified rock, while granite has lost all traces of stratification, and has become homogeneous in texture. Mica-schist contains the same constituents as granite and gneiss in varying quantities. It contains more mica and less feldspar than gneiss or granite. These rocks occur in various localities throughout many of the Atlantic States, especially those of New England. The best quarries for granite are in New Hampshire, Maine, Massachusetts, Connecticut and Virginia. The Virginia granite is of peculiar excellence, having a maximum hardness and durability. Sandstone is found in various portions of the Union, but varies in strength and durability in different localities. In some varieties it makes a good building stone, but more often it is not very durable, being friable and easily decomposed by the weather. Slate is used principally for roofing purposes. Large quarries are found in New York, Pennsylvania, and in several of the New England States. Marble and limestone occur very extensively almost throughout the entire region of the United States. Their composition is identical, marble being the term applied to limestone capable of receiving a polish. The other varieties of limestone can be used either for a building material or calcined for lime for building purposes, or for a fertilizer. Limestone is found in very extensive deposits along the entire Mississippi Valley.

#### MISCELLANEOUS.

We give here extracts from the United States Geological Survey for 1900—the last report published. These extracts give some interesting figures relative to mineral productions, not alluded to in the foregoing:

*Precious Stones.*—The value of American gems in the rough state amounted to \$200,000, besides gold quartz for specimens and gems, valued at \$75,000.

*Phosphate Rock.*—South Carolina phosphate rock, 480,558 long tons, valued at \$1,836,818; an increase of 50,009 tons, but a decrease of \$36,118 in value, due to greater competition, reducing the price to \$3.75 per ton for land and \$4 for river rock. Total, U. S., \$5,375,956.

*Marls.*—In New Jersey the production is estimated at 600,000 tons, worth about \$300,000. While the New Jersey marl is yielding slowly to commercial fertilizers, the Virginia marls, as well as those in North and South Carolina, Georgia, Mississippi, and Florida, are finding increased local use.

*Borax.*—Production, 11,000,000 pounds, all from California and Nevada. Total value, \$550,000, at 5 cents per pound for the average grade. The price was rising at the close of 1887.

*Sulphur.*—Production about 3,000 tons from Utah, worth \$100,000. Litigation checked the use of an increased plant. The imports of Sicilian sulphur, with small shipments from Japan, were 96,882 long tons, valued at \$1,688,360.

*Totals.*—A compilation of values shows an aggregate value of \$672,090,416 for the year. This is the largest total ever reached by the mineral industries of any country. It is nearly \$73,000,000 more than the product of the United States in 1886, and considerably more than \$100,000,000 in excess of the year 1885. Of many items which have contributed to this result, it will be noted that all the metals increased in quantity, except gold and the minor metal, nickel, and nearly all increased in price.

## STATISTICAL.

The United States at the beginning of the current fiscal year comprised forty-five States, six Territories and one District, with a census population of 76,303,387. In the following figures it is intended to exhibit the material progress for past years and the present status and condition, financial and otherwise, of the government, together with such other information as may be useful and interesting. As a matter of prime interest, we begin with a statement of the population, net revenue, and net expenditures of the government from 1838 to June 30, 1900, and per capita of the revenues and per capita of expenditures:

YEARS.	Popu- lation.	Net Revenue.	Per Capita on Reve- nue.	Net Expenses.	Per Capita on Expen- ditures.
1838.....	16,112,000	\$ 26,302,562	1.63	\$ 33,865,059.00	\$ 2.10
1839.....	16,584,000	31,482,750	1.90	26,899,128.00	1.62
1840.....	17,069,453	19,480,115	1.14	24,817,579.00	1.42
1841.....	17,591,000	16,860,160	.96	26,565,573.00	1.51
1842.....	18,132,000	19,976,197	1.10	25,205,761.00	1.39
1843 6 ms	18,694,000	8,302,702	.89	11,858,075.00	1.27
1844.....	19,276,000	28,221,374	1.62	22,337,571.00	1.16
1845.....	19,878,000	29,970,106	1.51	22,937,408.00	1.15
1846.....	20,500,000	29,699,968	1.45	27,766,925.00	1.35
1847.....	21,143,000	26,495,769	1.25	57,281,412.00	2.71
1848.....	21,805,000	35,735,779	1.64	45,377,225.00	2.08
1849.....	22,489,000	31,208,143	1.39	45,051,657.00	2.00
1850.....	23,191,876	43,603,439	1.88	39,543,492.00	1.71
1851.....	23,995,000	52,559,304	2.19	47,709,017.00	1.99
1852.....	24,802,000	49,846,816	2.01	44,194,919.00	1.78
1853.....	25,615,000	61,587,054	2.40	48,184,111.00	1.88
1854.....	26,433,000	75,800,341	2.79	58,044,862.00	2.20
1855.....	27,256,000	65,350,575	2.40	59,742,668.00	2.19
1856.....	28,083,000	74,056,699	2.64	69,571,026.00	2.48
1857.....	28,916,000	68,965,313	2.38	67,795,708.00	2.34
1858.....	29,753,000	46,665,366	1.57	74,185,270.00	2.49
1859.....	30,596,000	58,486,466	1.75	69,070,977.00	2.26
1860.....	31,443,321	56,064,608	1.78	63,130,598.00	2.01
1861.....	32,064,000	41,509,930	1.29	66,546,645.00	2.08
1862.....	32,704,000	51,987,455	1.59	47,761,819.00	14.52
1863.....	33,365,000	112,697,291	3.38	714,740,725.00	21.42
1864.....	34,046,000	264,626,772	7.77	865,322,642.00	25.42
1865.....	34,748,000	333,714,605	9.60	1,297,555,224.00	37.34
1866.....	35,469,000	558,032,620	15.73	520,809,417.00	14.68
1867.....	36,211,000	490,634,010	13.55	357,542,675.00	9.87
1868.....	36,973,000	405,038,083	10.97	377,340,285.00	10.21
1869.....	37,756,000	370,943,747	9.82	332,865,278.00	8.55
1870.....	38,558,371	411,255,478	10.67	309,653,561.00	8.03
1871.....	39,555,000	383,323,945	9.69	292,177,188.00	7.39
1872.....	40,506,000	374,106,868	9.22	277,517,963.00	6.84
1873.....	41,677,000	333,738,205	8.01	290,345,245.00	6.97
1874.....	42,796,000	304,978,755	7.13	302,639,873.00	7.07
1875.....	43,951,000	288,000,051	6.55	274,623,393.00	6.25
1876.....	45,137,000	294,085,865	6.52	265,101,085.00	5.87
1877.....	46,353,000	281,406,419	6.07	241,334,475.00	5.21
1878.....	47,598,000	257,763,879	5.42	236,964,327.00	4.98
1879.....	48,866,000	273,827,164	5.60	266,947,884.00	5.46
1880.....	50,155,783	333,526,611	6.65	267,642,958.00	5.34
1881.....	51,495,000	360,782,293	7.01	260,712,688.00	5.06
1882.....	52,802,000	405,525,250	7.64	257,981,440.00	4.89
1883.....	54,165,000	398,287,582	7.35	265,408,138.00	4.90
1884.....	55,556,000	348,519,870	6.27	244,126,244.00	4.39
1885.....	56,975,000	323,690,706	5.68	260,226,985.00	4.57
1886.....	58,420,000	336,439,727	5.76	242,483,138.00	4.15
1887.....	59,893,000	371,403,277	6.20	267,932,179.00	4.47
1888.....	61,394,000	379,266,075	6.18	267,924,801.00	4.36
1889.....	62,921,000	387,050,059	6.31	299,288,978.25	4.76
1900.....	76,303,387	567,240,852	7.00	487,713,792.00	6.00

\*This includes \$8,270,842.46 of "premiums on purchase of bonds."

†This includes \$17,292,362.65 of "premiums on purchase of bonds."

## MANUFACTURES.

The census of the United States is the only reliable authority for a statement of the total manufactures of the country, all other sources of information being liable to exaggeration from a local desire to enhance as much as possible the commercial and manufacturing impor-

tance of any particular locality. We therefore use the figures of the last (twelfth) census, that of the year 1900. The total number of manufacturing establishments in the Union at that time was 512,726, employing a capital of \$9,874,664,087, giving employment to 5,718,817 persons, who received \$2,735,110,612 in wages, and consumed \$7,360,954,597 in raw material, producing manufactured goods to the value of \$13,040,013,638. These were distributed among the different articles as follows:

TRADES.	1900.				
	Estab- lish- ments.	Cap- ital.	Hands Em- ploy'd.	Wages Paid.	Value of Prod- ucts.
Agricultural im.	715	157.7	56,628	30.8	101.2
Alcoholic liqu's.	2,835	457.6	52,575	42.3	340.6
Beet sugar.....	31	20.9	2,320	1.3	7.3
Bicycles and tri- cycles.....	312	2.0	19,559	9.9	31.9
Boots and shoes	1,600	101.7	150,765	66.9	261.0
Carriages and wagons.....	7,632	118.1	66,851	33.8	121.5
Cars and shop construction..	1,296	119.5	180,748	102.2	218.2
Cheese, butter, and cond. milk	9,351	36.4	15,686	7.0	131.1
Chemical prod..	1,740	288.5	55,370	33.1	202.5
Clay products..	6,422	147.9	110,818	44.5	95.4
Clothing—men's	5,731	120.6	130,952	55.9	276.8
" women's	2,701	48.4	90,454	39.1	159.3
Coke.....	241	36.5	117,914	7.8	35.5
Cordage and twine.....	105	29.2	13,550	4.7	37.8
Cotton.....	1,051	467.2	307,763	94.0	339.1
Dyeing and fin'g textiles.....	298	60.6	31,094	14.9	44.9
Flouring and grist-mill.....	25,258	218.7	42,863	23.1	560.7
Fruit, veg. and fish canning..	2,195	48.4	55,068	14.8	82.5
Gas.....	877	567.0	28,363	17.7	75.7
Glass.....	355	61.4	55,086	29.3	56.5
Iron and steel..	725	580.0	235,705	134.7	885.7
Leather, tanned, cur. and fin'd.	1,306	173.9	54,551	25.7	204.0
Liquors, distill'd	967	32.5	4,383	2.6	96.7
" malt.....	1,509	415.2	46,685	38.8	237.2
" vinous.....	359	9.8	1,507	1.0	6.5
(included in above alco- holic liquors).					
Lumber and timber.....	33,085	611.6	295,790	115.9	566.8
Meat packing and slaught'g.	921	189.1	78,761	43.5	785.5
Musical instru- ments.....	621	47.7	25,447	14.9	44.5
Paper and pulp.	763	167.5	52,581	25.2	127.2
Petroleum refin.	67	95.3	12,400	8.5	123.9
Printing and publishing:					
Newspapers and periodicals....	15,305	192.4	122,183	77.3	222.9
Book, music and job.....	7,007	100.0	78,608	42.9	124.0
Rubber boots and shoes.....	22	33.6	14,874	7.0	41.0
Salt.....	159	27.1	5,180	2.4	7.9
Shipbuilding...	1,116	77.3	48,188	26.8	74.5
Silk & silk goods	483	81.0	68,073	24.1	107.2
Starch.....	124	11.6	3,061	1.5	9.2
Tobacco.....	15,252	124.0	150,539	58.8	283.0
Turpentine and rosin.....	1,503	11.8	43,753	9.1	20.3
Watches & cases	43	22.3	11,187	6.0	14.6
Wool manufac..	1,036	126.1	71,621	27.9	120.0
Woolen goods..	185	130.3	57,895	22.1	118.7
Worsted goods..					
Hosiery and knit goods.....	921	81.8	86,196	27.4	95.4
Carpets & rugs.	133	44.4	29,068	12.0	48.1



The following table gives the names and capitals of the different States and Territories of the Union, together with a synopsis of their government, population, and areas:

States and Territories.	Capitals.	Salaries.	Term Years.	Legal Rate of Interest. Per Cent.	Rate allowed by Contract.	Electoral Vote.	Rep. Cong.	Time of Election.	Population, 1900.	Area, Sq. M.
Alabama	Montgomery	\$3,000	4	8	8	11	9	First Monday in August.	1,828,697	52,250
Alaska Territory	Sitka	3,000	4	8	10	..	..	Tuesday after first Monday in November.	65,592	577,390
Arizona	Phoenix	2,600	4	7	Any Rate.	..	1	First Monday in September.	123,931	113,020
Arkansas	Little Rock	3,000	2	6	10	8	6	Tuesday after first Monday in November.	1,311,564	53,850
California	Sacramento	6,000	4	6	Any Rate.	..	7	Tuesday after first Monday in November.	1,483,053	158,360
Colorado	Denver	5,000	2	8	Any Rate.	4	2	Tuesday after first Monday in November.	539,700	103,645
Connecticut	Hartford	4,000	2	6	6	4	4	Tuesday after first Monday in November.	908,420	4,990
Delaware	Dover	2,000	4	6	6	3	1	Tuesday after first Monday in November.	184,735	1,960
Dist. of Columbia	Washington	..	..	6	10	..	..	Tuesday after first Monday in November.	278,718	70
Florida	Tallahassee	3,500	4	8	10	4	2	First Wednesday in October.	528,542	58,680
Georgia	Atlanta	3,000	2	7	8	13	11	First Wednesday in November.	2,216,331	59,475
Hawaii	Honolulu	3,000	4	..	..	..	..	First Wednesday in November.	154,001	6,740
Idaho	Boise City	3,000	4	7	12	3	1	Tuesday after first Monday in November.	161,772	84,800
Illinois	Springfield	6,000	4	5	7	24	22	Tuesday after first Monday in November.	4,821,550	56,650
Indiana	Indianapolis	5,000	4	6	7	15	13	Tuesday after first Monday in November.	2,516,462	36,350
Iowa	Des Moines	3,000	2	6	8	13	11	Tuesday after first Monday in November.	2,231,853	56,025
Indian Territory	Tahlequah	1,500	4	6	10	..	..	Tuesday after first Monday in November.	392,000	31,400
Kansas	Topeka	3,000	2	6	10	10	8	Tuesday after first Monday in November.	1,470,495	82,080
Kentucky	Frankfort	6,500	4	6	6	13	11	First Monday in August.	2,147,174	40,400
Louisiana	Baton Rouge	5,000	4	5	8	8	6	First Monday in November.	1,381,625	48,720
Maine	Augusta	2,000	2	6	Any Rate.	6	4	Second Monday in September.	694,466	33,040
Maryland	Annapolis	4,500	4	6	6	8	6	Tuesday after first Monday in November.	1,188,044	12,210
Massachusetts	Boston	8,000	1	6	Any Rate.	15	13	Tuesday after first Monday in November.	2,805,346	8,315
Michigan	Lansing	4,000	2	5	7	14	12	Tuesday after first Monday in November.	2,420,982	58,915
Minnesota	St. Paul	5,000	2	6	10	9	9	Tuesday after first Monday in November.	1,751,394	73,365
Mississippi	Jackson	3,500	4	6	10	9	7	Tuesday after first Monday in November.	1,551,270	46,810
Missouri	Jefferson City	5,000	4	6	8	17	15	Tuesday after first Monday in November.	3,106,665	69,415
Montana	Helena	5,000	4	10	Any Rate.	3	1	Tuesday after first Monday in November.	248,329	146,080
Nebraska	Lincoln	2,500	4	7	10	8	6	Tuesday after first Monday in November.	1,066,300	77,510
Nevada	Carson City	2,000	2	6	Any Rate.	3	1	Tuesday after first Monday in November.	42,335	110,700
New Hampshire	Concord	2,000	2	6	6	4	2	Tuesday after first Monday in November.	411,588	9,305
New Jersey	Trenton	10,000	3	6	6	10	8	Tuesday after first Monday in November.	1,883,669	7,815
New Mexico Ter.	Santa Fe	2,600	4	6	12	..	..	Tuesday after first Monday in November.	195,310	122,580
New York	Albany	10,000	3	6	6	36	34	Tuesday after first Monday in November.	7,268,894	49,170
North Carolina	Raleigh	4,000	4	6	6	11	9	Tuesday after first Monday in November.	1,893,810	52,250
North Dakota	Bismarck	3,000	2	7	12	3	1	Tuesday after first Monday in November.	319,146	70,795
Ohio	Columbus	8,000	2	6	12	23	21	Tuesday after first Monday in November.	4,157,545	41,060
Oklahoma Ter.	Guthrie	2,600	4	7	12	..	..	Tuesday after first Monday in November.	398,331	39,030
Oregon	Salem	1,500	4	6	10	4	2	First Monday in June.	418,536	96,030
Pennsylvania	Harrisburg	10,000	4	6	6	32	30	Tuesday after first Monday in November.	6,302,115	45,215
Porto Rico	San Juan	8,000	4	6	Any Rate.	..	..	First Wednesday in April.	953,243	3,600
Rhode Island	Newport and Providence	3,500	1	7	8	4	2	Tuesday after first Monday in November.	428,556	1,250
South Carolina	Columbia	3,000	2	7	12	7	2	Tuesday after first Monday in November.	1,340,316	30,570
South Dakota	Pierre	3,000	2	6	6	12	10	Tuesday after first Monday in November.	401,570	77,650
Tennessee	Nashville	4,000	2	6	10	15	13	Tuesday after first Monday in November.	2,020,616	42,050
Texas	Austin	4,000	2	8	Any Rate.	10	13	Tuesday after first Monday in November.	3,048,710	265,780
Utah	Salt Lake City	2,000	4	6	6	3	1	First Monday in August.	276,749	84,470
Vermont	Montpelier	1,500	2	6	6	4	2	First Tuesday in September.	343,641	9,565
Virginia	Richmond	5,000	4	6	6	12	10	Tuesday after first Monday in November.	1,854,184	42,450
Washington	Olympia	4,000	4	6	6	6	4	Tuesday after first Monday in November.	518,108	69,180
West Virginia	Charleston	2,700	4	6	6	6	4	Tuesday after first Monday in November.	958,800	24,786
Wisconsin	Madison	5,000	2	6	10	10	10	Tuesday after first Monday in November.	2,069,042	56,040
Wyoming	Cheyenne	2,500	4	8	12	3	1	Tuesday after first Monday in November.	92,531	97,890

\* Delegate.

Total pop. (1900), 76,303,387.

Total area (1902), 3,692,125 sq. miles.

## FINANCES.

The financial condition of the country is shown by the following exhibits, which are all extracted from the reports of the secretary of the treasury and the comptroller of the currency for the current year, as presented to the congress of the United States in its opening session by the officials named:

*Fiscal Year 1901.*—The ordinary revenues and expenditures of the government from all sources and for all purposes for the fiscal year ended June 30, 1901, were:

RECEIPTS.		EXPENDITURES.	
From customs .....	\$238,585,456	For civil and miscellaneous items .....	\$122,282,003
From internal revenue .....	307,180,664	For war department .....	144,615,697
From sales of public lands .....	2,965,120	For navy department .....	60,506,978
Other miscellaneous items .....	38,954,098	For Indians .....	10,806,073
Total revenue year 1901 .....	\$587,685,338	For pensions .....	139,323,622
		For interest on public debt .....	32,342,979
		Total ordinary expenditures .....	\$509,967,352
Receipts from postal service .....	\$111,631,193	For postal service .....	\$115,554,920
Loan and treasury notes .....	218,978,610	For redemption of public debt .....	212,620,768
Grand total .....	\$918,295,141	For premiums .....	14,649,573
		Grand total .....	\$852,792,613
		Excess of revenue over ordinary expenditures .....	\$ 77,717,986

## SUMMARY OF STATISTICS—INDUSTRIAL COMBINATIONS FOR 1900.

	Number of plants.	Capital.	SALARIED OFFICIALS.		WAGE-EARNERS.	
			Number.	Salaries.	Average number.	Total wages.
Total .....	2,029	\$1,433,804,920	24,585	\$32,653,628	399,192	\$194,534,715
Iron and steel and their products .....	447	341,779,954	6,075	7,462,386	145,609	81,098,583
Food and allied products .....	273	246,623,633	4,002	4,417,444	32,958	12,326,601
Chemicals and allied products .....	248	175,002,887	3,015	4,364,704	27,754	12,746,006
Metals and metal products other than iron and steel .....	89	118,519,401	1,047	1,571,414	20,522	12,356,772
Liquors and beverages .....	219	118,489,158	1,151	2,406,096	7,624	4,869,457
Vehicles for land transportation .....	65	85,965,683	1,967	1,940,778	34,422	17,571,613
Tobacco .....	41	16,191,818	1,410	2,064,926	17,661	5,278,151
Textiles .....	72	92,468,606	1,095	1,841,913	37,723	13,297,357
Leather and its finished products .....	100	62,734,011	343	663,570	9,898	4,070,641
Paper and printing .....	116	59,271,691	1,165	1,831,528	16,706	7,478,962
Clay, glass, and stone products .....	180	46,878,928	1,001	1,301,159	20,294	10,994,488
Lumber and its remanufactures .....	61	24,470,281	615	756,783	10,778	4,389,944
Miscellaneous industries .....	118	45,408,869	1,699	2,030,927	17,243	8,056,140

	Miscellaneous expenses.	COST OF MATERIALS USED.			Value of products.
		Total.	Purchased in raw state.	Purchased in partially manufactured form.	
Total .....	\$151,851,077	\$1,085,083,828	\$329,762,351	\$609,313,778	\$1,661,295,364
Iron and steel and their products .....	18,067,249	325,630,784	22,979,550	246,268,385	508,626,482
Food and allied products .....	11,893,350	240,273,639	50,133,512	167,510,788	282,408,081
Chemicals and allied products .....	7,022,787	141,031,345	98,081,833	20,562,946	182,391,744
Metals and metal products other than iron and steel .....	2,847,356	131,020,638	59,753,215	58,864,473	180,154,703
Liquors and beverages .....	58,621,319	19,117,973	10,265,538	5,217,899	93,432,274
Vehicles for land transportation .....	3,519,070	56,600,518	45,730	47,391,179	85,985,533
Tobacco .....	35,119,316	23,809,804	16,035,638	3,018,207	74,063,929
Textiles .....	3,224,606	41,919,311	26,574,699	9,950,995	71,888,202
Leather and its finished products .....	1,589,760	35,463,655	33,284,055	1,446,266	45,684,829
Paper and printing .....	3,665,291	24,554,304	3,421,721	16,254,364	44,418,147
Clay, glass, and stone products .....	1,995,220	6,474,816	276,426	1,867,059	23,258,182
Lumber and its remanufactures .....	1,098,276	11,028,757	325,972	9,513,288	20,378,815
Miscellaneous industries .....	3,197,477	28,158,224	8,584,462	15,447,929	48,605,973



## NUMBER OF PRINCIPAL AGRICULTURAL IMPLEMENTS MANUFACTURED, BY STATES: 1900

STATES.	Cultiva- tors.	Harrows.	Plows.	Planters and drills.	Harvesters and com- bined har- vesters and binders.
United States.....	504,978	477,520	1,074,999	397,640	261,957
California.....	249	1,089	6,590	225	180
Connecticut.....	11	1,769	740	157	.....
Georgia.....	950	509	67,959	19,758	.....
Illinois.....	192,060	194,375	283,050	91,461	182,782
Indiana.....	15,829	2,650	199,354	29,986	.....
Iowa.....	7,800	7,560	13,638	3,021	681
Kansas.....	.....	.....	.....	.....	.....
Kentucky.....	9,126	4,076	125,002	6,500	47
Maine.....	561	476	1,997	071	.....
Massachusetts.....	1,030	1,340	17,850	929	.....
Michigan.....	28,979	15,486	22,141	100,356	1,945
Minnesota.....	1,024	11,883	3,870	3,700	.....
Mississippi.....	1,750	6,000	3,000	850	.....
Missouri.....	12,001	453	4,820	3,537	.....
Nebraska.....	1,139	150	.....	834	.....
New Hampshire.....	103	250	252	.....	.....
New Jersey.....	13,628	7,865	505	4,968	.....
New York.....	30,911	90,417	76,068	23,468	24,809
North Carolina.....	1,900	1,900	2,050	1,475	.....
Ohio.....	101,986	77,589	105,889	59,966	36,405
Pennsylvania.....	40,058	6,028	14,278	3,582	7
South Carolina.....	130	.....	.....	180	.....
South Dakota.....	.....	75	400	50	.....
Tennessee.....	4,000	300	30,956	3,407	.....
Texas.....	125	1	3,450	24	.....
Vermont.....	40	.....	1,660	.....	.....
Virginia.....	6,000	4,050	35,660	800	.....
Wisconsin.....	33,888	41,014	53,110	37,720	15,000
All other states*.....	.....	215	710	15	101

STATES.	Horse hayforks.	Horse hayrakes.	Mowers.	Scythes.	Thrashers, horsepower and steam- power.
United States.....	51,770	216,345	397,561	718,453	4,965
California.....	2,274	226	.....	.....	.....
Connecticut.....	.....	.....	.....	105,312	.....
Georgia.....	.....	.....	.....	.....	.....
Illinois.....	6,000	109,670	245,204	.....	.....
Indiana.....	.....	5,835	.....	.....	.....
Iowa.....	529	5,809	4	2,760	50
Kansas.....	.....	.....	.....	.....	.....
Kentucky.....	.....	.....	.....	.....	.....
Maine.....	.....	.....	.....	424,788	.....
Massachusetts.....	.....	1,125	3,700	.....	.....
Michigan.....	.....	1,825	22	.....	940
Minnesota.....	.....	.....	.....	.....	.....
Mississippi.....	.....	.....	.....	.....	.....
Missouri.....	17	3,855	.....	.....	20
Nebraska.....	.....	2,666	.....	.....	.....
New Hampshire.....	.....	500	.....	74,400	.....
New Jersey.....	100	.....	.....	.....	20
New York.....	648	40,359	65,898	26,293	725
North Carolina.....	.....	.....	.....	.....	.....
Ohio.....	34,700	41,187	61,697	.....	543
Pennsylvania.....	400	51	30	.....	152
South Carolina.....	.....	.....	.....	.....	.....
South Dakota.....	.....	.....	.....	.....	.....
Tennessee.....	.....	.....	.....	.....	.....
Texas.....	.....	.....	.....	.....	.....
Vermont.....	.....	.....	.....	84,900	.....
Virginia.....	.....	.....	.....	.....	.....
Wisconsin.....	7,102	3,222	21,000	.....	2,470
All other states*.....	.....	15	6	.....	45

\*Includes establishments in Alabama, Colorado, Delaware, Maryland, North Dakota, Utah, Washington, and West Virginia.

## NATIONAL DEBTS.—INDEBTEDNESS AND FINANCES OF NATIONS.

COUNTRIES.	Year.	Total.	Interest Per Cent.	Per Capita.	REVENUE.	EXPENDITURE.	Exports from United States to—	Imports into United States from—
Argentina.....	1900	\$ 509,604,444	4½-6	\$128.85	\$ 63,339,188	\$ 63,283,632	\$ 11,558,237	\$ 8,114,304
Australasia.....	1900	1,183,055,000	3-5	263.90	167,335,000	161,738,000	26,725,702	5,468,196
Austria-Hungary .....	1900	1,154,791,000	3-4	25.80	73,659,000	73,659,000	7,046,819	9,079,697
Austria.....	1900	642,194,000	3-5	24.89	215,237,000	215,208,000	.....	.....
Hungary.....	1900	904,941,000	3-4	47.75	209,001,000	208,509,000	.....	.....
Belgium.....	1899	504,459,540	2½-3	75.63	85,494,672	83,883,860	48,307,011	12,940,806
Brazil.....	1898	480,985,000	4-5	33.56	90,152,000	70,061,000	11,578,119	58,073,457
British Colonies.....	1899	265,541,000	3-6	26.43	79,956,595	81,071,024	41,011,125	22,687,814
Canada.....	1900	265,494,000	2½-5	50.59	51,030,000	42,975,000	95,319,970	39,369,074
Chile.....	1898	113,240,000	4½-5	36.41	43,206,000	38,052,000	3,287,565	7,112,826
China.....	1899	287,123,500	4½-7	72	73,500,000	73,500,000	15,259,167	26,896,926
Colombia.....	1898	15,809,000	3-5	3.95	7,031,000	8,697,000	2,710,688	4,307,814
Costa Rica.....	1899	13,124,000	3-5	43.75	3,513,000	3,180,000	1,462,355	2,980,030
Denmark.....	1899	55,795,724	3	24.15	19,247,008	20,619,361	18,487,991	920,455
Ecuador.....	1897	7,882,435	3½-5	6.21	3,564,000	3,620,000	1,216,008	1,524,378
Egypt.....	1899	500,402,729	3-4½	53.61	56,424,345	54,437,259	1,095,673	8,278,022
France.....	1900	5,800,691,814	3-3½	150.61	691,349,500	691,291,192	83,335,097	73,012,085
German Empire.....	1900	557,726,622	3-3½	9.96	471,002,000	489,804,000	187,847,889	97,374,700
German States.....	.....	2,015,958,000	.....	.....	.....	.....	.....	.....
Greece.....	1900	168,548,444	4-5	69.25	13,650,533	13,626,200	290,709	1,122,855
Guatemala.....	1899	20,826,500	4-5	13.23	2,687,000	2,648,000	785,462	2,402,978
Honduras.....	1899	89,376,920	4-5	219.60	1,114,429	1,119,295	1,181,453	988,606
India (British).....	1899	1,031,603,705	2½-4½	4.67	328,955,984	316,103,507	4,892,323	45,355,976
Italy.....	1899	2,583,983,780	3½-5	81.11	317,349,332	313,276,071	33,256,620	27,924,176
Japan.....	1899	206,799,994	4-5	4.73	121,433,225	119,984,893	29,087,475	32,748,902
Mexico.....	1900	168,771,428	3-5	13.36	29,267,131	26,035,775	34,974,961	28,646,053
Netherlands.....	1899	466,410,294	2½-3	90.74	58,323,000	60,922,000	89,886,676	15,852,624
Nicaragua.....	1898	4,901,819	4-6	9.80	1,459,950	2,433,250	1,817,869	1,520,266
Norway.....	1899	53,211,132	3-3½	25.08	21,457,420	20,912,308	.....	.....
Paraguay.....	1898	19,972,000	3-4½	30.45	844,000	892,000	4,884	.....
Peru.....	1898	20,321,784	4-6	4.41	5,914,000	6,072,000	1,662,475	2,122,543
Portugal.....	1899	670,221,374	3-4½	143.82	56,363,000	59,237,000	5,886,542	3,743,216
Roumania.....	1899	280,136,991	4-5	47.37	28,001,000	29,249,000	41,562	101,042
Russia.....	1899	3,167,320,000	3-5	24.56	891,772,000	921,068,000	10,488,419	7,246.98.
Servia.....	1899	81,972,118	4-5	33.48	15,144,548	14,842,825	.....	.....
Spain.....	1899	1,727,994,620	4-5	95.53	170,998,000	174,752,000	13,399,680	5,950,047
Sweden.....	1899	85,154,320	3-3½	16.71	39,043,000	39,043,000	10,436,620	4,244,302
Switzerland.....	1899	15,919,219	3-5	5.10	19,392,000	18,924,000	250,477	17,393,208
Turkey.....	1899	726,511,195	3-5	29.25	81,893,462	81,533,341	567,062	7,928,534
United Kingdom.....	1900	3,060,926,304	2½-2¾	74.83	585,201,360	650,258,113	533,819,545	159,582,401
United States.....	1899	1,107,711,257	2-4	14.52	609,595,431	590,068,371	.....	.....
Uruguay.....	1899	124,374,189	3½-5	148.06	16,608,000	16,608,000	1,816,720	1,848,077
Venezuela.....	1898	37,725,814	4-5	14.51	6,452,000	8,790,000	2,452,757	5,500,019
Total.....	.....	\$31,201,759,274	.....	\$24.15	\$5,888,392,563	\$5,875,645,277	\$1,332,308,717	\$750,363,442

## RAILWAY MILEAGE IN THE UNITED STATES BY STATES AND TERRITORIES.

STATE OR TERRITORY.	MILEAGE ON JUNE 30, 1900.			STATE OR TERRITORY.	MILEAGE ON JUNE 30, 1900.		
	Official.	Unofficial.	Total Mileage.		Official.	Unofficial.	Total Mileage.
Alabama.....	4,219.29	6.55	4,225.84	Nevada.....	909.35	.....	909.35
Arizona.....	1,511.89	.....	1,511.89	New Hampshire.....	1,239.20	.....	1,239.20
Arkansas.....	3,341.61	18.25	3,359.86	New Jersey.....	2,237.39	19.30	2,256.69
California.....	5,744.04	7.00	5,751.04	New Mexico.....	1,752.52	.....	1,752.52
Colorado.....	4,587.25	.....	4,587.25	New York.....	8,121.03	.....	8,121.03
Connecticut.....	1,023.62	.....	1,023.62	North Carolina.....	3,808.16	28.00	3,836.16
Delaware.....	346.72	.....	346.72	North Dakota.....	2,731.22	.....	2,731.22
Florida.....	3,272.06	27.00	3,299.06	Ohio.....	8,774.97	32.30	8,807.27
Georgia.....	5,639.22	12.50	5,651.72	Oklahoma.....	827.88	.....	827.88
Idaho.....	1,261.23	.....	1,261.23	Oregon.....	1,723.80	.....	1,723.80
Illinois.....	10,997.33	5.60	11,002.93	Pennsylvania.....	10,277.37	53.13	10,330.50
Indiana.....	6,469.61	1.00	6,470.61	Rhode Island.....	211.79	.....	211.79
Indian Territory.....	1,322.75	.....	1,322.75	South Carolina.....	2,794.93	25.00	2,819.93
Iowa.....	9,180.65	4.53	9,185.18	South Dakota.....	2,849.83	.....	2,849.83
Kansas.....	8,719.36	.....	8,719.36	Tennessee.....	3,124.22	12.73	3,136.95
Kentucky.....	3,059.99	.....	3,059.99	Texas.....	7,873.39	13.10	7,886.49
Louisiana.....	2,824.08	.....	2,824.08	Utah.....	1,547.42	.....	1,547.42
Maine.....	1,915.24	.....	1,915.24	Vermont.....	1,012.11	.....	1,012.11
Maryland.....	1,376.16	.....	1,376.16	Virginia.....	3,729.05	50.10	3,779.15
Massachusetts.....	2,118.58	.....	2,118.58	Washington.....	2,890.57	23.00	2,913.57
Michigan.....	8,193.18	2.00	8,195.18	West Virginia.....	2,198.27	29.78	2,228.05
Minnesota.....	6,942.57	.....	6,942.57	Wisconsin.....	6,496.52	34.00	6,530.52
Mississippi.....	2,919.90	.....	2,919.90	Wyoming.....	1,228.63	.....	1,228.63
Missouri.....	6,867.80	7.24	6,875.04	Grand total in United States, 1900.....	192,940.67	405.11	193,345.78
Montana.....	3,010.32	.....	3,010.32				
Nebraska.....	5,684.85	.....	5,684.85				



STATEMENT SHOWING THE AMOUNT OF GOLD AND SILVER COIN AND BULLION; GOLD, SILVER, AND CURRENCY CERTIFICATES; UNITED STATES NOTES, AND NATIONAL AND STATE BANK NOTES IN THE UNITED STATES, AND DISTRIBUTION THEREOF AT THE CLOSE OF EACH YEAR NAMED—Continued.

Date.	State Bank Circulation.	Demand Notes.	One and Two Year Notes of 1863.	Compound-Interest Notes.	Fractional Paper Currency.	Total Bullion and Metallic and Paper Money.
June 30—						
1860.....	\$207,102,477.00					
1861.....	202,005,767.00					
1862.....	183,792,079.00	\$ 53,040,000.00				
1863.....	238,677,218.00	3,351,019.75	\$ 89,879,475.00		\$ 20,192,456.00	
1864.....	179,157,717.00	789,999.25	153,471,450.00	\$ 15,000,000.00	22,894,877.25	
1865.....	148,919,638.00	472,603.30	42,338,710.00	193,756,080.00	25,005,828.76	
1866.....	19,996,163.00	272,162.00	3,454,230.00	159,012,140.00	27,070,876.96	
1867.....	4,484,112.00	208,432.00	1,123,630.00	122,394,480.00	28,307,523.52	
1868.....	3,163,771.00	141,723.00	555,492.00	28,161,810.00	32,620,951.75	
1869.....	2,558,874.00	123,739.25	347,772.00	2,671,410.00	52,114,637.30	
1870.....	2,222,793.00	106,256.00	248,272.00	2,152,910.00	39,878,684.48	
1871.....	1,968,058.00	96,505.50	198,572.00	768,500.00	40,582,874.56	
1872.....	1,700,935.00	88,296.25	167,522.00	593,520.00	40,855,835.27	
1873.....	1,349,184.00	79,967.50	142,105.00	479,400.00	44,799,305.44	\$ 962,506,387.94
1874.....	1,162,453.00	76,732.50	127,625.00	415,210.00	45,881,295.67	1,020,959,419.17
1875.....	964,497.00	70,107.50	113,375.00	367,390.00	42,129,424.19	994,538,582.66
1876.....	1,047,335.00	66,917.50	104,705.00	328,760.00	34,446,595.39	966,759,231.89
1877.....	909,272.00	63,962.50	95,725.00	296,630.00	20,403,137.34	1,019,080,429.84
1878.....	806,106.00	62,297.50	90,485.00	274,920.00	16,547,768.77	1,082,869,361.27
1879.....	729,469.00	61,470.00	86,185.00	259,090.00	15,842,610.11	1,105,305,365.11
1880.....	574,046.00	60,975.00	82,485.00	242,590.00	7,214,954.37	1,234,699,247.37
1881.....	517,908.00	60,535.00	79,985.00	230,250.00	7,105,953.32	1,432,401,454.32
1882.....	521,564.00	59,695.00	74,965.00	220,960.00	7,047,247.77	1,507,776,150.77
1883.....	377,231.00	58,985.00	71,765.00	213,620.00	7,000,690.81	1,670,587,107.81
1884.....	357,220.00	58,440.00	69,765.00	207,660.00	6,980,061.31	1,725,512,335.31
1885.....	242,618.00	57,950.00	68,035.00	202,730.00	6,964,175.88	1,854,978,844.88
1886.....	235,900.00	57,445.00	66,545.00	197,170.00	6,954,087.52	1,834,570,841.52
1887.....	327,653.00	57,130.00	65,605.00	192,880.00	6,946,964.37	1,917,112,904.37
1888.....	230,806.00	56,807.50	63,835.00	189,530.00	6,922,643.82	2,085,334,571.67
1889.....	201,170.00	56,442.00	62,955.00	185,750.00	6,916,690.47	2,099,968,718.47

NATIONAL BANKS OF THE UNITED STATES STATISTICS—1901.

Number of banks, 3,969; capital, \$635,511,286; surplus, \$268,451,548; total dividends, \$51,699,779; total net earnings, \$81,853,797.

UNITED STATES CURRENCY CIRCULATION—1901.

Amount in circulation, \$2,175,387,277; circulation per capita, \$27.93.

SOURCES OF THE CURRENCY.

The currency of the country has two sources of issue, the treasury and the national banks. We present as a supplementary account, in addition to the foregoing table of all classes of circulating medium, the following special statement of national banks and their operations, both for the present year and for the entire period of their existence.

The report of the Comptroller of the Currency gives full information in relation to the organization, supervision; and liquidation of national banks during the year ending October 31, 1891. In this period 193 associations were organized, with capital aggregating \$20,700,000, thus exhibiting a growth of the national system largely in excess of the annual average for past years. During the same period forty-one associations went into voluntary liquidation and twenty-five became insolvent, leaving as a net gain for the twelve-month 127 banks with a capital of \$12,553,000.

The number of banks in operation October 31, 1891, was 3,694, having in capital stock \$634,755,865; bonds deposited to secure circulation, \$152,113,850; bank notes outstanding, \$171,368,948, including \$35,430,721 represented by lawful money deposited for their redemption. Their gross circulation, including notes of gold banks and those of failed and liquidated associations, has decreased \$7,571,085 during the year, while that secured by pledge of bonds has increased \$11,795,101. The domestic exchange drawn by national banks for the year ending June 30, 1891, is stated at \$12,782,212,495, an increase over the preceding year of more than 11 per cent. The last report of con-

dition exhibits the liabilities and resources of the banks on September 25, 1891. At that date 3,677 associations reported an aggregate capital of \$677,426,870; surplus, \$227,576,486; and undivided profits, \$103,284,674. The gross deposits, including amounts due to banks, are stated at \$2,039,180,188.12, and loans and discounts at \$1,979,354,239, an increase in both items over any previous date. These banks held \$174,907,550 in United States bonds, of which \$150,035,600 were to secure circulating notes; also \$183,515,076 in specie, \$97,615,608 in legal-tender notes, and \$15,720,000 in United States certificates of deposit.

Under the act of February 25, 1863, establishing the national bank system, national banking associations are required to deposit with the treasurer of the United States bonds to the amount of one-third of their paid in capital. In 1864 this provision was amended by fixing \$30,000 as the minimum amount to be deposited. The act of June 20, 1874, permitted associations to withdraw any bonds they might have on deposit in excess of \$50,000. The act of July 12, 1882, specified that banks of which the capital does not exceed \$150,000 should be required to keep on deposit bonds to the amount of one-fourth their capital, and, by a special provision of law, banks and banking corporations having State charters may be converted into national banks.

The inauguration of the national banking system was owing to the pressing needs of the government, arising from the exigencies of war, and at first the experiment was viewed with grave apprehension by financiers, to whom the system seemed but the embodiment of evil; but the wisdom of the measure has been amply justified by its results.

## FOREIGN TRADE OF THE UNITED STATES.

VALUE OF IMPORTS AND EXPORTS OF MERCHANDISE, 1875-1901.

YEAR ENDING JUNE 30.	EXPORTS.		Total Exports.	Imports.	Total Exports and Imports.	Excess of Exports.
	Domestic.	Foreign.				
1875 .....	\$ 499,284,100	\$14,158,611	\$ 513,442,711	\$533,005,436	\$1,046,448,147	
1876 .....	525,582,247	14,802,424	540,384,671	460,741,190	1,001,125,861	\$ 79,648,481
1877 .....	589,670,224	12,804,996	602,475,220	451,323,126	1,053,798,346	151,152,094
1878 .....	680,709,268	14,156,498	694,865,766	437,051,532	1,131,917,298	257,814,234
1879 .....	698,340,790	12,098,651	710,439,441	445,777,775	1,156,217,216	264,661,666
1880 .....	823,946,353	11,692,305	835,638,658	667,954,746	1,503,593,404	167,683,912
1881 .....	883,925,947	18,451,899	902,377,846	642,664,628	1,545,041,974	259,712,718
1882 .....	783,239,732	17,302,525	750,542,257	724,639,574	1,475,181,831	25,902,683
1883 .....	804,223,632	19,615,770	823,839,402	723,180,914	1,547,020,316	100,658,488
1884 .....	724,964,852	15,548,757	740,513,609	667,697,693	1,408,211,302	72,815,916
1885 .....	726,682,946	15,506,809	742,189,755	577,527,329	1,319,717,084	164,662,426
1886 .....	665,964,529	13,560,301	679,524,830	635,436,136	1,314,960,966	44,088,694
1887 .....	703,022,923	13,160,288	716,183,211	692,319,768	1,408,502,979	23,863,443
1888 .....	683,862,104	12,092,403	695,954,507	723,957,114	1,419,911,621	
1889 .....	730,282,609	12,118,766	742,401,375	745,131,652	1,487,533,027	
1890 .....	845,293,828	12,534,856	857,828,684	789,310,409	1,647,139,093	68,518,275
1891 .....	872,270,283	12,210,527	884,480,810	844,916,196	1,729,397,006	39,564,614
1892 .....	1,015,732,011	14,546,137	1,030,278,148	827,402,462	1,857,680,610	202,875,686
1893 .....	831,030,785	16,634,409	847,665,194	866,400,922	1,714,066,116	
1894 .....	869,204,937	22,935,685	892,140,572	654,994,622	1,547,135,194	237,145,950
1895 .....	793,392,599	14,145,566	807,538,165	731,969,965	1,539,508,130	75,568,200
1896 .....	863,200,487	19,406,451	882,606,938	779,724,674	1,662,331,612	102,882,264
1897 .....	1,032,007,603	18,985,953	1,050,993,556	764,730,412	1,815,723,968	286,263,144
1898 .....	1,210,291,913	21,190,417	1,231,482,330	616,050,654	1,847,532,984	615,431,676
1899 .....	1,203,981,222	23,092,080	1,227,073,302	697,148,489	1,924,171,791	529,874,813
1900 .....	1,370,763,571	23,719,511	1,394,483,082	849,941,184	2,244,424,266	544,541,898
1901 .....	1,460,462,806	27,302,185	1,487,764,991	823,172,165	2,310,937,156	664,592,826

The imports and exports of specie are not included in the above table.

## PUBLIC DEBT OF THE UNITED STATES.

OFFICIAL STATEMENT OF NOVEMBER 1, 1901.

INTEREST-BEARING DEBT.		CLASSIFICATION OF DEBT NOVEMBER 1, 1901.	
Consols of 1930, 2 per cent.....	\$445,940,750.00	Interest-bearing debt.....	\$ 961,023,100.00
Loan of 1908-1918, 3 per cent.....	98,193,100.00	Debt on which interest has ceased since maturity.....	1,341,310.26
Funded loan of 1907, 4 per cent.....	247,273,450.00	Debt bearing no interest.....	385,324,244.63
Refunding certificates, 4 per cent.....	32,650.00		
Loan of 1925, 4 per cent.....	148,557,700.00	Aggregate of interest and non-interest bearing debt.....	\$1,347,688,654.89
Loan of 1904, 5 per cent.....	21,025,450.00	Certificates and Treasury notes offset by an equal amount of cash in the Treasury.....	803,897,089.00
Aggregate of interest-bearing debt.....	\$961,023,100.00	Aggregate of debt, including certificates and Treasury notes.....	\$2,151,585,743.89
DEBT ON WHICH INTEREST HAS CEASED SINCE MATURITY.		CASH IN THE TREASURY.	
Aggregate debt on which interest has ceased since maturity.....	\$1,341,310.26	Gold certificates.....	\$312,815,089.00
DEBT BEARING NO INTEREST.		Silver certificates.....	449,648,000.00
United States notes.....	\$846,681,016.00	Treasury notes of 1890.....	41,434,000.00
Old demand notes.....	53,847.50		\$ 803,897,089.00
National bank notes:		National bank 5 per cent fund.....	\$ 13,888,473.14
Redemption account.....	31,713,019.50	Outstanding checks and drafts.....	6,111,498.11
Fractional currency.....	6,876,361.63	Disbursing officers' balances.....	55,480,074.21
Aggregate of debt bearing no interest.....	\$885,324,244.63	Post-Office Department account.....	3,290,418.22
CERTIFICATES AND NOTES ISSUED ON DEPOSITS OF COIN AND LEGAL-TENDER NOTES AND PURCHASES OF SILVER BULLION.		Miscellaneous items.....	4,721,861.80
Gold certificates.....	\$312,815,089.00		83,495,325.48
Silver certificates.....	449,648,000.00	Reserve fund..	\$150,000,000.00
Treasury notes of 1890.....	41,434,000.00	Available cash balance.....	175,655,697.01
Aggregate of certificates and Treasury notes, offset by cash in the Treasury.....	\$803,897,089.00		325,655,697.01
		Aggregate.....	\$1,213,048,111.49
		Cash balance in the Treasury November 1, 1901, exclusive of reserve and trust funds..	\$ 175,655,697.01



## RESERVE FUND.

Held for redemption of U. S. notes, acts of Jan. 14, 1875, and July 12, 1882.....	\$ 100,000,000.00
Unavailable for the reduction of the debt:	
Fractional silver coin.....	\$ 22,133,430.00
Minor coin.....	102,396.00
Total.....	\$ 22,235,826.00
Certificates held as cash.....	33,997,264.00
Net cash balance on hand.....	40,249,187.00

Total cash in the treasury.....\$ 617,224,505.00

**Purchase of Bonds.**—During the twelve months ended October 31, 1889, there were purchased under the circular of April 17, 1888, United States bonds to the amount of \$99,233,950. Of these \$32,279,400 were obtained prior to March 4, 1889, and \$66,954,550 after that date.

**STATEMENT OF OUTSTANDING PRINCIPAL OF THE PUBLIC DEBT OF THE UNITED STATES ON JANUARY 1ST OF EACH YEAR FROM 1791 TO 1843, INCLUSIVE, AND ON JULY 1ST OF EACH YEAR FROM 1843 TO 1901, INCLUSIVE.**

Year.	Amount.	Year.	Amount.
Jan. 1, 1791	\$75,463,476.52	Jan. 1, 1841	\$5,250,875.54
1792	77,227,924.66	1842	13,594,480.73
1793	80,358,634.04	1843	20,601,226.28
1794	78,427,404.77	July 1, 1844	32,742,922.00
1795	80,747,587.39	1844	23,461,652.50
1796	83,762,172.07	1845	15,925,393.01
1797	82,064,479.33	1846	15,550,202.97
1798	79,228,529.12	1847	38,826,534.77
1799	78,408,669.77	1848	47,044,862.23
1800	82,976,294.35	1849	63,061,858.69
1801	83,038,050.80	1850	63,452,773.55
1802	80,712,632.25	1851	68,304,790.02
1803	77,054,686.30	1852	66,190,341.71
1804	86,427,120.88	1853	59,803,117.70
1805	82,312,150.50	1854	42,242,222.42
1806	75,723,270.66	1855	35,586,956.56
1807	69,218,398.64	1856	31,072,537.90
1808	65,196,317.97	1857	28,699,831.85
1809	57,023,192.09	1858	44,911,881.03
1810	53,173,217.52	1859	58,496,837.88
1811	48,005,587.76	1860	64,842,287.88
1812	45,209,737.90	1861	90,580,873.72
1813	55,962,827.57	1862	524,176,412.13
1814	81,487,846.24	1863	1,119,772,138.63
1815	99,833,660.15	1864	1,815,784,370.57
1816	127,334,933.74	1865	2,680,647,869.74
1817	123,491,965.16	1866	2,773,236,173.69
1818	103,466,633.83	1867	2,678,126,103.87
1819	95,529,648.28	1868	2,611,687,851.19
1820	91,015,566.15	1869	2,588,452,213.04
1821	89,987,427.66	1870	2,480,672,427.81
1822	93,546,676.98	1871	2,353,211,332.32
1823	90,875,877.28	1872	2,253,251,328.78
1824	90,269,777.77	1873	*2,234,483,993.20
1825	83,788,432.71	1874	*2,251,690,468.43
1826	81,054,059.99	1875	*2,232,284,531.95
1827	71,987,357.20	1876	*2,180,395,067.15
1828	67,475,043.87	1877	*2,205,301,392.10
1829	58,421,413.67	1878	*2,256,205,892.53
1830	48,565,406.50	1879	*2,349,567,482.04
1831	39,123,191.68	1880	*2,120,415,370.63
1832	24,322,235.18	1881	*2,069,013,569.58
1833	7,001,668.83	1882	*1,918,312,094.03
1834	4,769,082.08	1883	*1,884,171,728.07
1835	37,733.05	1884	*1,830,528,923.57
1836	37,513.05	1885	*1,876,424,275.14
1837	336,957.83	1886	1,549,206,126.48
1838	3,308,124.07	1887	1,717,481,779.90
1839	10,434,221.14	1888	2,132,373,931.17
1840	3,573,343.82	1889	2,151,585,743.89

\* In the amount here stated as the outstanding principal of the public debt are included the certificates of deposit outstanding on June 30th, issued under act of June 8, 1872, for which a like amount in United States notes was on special deposit in the Treasury for their redemption, and added to the cash balance in the Treasury. These certificates, as a matter of accounts, are treated as a part of the public debt, but being offset by notes held on deposit for their redemption should properly be deducted from the principal of the public debt in making comparison with former years.

† Exclusive of gold, silver, and currency certificates held in the Treasury's cash, and including \$64,623,512, bonds issued to the several Pacific railroads.

## FOREIGN COMMERCE.

The total value of our imports and exports of merchandise and specie during the year 1901 was \$2,530,845,221, an increase over the year 1889 of \$917,707,588, and was greater than for any year since 1881.

The value of the imports and exports of merchandise and specie during the years 1888, 1889, and 1901 has been as follows:

## MERCHANDISE.

	1888.	1889.	1901.
Exports—			
Domestic.....	\$683,862,104	\$730,282,609	\$1,460,462,806
Foreign.....	12,092,403	12,118,766	27,302,185
Total.....	\$695,954,507	\$742,401,375	\$1,487,764,991
Imports.....	723,957,114	745,131,652	823,172,165
Excess of exports			\$ 664,592,826
Excess of imports	\$ 28,002,607	\$ 2,730,277	

## SPECIE.

	1888.	1889.	1901.
Exports—			
Gold.....	\$ 18,376,134	\$ 59,952,285	\$ 53,185,177
Silver.....	28,037,949	36,689,248	64,285,180
Total.....	\$ 46,414,183	\$ 96,641,533	\$ 117,470,357
Imports—			
Gold.....	\$ 43,934,317	\$ 10,284,858	\$ 66,051,187
Silver.....	15,403,669	18,678,215	36,286,521
Total.....	\$ 59,337,986	\$ 28,963,073	\$ 102,437,708
Excess of exports		67,678,460	15,032,649
Excess of imports	12,923,803		

The exports of gold, exclusive of ores, during the last fiscal year were \$53,185,177, and the imports were \$66,051,187.

## DOMESTIC EXPORTS.

The value of the principal articles of domestic exports during the three years of 1888, 1889, and 1901, was as follows:

Articles.	1888.	1889.	1901.
Animals.....	\$ 12,885,090	\$ 18,374,805	\$ 52,058,876
Breadstuffs.....	127,191,687	123,876,661	248,759,022
Coal.....	6,295,380	6,690,479	22,317,496
Copper, and manufactures of.....	3,812,798	2,348,954	44,613,728
Cotton, and manufactures of.....	236,029,949	247,987,914	333,945,861
Furs and fur-skins.....	4,777,246	5,034,435	4,404,448
Iron and steel, and manufactures of.....	17,763,934	21,156,077	117,319,320
Leather, and manufactures of.....	9,583,411	10,747,706	27,923,653
Oil-cake and oil-cake meal.....	6,423,930	6,927,912	18,591,898
Oil, mineral.....	47,042,499	49,913,677	64,425,859
Provisions:			
Meat products.....	82,142,687	93,403,418	187,555,915
Dairy products.....	10,916,018	10,719,026	9,433,722
Sugar.....	2,192,290	1,076,410	2,963,600
Tobacco, and manufactures of.....	25,514,541	22,609,668	32,749,078
Wood, and manufactures of.....	23,063,108	26,910,672	52,445,585
Total.....	\$615,633,578	\$647,777,814	\$1,219,478,061
Value of all domestic exports.....	\$683,862,104	\$730,282,609	\$1,460,462,806
Per cent. of enumerated articles to total	90.2	88.7	90.0

MANUFACTURING AND MECHANICAL INDUSTRIES OF THE UNITED STATES AS RETURNED BY THE CENSUS OF 1880 TO 1900, WITH THE PER CENT OF INCREASE FOR EACH DECADE.

	DATE OF CENSUS.			PER CENT OF INCREASE.		
	1900*.	1890.	1880.	1890 to 1900.	1880 to 1890.	1870 to 1880.
Number of establishments .....	512,726	355,415	253,852	44.3	40.0	0.7
Capital.....	\$9,874,664.087	\$6,525,156.486	\$2,790,272.606	51.3	133.9	31.7
Salaried officials, clerks, etc., number	397,730	†461,009	(†)	213.7	.....	.....
Salaries .....	\$404,837.591	†\$391,988.208	(†)	3.3	.....	.....
Wage-earners, average number	5,321,087	4,251,613	2,732,595	25.2	55.6	33.0
Total wages.....	\$2,330,273.021	\$1,891,228.321	\$947,953.795	23.2	99.5	22.2
Men, 16 years and over .....	4,120,716	3,327,042	2,019,035	23.9	64.8	25.0
Wages .....	\$2,022,899.275	\$1,659,234.483	(†)	21.9	.....	.....
Women, 16 years and over .....	1,031,747	803,686	531,639	28.4	51.2	64.2
Wages .....	\$281,705.586	\$215,367.976	(†)	30.8	.....	.....
Children, under 16 years .....	168,624	120,885	181,921	39.5	233.6	58.7
Wages .....	\$25,668.160	\$16,625.862	(†)	54.4	.....	.....
Miscellaneous expenses .....	\$1,028,855.586	\$631,225.035	(†)	63.0	.....	.....
Cost of materials used .....	\$7,360,954.597	\$5,162,044.076	\$3,396,823.549	42.6	52.0	36.5
Value of products, including custom work and repairing.....	\$13,040,013.638	\$9,372,437.283	\$5,369,579.191	39.1	74.5	26.9

\* Includes, for comparative purposes, 85 governmental establishments in the District of Columbia having products valued at \$9,887,355, the statistics of such establishments for 1890 not being separable. † Includes proprietors and firm members, with their salaries; number only reported in 1900. ‡ Not reported separately. § Decrease. || Not reported.

PROGRESS OF THE UNITED STATES IN ITS MATERIAL INDUSTRIES.

(Prepared by the Bureau of Statistics, Treasury Department.)

	1880.	1890.	1900.	Per Cent Increase or Decrease 1880-1900. (+ or -)
Population .....	50,155,783	62,622,250	76,303,387	+98
Salaries paid in public schools .....	\$55,942,972	\$91,836,484	*\$128,662,880	+240
Newspapers and periodicals published.....	11,314	16,930	*21,178	+261
Post-offices in existence.....	42,989	62,401	76,688	+169
Receipts of Post-Office Department .....	\$33,315.479	\$60,882,097	\$102,354,579	+418
Telegraph messages sent.....	29,215,509	63,358,762	79,696,227	+770
Railways in operation, miles.....	93,262	166,703	*190,833	+261
Tons of freight carried one mile.....	†39,302,209.249	79,192,985.125	*126,997,703.110	+223
Average freight rate per ton, mile.....	\$1.17	\$0.93	*\$0.73	-62
Tonnage of vessels passing through the Sault Ste. Marie Canal.....	1,734,890	8,454,435	22,315,834	+3,130
Wheat produced, bushels.....	498,549,868	399,262,000	522,229,505	+121
Corn produced, bushels.....	1,717,434,593	1,489,970,000	2,105,102,516	+92
Cotton produced, pounds.....	2,771,797,156	3,627,366,183	4,757,062,942	+228
Cotton (domestic) taken by mills, bales .....	1,795,000	2,325,000	3,644,000	+325
Coal produced, tons.....	63,822,830	140,866,931	*238,877,182	+626
Petroleum, gallons .....	836,394,132	1,466,867,546	2,396,975,700	+1,198
Pig iron produced, tons.....	3,835,191	9,202,703	13,789,242	+728
Steel produced, tons.....	1,247,335	4,277,071	10,639,857	+15,376
Imports of manufactures of iron and steel.....	\$71,266,699	\$41,679,501	\$20,478,728	-37
Exports of manufactures of iron and steel.....	\$14,716,524	\$25,542,208	\$121,913,548	+1,008
Imports of raw silk for manufacturing, pounds.....	2,562,236	7,347,909	13,043,714	+2,135
Imports of crude rubber for manufacturing, pounds .....	16,826,099	33,842,374	49,377,138	+413
Exports of manufactures .....	\$102,856,015	\$151,102,376	\$433,854,756	+535
Exports of agricultural products .....	\$675,961,091	\$629,820,808	\$835,858,123	+133
Total exports .....	\$835,638,658	\$887,828,684	\$1,394,483,082	+256
Total imports.....	\$667,954,746	\$789,310,409	\$849,941,184	+95
Total money in circulation.....	\$973,382,228	\$1,429,251,270	\$2,055,150,998	+204
Per capita money in circulation .....	.....	.....	\$26.94	+54
Deposits in savings banks.....	\$819,106,973	\$1,524,844,506	\$2,449,547,885	+345
Number of depositors in savings banks .....	2,335,582	4,258,893	6,107,083	+274
American vessels, domestic trade, tons .....	2,715,224	3,477,802	4,335,145	+59
American vessels, foreign trade, tons .....	1,352,810	946,695	826,694	-46
American vessels, Great Lakes only, tons.....	605,102	1,063,063	1,565,587	+129

\* Preliminary data.

† 1882.



The following table shows the value of the principal articles of imported merchandise entered for consumption during the years ending June 30, 1889, and 1901:

## FREE OF DUTY.

Order.	Articles.	1889.	1901.
		<i>Values.</i>	<i>Values.</i>
1	Coffee.....	\$ 74,723,308.73	\$ 62,861,399
2	Chemicals, drugs, dyes, and medicines.....	26,615,446.11	53,508,157
3	Hides and skins, other than fur skins.....	25,137,511.30	48,220,013
4	Silks unmanufactured, cocoons, eggs, etc.....	19,333,229.00	30,051,365
5	Tea.....	12,643,987.91	11,017,876
6	India-rubber and gutta-percha.....	12,387,427.00	28,835,178
7	Tin bars, blocks or pigs, grain or granulated.....	7,026,047.00	19,805,551
8	Ores (emery, gold, and silver).....	6,841,740.00	.....
9	Fruits, including nuts.....	5,949,896.57	19,586,703
10	Paper stock, crude.....	5,927,099.46	2,183,686
11	Wood, unmanufactured.....	4,437,782.03	19,754,265
12	Animals.....	3,286,660.55	4,478,955
13	Spices, unground.....	2,988,471.39	3,563,109
14	Household effects, etc., of immigrants.....	2,726,343.45	.....
15	Hair.....	2,431,526.00	1,680,145
16	Eggs.....	2,419,004.37	.....
17	Cocoa, or cacao, crude, leaves and shells of.....	2,143,208.00	6,472,829
18	Furs and fur skins, undressed.....	2,077,731.87	11,019,658
19	Oils, fixed or expressed, and volatile or essential.....	1,741,305.07	7,097,431
20	Fertilizers.....	1,629,137.75	2,230,235
21	Fish.....	1,573,983.73	.....
22	Cork wood, or cork bark, unmanufactured.....	902,447.00	2,270,995
23	All other free articles.....	31,631,736.17	83,641,876
	<b>Total free of duty.....</b>	<b>\$256,574,630.46</b>	<b>\$418,279,366</b>

## SOUTHERN AND COASTWISE TRADE.

*Trade with Central and South America.*—The total estimated imports into Central and South America, including Mexico and the West Indies, for 1887, including movements of specie, were \$522,000,000, of which only \$80,000,000, or about 15 per cent., came from the United States. The total estimated exports, including specie, were \$564,000,000; whereof \$202,000,000, or 36 per cent., were taken by the United States. The duties collected upon these imports are estimated at \$59,134,011, of which \$42,117,694 were paid by sugar, \$4,035,928 by tobacco, and \$659,194 by raw wool.

The dutiable imports from those countries consist mainly of sugar and molasses, tobacco, fruits, and wool, and the free importations are nearly all raw materials required by manufactures in the United States.

The principal exports to those countries from the United States are breadstuffs, provisions, lumber, and mineral oils, but an appreciable export trade is maintained in iron and steel manufactures, cotton prints, leather goods, agricultural implements, carriages and railway cars, though the great bulk of manufactured articles are supplied by Great Britain, France, and Germany.

Excluding specie, and estimating from the trade returns of the fiscal year 1900, Mexico imported \$65,083,451, whereof \$35,165,253 were from the United States; Argentina, \$113,485,000, whereof \$13,438,530 were from the United States; Brazil, \$100,000,000, whereof \$4,035,000 entered the port of Rio de Janeiro from the United States; Chile (gold pesos), \$128,538,142, whereof \$12,098,808 were from the United States.

Values of the imports and exports of merchandise of the United States carried, respectively, in cars and other land vehicles, in American vessels, and in foreign vessels, during each fiscal year from 1857 to 1889, inclusive, with the percentage carried in American vessels (coin and bullion included from 1857 to 1879, inclusive, as method of transportation can not be stated).

Year ending June 30.	IMPORTS AND EXPORTS.				Percent. carried in Amer. vessels.
	In cars and other land vehi- cles.	In American vessels.	In foreign vessels.	Total.	
1857	\$510,331,027	\$213,519,796	\$723,850,823	70.5	
1858	447,191,304	160,066,267	607,257,571	73.7	
1859	465,741,381	229,816,211	695,557,592	66.0	
1860	507,247,757	255,040,793	762,288,550	66.5	
1861	381,516,788	203,478,278	584,995,066	65.2	
1862	217,695,418	218,015,296	435,710,714	50.0	
1863	241,872,471	343,056,631	584,928,502	41.4	
1864	164,001,486	465,793,548	669,855,034	27.5	
1865	107,402,872	437,010,124	604,412,996	27.7	
1866	325,711,801	085,226,691	1,010,938,552	32.2	
1867	297,834,904	581,330,403	879,165,307	33.9	
1868	297,981,573	550,546,074	848,527,647	35.1	
1869	289,956,772	586,492,012	876,448,784	33.1	
1870	352,960,401	638,927,488	991,896,889	35.6	
1871	\$22,985,510	755,822,576	1,132,472,258	31.2	
1872	27,650,770	345,331,101	839,346,362	28.5	
1873	27,869,978	346,306,592	366,723,651	25.8	
1874	33,022,540	350,451,994	939,206,106	26.7	
1875	20,388,235	314,257,792	884,788,517	25.8	
1876	18,473,154	311,076,171	813,354,987	23.1	
1877	17,464,810	316,660,281	859,920,536	26.5	
1878	20,477,364	313,050,906	876,991,129	25.9	
1879	19,423,685	272,015,692	911,260,232	22.6	
1880	20,981,393	258,346,577	1,224,265,434	17.18	
1881	25,452,521	250,586,470	1,269,002,983	16.27	
1882	34,973,317	227,229,745	1,212,978,769	15.40	
1883	48,092,892	240,420,500	1,258,506,924	15.54	
1884	46,714,068	233,699,035	1,127,798,199	16.60	
1885	45,332,775	194,865,743	1,079,518,566	14.76	
1886	43,700,350	197,349,593	1,073,011,113	15.01	
1887	48,951,725	194,356,746	1,105,194,508	13.80	
1888	54,356,827	100,857,473	1,174,597,321	13.44	
1889	66,664,378	203,805,108	1,217,063,541	13.70	

## INTERNAL REVENUE.

The principal objects of taxation concerned in the production of internal revenue are, as may be seen below, liquors, tobacco and oleomargarine. We here give the product of these articles for a late year, together with the number of distilleries in operation in the United States for the year 1900.

*Production of Tobacco, Snuff, Cigars and Cigarettes.*—The production of tobacco, snuff, cigars and cigarettes for the fiscal year ended June 30, 1899, computed from the receipts from stamps sold for all such goods as were put on the market for consumption, together with those removed in bond for export, and including importations, was:

	Pounds.
Tobacco.....	260,683,658
Snuff.....	344,655,697
Total tobacco and snuff taxed.....	868,163,275
Manufactured tobacco exported.....	488,256,646
Total production of leaf tobacco, 1900..	379,906,629
Total production, 1890.....	.....

Total increase over fiscal year 1890... 379,906,629  
The value of the total production of tobacco grown in the United States for 1900 was \$56,993,003.

## CIGARS AND CIGARETTES.

	Number.
Cigars (lbs. of leaf tobacco used).....	13,084,037
Cigarettes.....	105,395,189
Total taxed.....	6,018,901,000
Cigars exported.....	1,699,325
Cigarettes exported (value).....	\$ 2,290,876
Total product for 1900 (value).....	\$ 160,223,152
Total product for 1898 (value).....	\$ 129,693,275
Increase.....	30,529,877

The increase of taxed cigars was 22,658,990; of taxed cigarettes, 288,789,260; of cigars exported, 266,700; and of cigarettes exported, 65,909,950.

## STATISTICS IN THE TRADE OF OLEOMARGARINE DURING THE FISCAL YEAR, 1899-1901.

The number of establishments in 1900 manufacturing Oleomargarine were 24, with an aggregate capital of

\$3,023,646, employing 1,085 wage-earners, and showing a total product for the year of the value of \$12,499,812. This is an increase in the value of nearly \$10,000,000 over the year 1890, and of nearly \$6,000,000 over the year 1880. The quantity of Oleomargarine produced in 1900 amounted to 107,045,028 pounds, being over double the production over the year 1896. The chief States of production are: Illinois which handled 18,638,921 pounds in 1899; Pennsylvania, 11,433,341 pounds; Ohio, 8,830,969; New Jersey, 5,875,975 pounds; Indiana, Missouri, and Rhode Island, each of which turned out over 3,000,000 pounds; and Massachusetts and Michigan, over 2,000,000 pounds each. For the year ending June 30, 1900, the total exports of Oleo oil were 146,739,681 pounds, valued at \$10,503,856, and of Oleomargarine, 4,182,536 pounds, valued at \$409,083. The chief countries to which the Oleo oil was exported are the Netherlands, Germany, Sweden and Norway, and Great Britain. These countries all have a large native production of Oleomargarine, amounting to over 460,000,000 pounds.

The internal revenue exhibit for the year 1901 shows a large increase, so large, indeed, that the secretary of the treasury, in his report, urges the abolition of the revenue from various articles now on the taxable list. The principal figures for the year are here given:

## RECEIPTS FROM THE SEVERAL SUBJECTS OF TAXATION UNDER THE INTERNAL REVENUE LAWS DURING THE FISCAL YEARS ENDING JUNE 30, 1889 AND 1901.

OBJECTS OF TAXATION.	Fiscal year ended June 30—		Increase.	Decrease.
	1889.	1901.		
Distilled spirits.....	\$74,312,296	\$116,027,980	\$41,715,684	
Manufactured tobacco.....	31,866,860	62,481,907	30,615,047	
Fermented liquors.....	23,723,835	75,669,908	51,946,073	
Miscellaneous.....	83,893	13,448,921	13,365,028	
Banks and Bankers.....	6,213	1,018		4,295
Adhesive stamps.....	84,991	39,241,036	39,156,045	
Collections under repealed laws.....	6,078			
Total.....	\$130,084,080	\$306,871,670	\$176,797,877	

We subjoin an analysis of the above statement, and give the amount contributed to form the total from each jurisdiction paying internal revenue into the treasury:

## RECEIPTS BY STATES AND TERRITORIES DURING THE LAST FISCAL YEAR.

Statement showing the aggregate collections of internal revenue by States and Territories during the fiscal year ending June 30, 1901.

STATES AND TERRITORIES.	Aggregate Collections.	STATES AND TERRITORIES.	Aggregate Collections.
Alabama.....	\$ 573,254	Montana, Idaho, and Utah.....	\$ 755,673
Arkansas.....	265,999	Nebraska and N. and S. Dakota.....	3,607,808
California and Nevada.....	4,580,478	New Hampshire, Maine, Vermont.....	1,201,556
Colorado and Wyoming.....	1,240,528	New Jersey.....	9,721,622
Connecticut and Rhode Island.....	3,099,988	New Mexico and Arizona.....	120,308
Florida.....	804,708	New York.....	49,789,698
Georgia.....	924,379	North Carolina.....	7,124,749
Hawaii.....	102,182	Ohio.....	22,429,914
Illinois.....	55,407,024	Oregon, Washington, and Alaska.....	1,223,013
Indiana.....	23,466,882	Pennsylvania.....	26,062,959
Iowa.....	1,809,373	South Carolina.....	310,590
Kansas, Indian Ter., and Oklahoma.....	1,009,939	Tennessee.....	2,406,180
Kentucky.....	25,181,305	Texas.....	1,681,424
Louisiana and Mississippi.....	2,399,981	Virginia.....	5,623,008
Maryland, Del., D.C., and 2 Va. Dists.....	9,630,133	West Virginia.....	1,631,576
Massachusetts.....	7,541,852	Wisconsin.....	10,809,694
Michigan.....	4,300,259		
Minnesota.....	2,667,966	Total.....	\$306,871,669
Missouri.....	17,565,648		



**SPIRITUOUS LIQUORS.**—Of prime importance in connection with the internal revenue is the production of alcoholic liquors. We give the figures for occasional years from 1878 to 1900, inclusive, and also the quantity and cost of materials and quantity and value of products for the manufacture of distilled liquors in 1900:

Fiscal years ended June 30.	SPIRITS WAREHOUSED.									
	Grape Brandy.	Bourbon Whisky.	Rye Whisky.	Alcohol.	Rum.	Gin.	High Wines.	Pure, neu- tral or Cologne Spirits.	Mis- cellaneous.	Total.
	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.
1878.	178,544	6,405,520	2,834,119	10,277,725	1,603,376	364,963	19,412,985	11,108,023	4,096,342	56,281,597
1879.	69,340	8,587,081	4,001,048	19,594,283	2,243,455	372,776	18,033,652	13,459,486	5,600,840	71,961,961
1880.	129,086	15,414,148	6,341,991	21,631,009	2,439,301	394,668	15,210,389	20,057,975	8,265,789	90,484,356
1881.	240,124	33,632,615	9,931,609	22,988,969	2,118,506	549,596	14,363,581	23,556,608	10,586,666	117,968,274
1882.	381,825	29,575,667	9,223,777	15,201,671	1,704,084	569,134	10,962,379	27,871,293	10,744,156	106,234,986
1883.	223,977	8,662,245	4,784,654	10,718,706	1,801,960	545,768	8,701,951	28,295,253	10,502,771	74,237,285
1884.	200,732	8,896,832	5,089,958	12,385,229	1,711,158	641,724	6,745,688	28,538,680	11,426,407	75,636,471
1885.	312,197	12,277,750	6,328,043	13,436,916	2,081,165	639,461	3,235,889	27,104,382	10,811,757	75,227,560
1886.	329,679	19,318,819	7,842,540	11,247,877	1,799,952	656,607	2,396,248	26,538,581	10,543,756	80,674,059
1887.	673,610	17,015,034	7,313,640	10,337,935	1,857,223	747,025	2,410,923	27,066,219	11,084,500	78,505,209
1888.	864,704	7,463,609	5,879,690	11,075,639	1,891,246	872,990	1,016,436	29,475,913	12,603,883	71,144,110
1900.	952,358	19,411,829	14,296,568	10,735,771	1,614,514	1,597,081	1,029,495	24,173,671	13,738,952	109,245,187

In 1900, there were 967 establishments throughout the U. S. manufacturing distilled liquors, with a combined capital of \$32,550,000, and turning out products of the value of \$96,798,443 for the year. The chief states engaged in the trade were Illinois, Kentucky, Indiana, Ohio, Pennsylvania and Maryland.

#### LIQUORS, DISTILLED IN THE UNITED STATES: MATERIALS AND PRODUCTS, 1900.

	Quantity.	Cost of materials used.	Value of products.
<b>Materials:</b>			
Total cost .....		\$15,147,784	
Corn .....	16,555,804	5,968,198	
Rye .....	3,952,333	2,482,524	
Wheat .....	17,419	10,340	
Barley .....	109,115	57,421	
Malt .....	3,623,829	1,956,934	
Fruits .....		256,551	
Wine .....	1,339,606	57,047	
Molasses .....	2,962,691	282,011	
Fuel, and rent of power and heat.		896,631	
Mill supplies .....		74,976	
All other materials		2,976,182	
Freight .....		128,969	
<b>Products:</b>			
Total value .....			\$96,798,443
Alcohol and cognie spirits .....	54,304,925		62,617,892
Whisky .....	45,483,592		28,729,027
Brandy .....	908,051		758,231
Gin .....	1,087,149		1,425,717
Rum .....	1,546,706		1,033,117
Wine .....	120,630		25,689
All other products.			2,208,770

#### THE PRECIOUS METALS.

The report of the director of the mint for the past year gives the following figures in relation to the precious metals:

**Deposits.**—The value of the gold deposited at the mints and assay offices, from their organization to 1900, was \$2,049,854,219, of which \$1,257,864,972 represents unrefined.

Of the gold deposited \$2,000,440,778 was the product of our own mines; \$6,583,992.65, foreign coin and

bullion; \$585,066.87, light weight domestic coin; and \$3,526,597.31, old material.

The deposits and purchases of silver aggregated 57,627,273.69 standard ounces, of the coining value of \$74,533,000. Included in the above are 188,237.24 standard ounces, of the coining value of \$219,039.68, redeposits.

Of the silver received, 32,895,985.50 standard ounces, of the coining value of \$38,278,964.79, was classified as domestic product.

Foreign silver bullion was deposited to the amount of 1,182,110.97 standard ounces, of the coining value of \$1,375,547.30; and foreign silver coin, containing 364,750.71 standard ounces, of the value of \$424,437.18.

Uncurrent subsidiary coins of the United States were melted, containing 431,449.01 standard ounces, of the value of \$502,049.75.

Trade dollars were melted, containing 6,714.25 standard ounces, of the coining value of \$7,812.94, and old silver plate, etc., containing 558,026.01 standard ounces, of the coining value of \$649,339.33.

**Coinage.**—The coinage, of the mints was as follows:

Gold .....	\$25,543,910.00
Silver dollars .....	33,793,860.00
Subsidiary silver .....	721,686.40
Minor coins .....	906,473.21

Total .....

**Gold Bars.**—In addition to the coinage, gold bars were manufactured of the value of \$22,241,121.42, and silver bars of the value of \$6,709,246.13, a total of \$28,950,367.55.

Fine gold bars were exchanged for gold coin, free of charge, principally at the assay office at New York, of the value of \$57,507,812.42.

The mines of the United States yielded, during the calendar year 1900, precious metals, as follows:

#### GOLD.

Fine ounces .....	3,829,897
Value .....	\$79,171,000

#### SILVER.

Fine ounces .....	57,647,000
Commercial value .....	\$35,741,000
Coining value .....	\$74,533,000

The product of gold and silver in the world is estimated by the director of the mint to have been, for the same year:

Gold .....	\$305,994,150
Silver .....	303,556,260
Commercial value .....	342,437,150
Coining value .....	

## AGRICULTURE.

The following summary shows the area, product, and value of each crop for the year 1899:

STATES AND TERRITORIES.	CORN.			WHEAT.		
	Bushels.	Acres.	Value.	Bushels.	Acres.	Value.
Maine.....	645,040	16,856	\$ 326,824	116,720	6,667	\$ 107,396
New Hampshire....	1,080,720	25,694	538,738	4,035	271	3,428
Vermont.....	2,322,450	60,633	1,180,505	34,650	1,796	29,078
Massachusetts.....	1,539,980	39,131	771,277	1,750	95	1,515
Rhode Island.....	288,220	8,149	164,138	310	15	245
Connecticut.....	1,931,510	47,914	994,885	8,660	393	6,080
New York.....	20,024,865	658,652	9,181,791	10,412,675	557,736	7,332,597
New Jersey.....	10,978,800	295,258	4,533,473	1,902,590	132,571	1,347,650
Pennsylvania.....	51,866,780	1,480,833	21,896,795	20,632,680	1,514,043	13,712,976
Delaware.....	4,736,580	192,025	1,725,452	1,870,570	118,740	1,247,055
Maryland.....	19,766,510	658,010	7,462,594	9,671,800	634,446	6,484,088
Virginia.....	36,748,410	1,910,085	16,233,756	8,907,510	927,266	6,161,000
North Carolina.....	34,818,860	2,720,206	17,304,407	4,342,351	746,984	3,463,726
South Carolina.....	17,429,610	1,772,057	9,149,808	1,017,319	174,245	958,158
Georgia.....	34,032,230	3,477,684	17,155,868	1,765,947	319,161	1,547,773
Florida.....	5,311,050	569,567	2,669,509	800	85	601
Alabama.....	35,053,047	2,743,360	17,082,751	628,775	123,897	502,240
Mississippi.....	38,789,920	2,276,313	18,873,934	37,207	6,447	30,743
Louisiana.....	22,062,580	1,343,756	10,327,723	2,345	214	1,888
Texas.....	109,970,350	5,017,690	34,424,871	12,266,320	1,027,947	7,051,477
Arkansas.....	44,144,098	2,317,742	17,572,170	2,449,970	379,453	1,383,916
Tennessee.....	67,307,390	3,374,574	28,059,508	11,924,010	1,426,112	7,882,697
West Virginia.....	16,610,730	724,646	7,698,335	4,326,150	447,928	3,040,314
Kentucky.....	73,974,220	3,319,257	29,423,996	14,264,500	1,431,027	8,923,760
Ohio.....	152,055,390	3,826,013	48,037,895	50,376,800	3,209,074	32,855,834
Michigan.....	44,584,130	1,501,189	17,798,011	20,535,140	1,925,769	12,921,925
Indiana.....	178,967,070	4,499,249	51,752,946	34,986,280	2,893,293	22,228,916
Illinois.....	398,149,140	10,266,335	115,092,567	19,795,500	1,826,143	11,937,458
Wisconsin.....	53,309,810	1,497,474	15,995,822	9,005,170	556,614	5,115,346
Minnesota.....	47,256,920	1,441,580	11,337,105	95,278,660	6,560,707	50,601,948
Iowa.....	383,453,190	9,804,076	97,297,707	22,769,440	1,689,705	11,457,868
Missouri.....	208,844,870	7,423,683	61,246,305	23,072,768	2,056,219	13,520,012
Kansas.....	229,937,430	8,266,018	58,079,738	38,778,450	3,803,818	19,132,453
Nebraska.....	210,974,740	7,335,187	51,251,213	24,924,520	2,538,949	11,877,347
California.....	1,477,093	53,930	700,894	36,534,407	2,683,405	20,179,044
Oregon.....	359,523	16,992	155,693	14,508,636	873,379	6,358,395
Nevada.....	14,614	580	11,736	450,812	18,537	263,351
Colorado.....	1,275,680	85,256	508,488	5,587,770	294,949	2,809,370
Arizona.....	204,748	11,654	151,564	440,252	24,377	276,639
North Dakota.....	1,284,870	62,373	397,278	59,888,817	4,451,251	31,733,763
South Dakota.....	32,402,540	1,196,381	7,263,127	41,889,380	3,984,659	20,957,917
Idaho.....	111,528	4,582	55,880	5,340,180	266,305	2,131,953
Montana.....	75,838	3,301	41,626	1,899,683	92,132	1,077,210
New Mexico.....	677,305	41,345	419,936	603,303	37,907	390,616
Utah.....	250,020	11,517	121,872	3,413,470	189,235	1,575,064
Washington.....	218,706	10,483	104,263	21,187,527	1,088,102	9,028,209

STATES AND TERRITORIES.	RYE.			OATS.		
	Bushels.	Acres.	Value.	Bushels.	Acres.	Value.
Maine.....	9,290	611	\$ 6,126	3,799,435	108,661	\$ 1,374,573
New Hampshire....	46,680	1,596	25,189	497,110	12,589	184,025
Vermont.....	31,950	2,264	18,012	2,742,140	73,372	941,711
Massachusetts.....	60,204	4,557	34,201	240,090	6,702	84,850
Rhode Island.....	7,710	591	4,751	47,120	1,530	10,631
Connecticut.....	203,400	10,282	112,262	316,380	9,883	103,459
New York.....	2,431,670	177,416	1,393,313	40,785,090	1,329,753	12,929,092
New Jersey.....	831,410	68,967	442,446	1,601,610	75,959	492,342
Pennsylvania.....	3,944,750	310,048	2,070,847	37,242,810	1,173,847	11,093,392



## AREA, PRODUCT, AND VALUE OF EACH CROP FOR THE YEAR 1899—Continued.

STATES AND TERRITORIES.	RYE.			OATS.		
	Bushels.	Acres.	Value.	Bushels.	Acres.	Value.
Delaware.....	12,380	1,103	\$ 5,831	131,960	5,247	\$ 43,337
Maryland.....	279,550	21,621	141,433	1,109,500	44,625	340,475
Virginia.....	246,834	31,534	124,105	3,269,430	275,394	1,103,616
North Carolina.....	133,730	28,074	86,228	2,454,768	270,876	991,516
South Carolina.....	19,372	4,256	18,551	2,661,670	222,544	1,226,575
Georgia.....	54,492	13,185	52,937	3,115,610	318,433	1,383,758
Florida.....	4,840	764	5,514	297,430	31,467	143,028
Alabama.....	11,123	1,708	9,075	1,882,060	216,873	797,684
Mississippi.....	963	103	755	862,805	87,066	383,633
Louisiana.....	372	55	323	316,070	28,033	117,312
Texas.....	42,770	3,984	27,362	24,190,668	847,225	5,249,791
Arkansas.....	10,125	2,883	11,428	3,909,000	280,115	1,263,101
Tennessee.....	107,912	16,556	68,381	2,725,330	235,313	887,940
West Virginia.....	111,031	13,758	58,784	1,833,840	99,433	637,176
Kentucky.....	155,365	17,618	88,315	4,009,830	316,590	1,247,928
Ohio.....	257,120	17,583	128,072	42,050,910	1,115,149	10,236,251
Michigan.....	2,130,870	174,096	1,033,416	36,338,145	1,019,438	9,264,385
Indiana.....	564,300	43,562	266,487	34,505,070	1,017,385	7,458,682
Illinois.....	1,104,070	78,869	509,688	180,305,630	4,579,034	36,990,019
Wisconsin.....	5,142,066	362,193	2,443,946	84,040,800	2,365,115	17,931,685
Minnesota.....	1,866,150	118,869	783,852	74,054,150	2,201,325	15,829,804
Iowa.....	1,179,970	89,172	480,817	168,364,170	4,695,391	33,254,987
Missouri.....	220,338	21,233	103,192	20,545,350	916,178	4,669,185
Kansas.....	807,260	80,904	316,013	24,409,980	900,353	4,915,896
Nebraska.....	1,901,820	178,920	712,759	58,007,140	1,924,827	11,333,393
California.....	524,451	62,925	251,486	4,972,356	153,734	1,700,397
Oregon.....	109,234	10,090	67,053	6,725,828	261,406	2,078,950
Nevada.....	1,029	129	1,548	151,176	4,786	67,160
Colorado.....	26,180	2,148	13,876	3,080,130	120,952	1,121,745
North Dakota.....	368,240	27,995	138,771	22,125,331	780,517	5,852,615
South Dakota.....	454,860	39,253	164,860	19,412,490	691,167	4,114,456
Idaho.....	16,580	1,304	8,328	1,956,498	64,739	702,955
Montana.....	33,120	2,003	16,546	4,746,231	133,938	1,790,938
New Mexico.....	1,064	48	701	342,777	15,848	154,347
Utah.....	28,630	2,866	13,761	1,436,225	43,394	553,847
Washington.....	44,945	3,077	23,566	5,336,486	126,841	1,765,547
Wyoming.....	15,580	1,006	9,574	763,370	26,892	292,630

STATES AND TERRITORIES.	BARLEY.			BUCKWHEAT.		
	Bushels.	Acres.	Value.	Bushels.	Acres.	Value.
Maine.....	252,850	8,809	\$ 137,448	468,320	25,292	\$ 185,836
New Hampshire.....	46,680	1,596	25,189	43,360	1,835	19,334
Vermont.....	380,940	12,152	187,004	196,010	9,910	90,275
Massachusetts.....	14,987	638	9,264	36,034	2,262	20,920
Rhode Island.....	6,100	222	3,465	650	45	427
Connecticut.....	3,400	137	1,856	62,962	3,423	33,346
New York.....	2,943,250	111,658	1,402,184	3,815,350	286,862	2,045,737
New Jersey.....	4,790	336	2,301	234,275	15,762	120,479
Pennsylvania.....	197,178	9,583	89,163	3,922,980	249,840	1,945,860
Delaware.....	40	3	30	23,980	1,652	10,773
Maryland.....	42,500	1,515	18,776	115,950	8,047	58,623
Virginia.....	53,346	2,768	25,007	244,321	19,251	111,731
North Carolina.....	4,237	475	2,335	52,572	5,168	25,482
South Carolina.....	3,106	281	2,899	41	10	42
Georgia.....	2,290	395	2,048	26	4	23
Florida.....	320	27	318	30	2	30
Alabama.....	2,400	273	1,582	76	10	50
Mississippi.....	330	32	203			

## AREA, PRODUCT, AND VALUE OF EACH CROP FOR THE YEAR 1899—Continued.

STATES AND TERRITORIES.	BARLEY.			BUCKWHEAT.		
	Bushels.	Acres.	Value.	Bushels.	Acres.	Value.
Louisiana.....	110	16	\$ 61			
Texas.....	80,366	4,380	33,354	333	41	\$ 310
Arkansas.....	2,809	304	1,278	421	53	334
Tennessee.....	21,636	1,590	11,273	8,597	1,173	4,690
West Virginia.....	3,660	253	1,832	267,257	21,410	134,893
Kentucky.....	177,772	953	8,157	879	84	615
Ohio.....	1,053,240	34,058	402,977	164,305	13,071	87,242
Michigan.....	1,165,288	44,965	494,994	605,830	55,669	309,311
Indiana.....	260,550	9,533	100,480	102,310	8,684	51,300
Illinois.....	686,580	21,375	242,834	65,050	6,220	36,225
Wisconsin.....	18,699,090	555,747	6,916,935	489,895	39,713	288,481
Minnesota.....	24,314,240	877,845	7,220,739	82,687	6,700	43,741
Iowa.....	18,050,060	627,851	5,342,393	151,120	13,824	84,842
Missouri.....	28,969	1,727	11,232	21,480	2,715	12,079
Kansas.....	1,474,150	119,158	383,709	15,203	1,923	9,022
Nebraska.....	2,034,910	92,098	545,432	8,629	980	5,109
California.....	25,149,335	1,029,647	10,645,723	7,835	395	3,945
Oregon.....	1,515,150	60,375	606,945	7,010	402	4,425
Nevada.....	224,035	7,043	126,748			
Colorado.....	531,249	21,949	246,510	226	27	151
Arizona.....	458,776	16,270	223,985			
North Dakota.....	6,752,060	287,092	1,990,082	10,760	1,121	7,439
South Dakota.....	7,031,760	299,510	2,003,540	2,700	232	2,073
Idaho.....	969,214	32,798	312,730	800	60	541
Montana.....	844,140	22,848	341,308	168	9	98
New Mexico.....	24,107	1,110	12,475	73	6	50
Utah.....	252,140	8,644	121,826	640	43	410
Washington.....	3,641,056	122,298	1,268,480	1,865	96	1,332
Wyoming.....	29,690	1,225	15,375	245	13	138

STATES AND TERRITORIES.	POTATOES.			HAY AND FORAGE.		
	Bushels.	Acres.	Value.	Tons.	Acres.	Value.
Maine.....	9,813,748	71,765	\$ 3,711,999	1,136,774	1,270,254	\$10,641,546
New Hampshire....	2,420,668	19,422	1,090,495	654,973	615,042	6,336,252
Vermont.....	3,547,829	28,353	1,333,730	1,336,499	1,006,495	10,544,825
Massachusetts.....	3,346,590	27,521	1,800,937	856,505	610,023	9,056,854
Rhode Island.....	843,853	5,816	440,372	76,920	69,776	1,081,482
Connecticut.....	3,493,534	27,148	1,714,688	543,192	478,555	6,001,280
New York.....	38,060,471	395,640	15,019,135	6,389,406	5,154,965	55,237,446
New Jersey.....	4,542,816	52,896	2,192,456	542,796	444,610	5,544,970
Pennsylvania.....	21,769,472	227,867	9,307,054	4,020,388	3,269,441	37,514,779
Delaware.....	414,610	5,755	221,411	128,193	74,800	989,848
Maryland.....	1,991,357	26,472	1,020,003	507,042	374,848	4,709,072
Virginia.....	4,409,672	51,021	2,404,627	943,079	162,962	7,670,082
North Carolina.....	1,636,445	23,619	862,509	429,824	229,998	4,242,561
South Carolina.....	651,916	8,068	435,468	213,249	106,124	2,304,734
Georgia.....	553,129	8,477	326,853	287,148	137,312	3,034,992
Florida.....	232,212	3,752	187,274	37,187	21,994	435,297
Alabama.....	587,711	9,505	324,628	172,908	85,453	1,707,638
Mississippi.....	398,272	6,370	245,777	164,650	99,261	1,459,879
Louisiana.....	549,280	9,220	309,082	248,601	97,136	1,353,118
Texas.....	1,342,316	21,810	725,145	1,494,305	938,024	7,294,450
Arkansas.....	1,783,969	26,486	855,140	288,416	239,426	1,013,163
Tennessee.....	1,404,097	27,103	817,419	802,720	645,617	6,811,577
West Virginia.....	2,245,821	30,123	1,133,381	644,535	601,935	5,517,973
Kentucky.....	2,661,774	37,160	1,260,100	776,534	683,139	6,100,647
Ohio.....	13,709,238	167,590	5,750,068	4,192,871	3,015,261	29,047,532
Michigan.....	23,476,444	311,963	6,759,342	2,926,604	2,328,498	21,792,987
Indiana.....	6,209,080	84,245	2,463,074	3,470,378	2,442,414	20,227,197



## AREA, PRODUCT, AND VALUE OF EACH CROP FOR THE YEAR 1899—Continued.

STATES AND TERRITORIES.	POTATOES.			HAY AND FORAGE.		
	Bushels.	Acres.	Value.	Tons.	Acres.	Value.
Illinois .....	12,951,971	136,464	\$4,702,033	4,256,211	3,343,910	\$25,569,169
Wisconsin.....	24,641,498	256,931	5,826,552	3,667,212	2,397,982	19,267,709
Minnesota.....	14,643,327	146,659	3,408,999	4,411,667	3,157,690	14,585,281
Iowa .....	17,305,919	175,888	3,870,746	6,851,871	4,644,378	30,042,246
Missouri .....	7,786,623	93,915	2,756,695	4,326,896	3,481,506	20,467,501
Kansas .....	8,091,745	85,318	2,485,800	7,235,136	4,337,342	18,499,287
Nebraska .....	7,817,438	79,901	1,734,666	3,517,495	2,823,652	11,230,901
California .....	5,242,506	42,098	2,637,528	3,035,982	2,239,601	19,436,398
Oregon .....	3,761,367	30,035	1,210,034	1,117,886	731,823	6,147,018
Nevada .....	361,188	2,235	194,619	419,812	292,134	2,066,496
Colorado .....	4,465,748	44,075	1,717,111	1,647,477	952,214	8,159,279
Arizona .....	33,927	626	33,928	177,831	92,674	1,361,422
North Dakota.....	2,257,359	21,936	587,498	1,748,213	1,410,534	5,182,917
South Dakota.....	2,909,914	33,567	680,530	2,383,774	2,287,875	5,954,229
Idaho .....	1,035,290	9,313	442,489	899,154	513,656	4,238,993
Montana.....	1,332,062	9,613	661,163	1,059,361	875,712	5,974,850
New Mexico.....	72,613	1,122	49,552	196,545	87,358	1,427,317
Utah .....	1,483,570	10,433	487,816	851,804	388,043	3,862,820
Washington.....	3,557,876	25,110	1,312,948	827,413	497,139	5,831,088
Wyoming.....	262,338	2,800	138,368	462,101	380,769	2,332,028
Oklahoma.....	559,532	7,677	288,117	1,146,455	695,313	2,883,682

STATES AND TERRITORIES.	TOBACCO.			COTTON.		
	Pounds.	Acres.	Value.	Bales.	Acres.	Value.
Massachusetts.....	6,466,570	3,827	\$ 956,399	.....	.....	.....
Connecticut.....	16,930,770	10,120	3,074,022	.....	.....	.....
New York.....	13,958,370	11,307	1,172,236	.....	.....	.....
Pennsylvania.....	41,502,620	27,760	2,959,304	.....	.....	.....
Maryland .....	24,589,480	42,911	1,438,169	.....	.....	.....
Virginia .....	122,884,900	184,334	7,210,195	10,789	25,724	\$ 346,600
North Carolina.....	127,503,400	203,023	8,038,691	459,707	1,007,020	15,696,952
South Carolina.....	19,895,970	25,993	1,297,293	881,422	2,074,181	29,590,152
Georgia .....	1,105,600	2,304	159,659	1,287,992	3,513,839	42,534,235
Florida .....	1,125,600	2,056	254,211	61,856	221,820	2,591,796
Alabama .....	311,950	1,141	55,581	1,106,840	3,202,135	37,004,598
Mississippi.....	62,760	203	9,225	1,313,798	2,897,920	47,340,314
Louisiana.....	102,100	275	20,488	709,041	1,376,254	23,523,143
Texas .....	550,120	1,443	104,604	2,506,212	6,960,367	84,332,713
Arkansas.....	831,700	1,887	85,395	709,880	1,641,855	24,671,445
Tennessee.....	49,157,550	71,840	2,748,495	234,592	623,137	8,192,642
West Virginia.....	3,087,140	5,120	228,620	.....	.....	.....
Kentucky.....	314,288,050	384,805	18,541,982	1,369	2,396	52,812
Ohio .....	65,957,100	71,422	4,864,191	.....	.....	.....
Indiana .....	6,882,470	8,219	445,658	.....	.....	.....
Illinois .....	1,447,150	2,242	85,411	.....	.....	.....
Wisconsin.....	45,500,480	33,830	2,808,091	.....	.....	.....
Missouri.....	3,041,996	4,301	218,991	25,576	45,596	849,199
Oklahoma.....	11,880	39	1,531	72,015	240,678	2,217,119
Other States and Territories.....	880,109	770	109,086	139	209	4,522

Since the erection of the Department of Agriculture into a cabinet department of the government, the means of obtaining accurate figures relative to the agricultural operations of the country are greatly enhanced, and we now have facts and figures officially attested as to trustworthiness for the former (ofttimes wild) estimates of irresponsible statisticians.

## DOMESTIC ANIMAL

In addition to the report of the production of farm crops the statistics of domestic animals owned in the various States and Territories are given in the following table, showing the estimated number of animals on farms and ranches, total value of each kind, and average price, June 1, 1899.

STATES AND TERRITORIES.	HORSES.			MULES AND ASSES.		
	Number.	Average price.*	Value.	Number.	Average price.	Value.
Maine.....	106,290	\$ 68.12	\$ 7,058,989	401	\$ 66.19	\$ 20,299
New Hampshire.....	54,866	70.81	3,840,670	124	72.36	7,637
Vermont.....	85,531	64.05	5,319,597	356	71.08	22,762
Massachusetts.....	75,034	78.11	5,826,457	349	79.18	22,394
Rhode Island.....	11,390	86.55	980,948	43	76.94	3,045
Connecticut.....	52,576	73.06	3,813,632	302	87.73	23,515
New York.....	628,438	78.77	47,977,931	3,651	72.76	237,281
New Jersey.....	94,024	80.64	7,582,274	4,931	73.43	356,492
Pennsylvania.....	590,981	72.60	40,948,827	38,635	79.60	2,930,249
Delaware.....	20,722	62.57	1,767,625	4,700	74.04	346,246
Maryland.....	148,994	66.61	9,352,694	17,580	82.21	1,401,332
Virginia.....	208,522	54.46	15,326,404	47,886	65.97	2,993,996
North Carolina.....	159,153	57.18	8,795,611	136,435	65.70	8,746,758
South Carolina.....	78,419	63.64	4,847,993	117,616	72.16	8,437,876
Georgia.....	127,407	57.24	7,092,228	207,840	70.46	14,500,672
Florida.....	42,811	56.60	2,290,139	13,762	79.60	1,078,417
Alabama.....	152,643	54.41	7,906,121	193,889	70.07	13,239,468
Mississippi.....	229,311	50.67	10,882,851	216,032	68.43	14,345,416
Louisiana.....	194,372	36.64	6,624,617	144,653	75.99	10,688,667
Texas.....	1,269,432	29.50	34,497,083	523,690	53.47	25,990,366
Arkansas.....	253,590	42.65	10,164,495	177,480	60.16	10,211,889
Tennessee.....	352,388	59.01	19,681,517	262,509	70.85	16,904,252
West Virginia.....	185,188	59.96	10,376,550	11,470	67.38	740,368
Kentucky.....	451,697	55.11	24,548,542	195,024	64.23	11,564,763
Ohio.....	878,205	60.52	50,159,245	17,021	59.66	960,192
Michigan.....	586,559	64.68	35,908,557	3,011	59.53	161,668
Indiana.....	751,715	57.36	40,641,988	67,725	60.81	3,833,227
Illinois.....	1,350,219	55.56	69,698,100	127,173	65.89	7,643,658
Wisconsin.....	555,756	65.97	34,316,475	4,918	57.74	251,998
Minnesota.....	606,469	65.47	42,255,044	8,500	62.15	498,055
Iowa.....	1,392,573	61.15	77,720,577	57,579	71.74	3,737,529
Missouri.....	967,037	45.82	42,094,814	292,296	63.60	16,594,175
Kansas.....	979,695	48.06	43,758,334	122,491	64.22	6,936,092
Nebraska.....	795,318	50.44	36,663,359	55,856	63.79	3,288,216
California.....	421,293	44.59	17,844,093	87,000	58.12	4,757,606
Oregon.....	287,932	33.76	8,651,060	7,751	50.06	360,672
Nevada.....	80,205	19.03	1,272,336	3,048	38.81	114,487
Colorado.....	236,546	34.96	7,308,726	12,297	53.81	377,557
Arizona.....	125,063	17.50	1,701,905	8,702	33.40	155,701
North Dakota.....	359,948	70.37	22,728,511	6,976	73.72	489,597
South Dakota.....	480,768	47.29	20,085,687	6,999	56.55	364,630
Idaho.....	170,120	28.20	4,123,343	2,155	44.06	81,275
Montana.....	329,972	26.84	7,788,672	2,857	44.55	118,749
New Mexico.....	131,153	19.85	2,220,469	21,213	38.80	247,660
Utah.....	115,884	33.26	3,306,313	3,004	33.49	74,405
Washington.....	243,985	40.74	8,550,434	2,850	59.43	154,666
Wyoming.....	135,543	28.10	3,225,196	1,641	49.33	61,646
Oklahoma.....	303,631	38.40	10,615,294	57,198	56.59	2,952,801

\* Average price of full-grown animal.



TABLE SHOWING THE ESTIMATED NUMBER OF ANIMALS ON FARMS, ETC.—*Continued.*

STATES AND TERRITORIES	MILCH COWS.		OXEN AND OTHER CATTLE.	
	Number.	Value.	Number.	Value.
Maine .....	173,592	\$ 5,060,048	165,255	\$ 2,525,497
New Hampshire .....	115,036	3,615,354	111,756	1,931,276
Vermont .....	270,194	7,740,908	231,746	2,787,887
Massachusetts .....	184,562	6,546,954	101,382	1,583,963
Rhode Island .....	23,660	937,137	12,374	228,660
Connecticut .....	126,434	4,262,545	90,624	1,681,720
New York .....	1,501,608	48,694,512	1,094,781	14,040,662
New Jersey .....	157,407	5,840,228	82,577	1,358,879
Pennsylvania .....	943,773	29,141,561	953,074	13,921,630
Delaware .....	32,591	993,972	21,589	346,913
Maryland .....	147,284	4,339,777	145,362	2,513,344
Virginia .....	281,876	6,041,677	543,636	10,197,170
North Carolina .....	233,178	4,426,709	391,340	3,241,241
South Carolina .....	126,684	2,541,723	216,214	1,792,991
Georgia .....	276,024	4,658,971	623,467	4,169,527
Florida .....	78,830	1,048,849	672,431	5,295,500
Alabama .....	279,263	5,512,940	520,471	4,280,616
Mississippi .....	299,318	6,408,246	574,038	5,662,675
Louisiana .....	184,815	3,607,933	485,480	4,973,963
Texas .....	861,023	19,995,327	8,567,173	143,233,577
Arkansas .....	312,577	6,349,801	581,958	5,535,826
Tennessee .....	321,670	8,137,474	590,597	7,263,577
West Virginia .....	205,601	5,694,302	434,181	8,364,125
Kentucky .....	364,025	10,518,031	719,223	14,469,710
Ohio .....	818,239	24,725,382	1,235,074	21,834,864
Michigan .....	563,905	17,281,805	812,503	10,883,451
Indiana .....	574,276	18,285,504	1,110,202	22,679,020
Illinois .....	1,007,664	34,279,218	2,096,346	47,891,689
Wisconsin .....	998,397	29,042,522	1,315,708	17,206,896
Minnesota .....	753,632	21,513,337	1,117,693	14,735,621
Iowa .....	1,423,648	46,349,012	3,943,982	96,169,899
Missouri .....	765,386	23,514,794	2,213,203	52,142,013
Kansas .....	676,456	22,191,123	3,814,622	95,449,678
Nebraska .....	512,544	17,192,120	2,663,699	65,277,378
California .....	397,245	10,739,070	1,137,379	21,916,076
Oregon .....	122,447	4,093,333	577,856	11,071,564
Nevada .....	13,666	462,681	371,586	7,810,579
Colorado .....	100,116	3,797,997	1,333,202	31,734,741
Arizona .....	17,965	577,693	724,670	10,789,773
North Dakota .....	125,503	4,078,546	531,931	11,732,091
South Dakota .....	270,634	8,400,818	1,276,166	29,447,115
Idaho .....	51,929	1,797,122	311,605	6,592,832
Montana .....	45,036	1,886,580	923,351	23,475,436
New Mexico .....	16,775	510,048	975,084	17,467,883
Utah .....	65,905	2,037,367	277,785	5,115,477
Washington .....	107,232	4,076,189	287,691	5,363,849
Wyoming .....	18,272	720,693	669,012	18,672,498
Oklahoma .....	165,852	5,045,568	1,543,900	32,737,547

TABLE SHOWING THE ESTIMATED NUMBER OF ANIMALS ON FARMS, ETC.—*Continued.*

STATES AND TERRITORIES.	SHEEP.*		HOGS.	
	Number.	Value.	Number.	Value.
Maine.....	252,213	\$751,777	79,018	\$516,015
New Hampshire.....	65,318	216,926	51,211	357,573
Vermont.....	182,167	655,381	95,090	620,169
Massachusetts.....	33,869	142,076	78,925	549,617
Rhode Island.....	6,629	26,128	11,508	90,614
Connecticut.....	23,221	97,118	46,447	326,857
New York.....	984,516	3,981,758	676,639	3,794,332
New Jersey.....	26,363	118,924	175,387	926,179
Pennsylvania.....	959,483	3,314,682	1,107,981	5,830,295
Delaware.....	6,964	25,509	40,732	234,472
Maryland.....	111,520	428,283	317,902	1,329,143
Virginia.....	392,125	1,271,998	946,443	2,572,524
North Carolina.....	208,812	352,498	1,300,409	2,516,410
South Carolina.....	52,436	86,405	618,995	1,411,516
Georgia.....	258,694	354,200	1,424,298	2,577,950
Florida.....	102,709	206,828	404,277	702,827
Alabama.....	229,298	384,146	1,423,329	2,887,230
Mississippi.....	236,470	427,779	1,200,498	2,963,573
Louisiana.....	169,234	283,294	788,425	1,494,284
Texas.....	1,439,940	3,361,244	2,665,614	7,605,687
Arkansas.....	168,761	313,809	1,713,307	2,981,309
Tennessee.....	307,804	789,681	1,976,984	4,838,713
West Virginia.....	572,739	1,706,995	442,884	1,389,808
Kentucky.....	716,158	2,411,554	1,954,537	5,176,183
Ohio.....	2,648,250	8,585,457	3,188,563	11,813,168
Michigan.....	1,625,930	5,227,343	1,165,200	4,588,898
Indiana.....	1,010,648	4,113,775	3,703,389	13,804,893
Illinois.....	629,150	2,716,745	5,915,468	23,616,781
Wisconsin.....	986,212	3,333,387	2,014,631	7,580,423
Minnesota.....	359,328	1,329,531	1,440,806	5,865,599
Iowa.....	657,868	3,010,527	9,723,791	43,764,176
Missouri.....	663,703	2,351,497	4,524,664	16,533,935
Kansas.....	179,907	666,631	3,594,859	17,076,904
Nebraska.....	335,950	1,348,140	4,128,000	18,660,932
California.....	1,724,968	5,423,843	598,336	2,476,781
Oregon.....	1,061,355	5,643,827	281,406	1,057,037
Nevada.....	568,251	1,765,946	15,174	75,712
Colorado.....	1,352,823	4,440,603	101,198	482,722
Arizona.....	668,458	1,552,936	18,103	80,587
North Dakota.....	451,437	1,605,730	191,798	930,470
South Dakota.....	507,338	1,959,155	823,120	3,540,072
Idaho.....	1,065,467	6,141,010	114,080	480,338
Montana.....	4,215,214	14,358,875	49,496	281,402
New Mexico.....	3,333,743	8,272,951	20,426	81,644
Utah.....	2,553,134	2,937,622	65,731	293,115
Washington.....	558,022	1,722,289	181,535	830,704
Wyoming.....	3,327,185	12,708,639	15,471	78,145
Oklahoma.....	48,535	140,483	584,878	2,380,025

\* Lambs not included.

In connection with the foregoing statements of crop production and number of domestic animals owned by the agricultural community it will be found interesting to note the rate of freight charges for transportation — both domestic and foreign which may be learned at the offices of the chief railway companies at Chicago and New York.



The values of the merchandise imports from and exports to the different foreign countries, colonies, islands, and ports during the year ending June 30, 1901, are given in the following table:

COUNTRIES.	IMPORTS.	EXPORTS.		COUNTRIES.	IMPORTS.	EXPORTS.	
		DOMESTIC.	FOREIGN.			DOMESTIC.	FOREIGN.
Austria-Hungary...	\$ 10,067,970	\$ 6,963,299	\$ 259,351	West Indies:			
Azores and Madeira Islands	25,395	426,351	1,083	Santo Domingo...	3,553,776	1,704,008	95,677
Belgium	14,601,711	48,552,762	836,497	Argentine Republic	8,065,318	11,289,938	247,730
Denmark	644,993	16,148,968	26,267	Bolivia		152,285	30
France	75,458,739	76,431,378	2,283,549	Brazil	70,643,347	11,576,461	87,113
Germany	100,415,902	188,350,919	3,429,508	Chile	8,683,279	5,282,405	12,321
Gibraltar	52,863	676,394	2,420	Colombia	3,230,652	3,095,165	46,887
Greece	1,124,775	291,506	32	Ecuador	1,424,840	2,012,698	2,387
Greenland, Iceland, etc.	82,533	525		Falkland Islands		797	
Italy	24,618,384	34,277,491	195,698	Guianas:			
Malta, Gozo, etc.	14,744	438,474	508	British	4,805,395	1,689,159	45,245
Netherlands	20,598,789	83,847,330	508,988	Dutch	1,272,731	606,481	4,506
Portugal	3,370,430	5,289,400	4,780	French	54,018	197,701	2,306
Roumania		26,560		Paraguay	1,745	12,695	
Russia, Baltic, etc.	5,546,280	6,301,553	43,740	Peru	3,616,180	3,122,180	4,754
Russia, Black Sea	1,484,612	1,730,071	8,864	Uruguay	1,883,994	1,613,822	23,252
Servia	10,699	369		Venezuela	6,645,848	3,224,317	47,500
Spain	5,409,301	15,455,839	24,449	Aden	1,520,629	999,213	685
Sweden and Norway	3,487,039	11,838,911	5,247	British China	81	220	
Switzerland	15,799,400	252,126	3,234	China	18,303,706	10,287,312	118,522
Turkey in Europe	3,386,722	392,908	50	East Indies:			
Great Britain and Ireland	143,388,501	624,216,404	6,960,753	British	43,882,493	6,248,408	3,396
Bermuda	531,323	1,285,938	27,069	Dutch	19,026,481	2,060,958	3,747
British Honduras	241,509	796,841	16,976	French and Portuguese		59,367	
British North America:				Hong-Kong	1,416,412	7,946,695	63,453
Nova Scotia, New Brunswick, etc.	5,496,697	7,110,346	731,225	Japan	29,229,543	18,656,899	343,741
Quebec, Ontario, etc.	27,599,746	83,945,432	6,990,281	Korea	768	215,545	6
British Columbia	9,385,720	6,666,680	345,250	Russian China		377,252	
Newfoundland and Labrador	420,315	1,948,827	8,478	Russia, Asiatic	3,529	1,502,912	2,930
Central American States:				Turkey in Asia	3,897,854	191,249	2,913
Costa Rica	2,990,550	1,916,200	30,526	All other Asia	396,115	305,413	176
Guatemala	3,512,445	1,394,579	30,235	British Australasia	4,767,661	30,577,345	149,342
Honduras	1,262,317	1,029,194	85,815	French Oceania	657,336	398,362	12,857
Nicaragua	2,035,036	1,344,373	137,821	Hawaiian Islands			
Salvador	1,037,715	725,358	13,364	Tonga, Samoa, etc.	70,744	129,931	155
Mexico	28,851,635	35,857,837	617,513	Philippine Islands	4,420,912	4,014,180	12,884
Miquelon, Langle, etc.	32,814	218,014	2,706	British Africa	813,440	21,613,995	40,463
West Indies:				Canary Islands	32,901	253,275	1,645
British	12,851,325	8,765,230	115,822	French Africa	417,223	839,299	4,115
Cuba	43,423,088	24,100,453	1,864,348	Liberia	4,867	25,476	19
Danish	478,262	685,287	6,863	Madagascar	547	28,134	
Dutch	240,019	644,466	3,132	Portuguese Africa	1,643	1,425,530	3
French	13,972	1,828,633	23,001	Spanish Africa	5,387	13,585	
Hayti	1,199,240	3,144,235	280,432	Egypt	7,212,279	1,216,445	328
				Tripoli	183,743	1,469	
				All other Africa	281,431	78,831	
				Auckland, Fiji, and Norfolk Islands	1,472,117	15,982	
				German Oceania	3581	46,672	
				Guam	1,044	34,223	468
				Total	\$823,172,165	\$1,460,462,806	\$27,302,185

## TELEGRAPHS, TELEPHONES, ETC.

The figures for telephonic operations for the past three years are as follows, according to the record of the Bell Telephone Company, which enjoys a monopoly of the business in the United States:

	1899.	1900.	1901.
Exchanges	1,126	1,239	1,348
Branch offices	1,008	1,187	1,427
Miles of wire on poles	396,503	509,036	627,897
Miles of wire on buildings	15,329	15,087	16,833
Miles of wire underground	358,184	489,250	705,269
Miles of wire submarine	2,973	3,404	4,203
Total miles of wire	772,989	1,016,777	1,354,202
Total circuits	338,293	422,620	508,262
Total employees	19,668	25,741	32,837
Total stations	465,180	632,946	800,880

## WESTERN UNION TELEGRAPH CO.

The following table exhibits the mileage of lines operated, number of offices, number of messages sent, receipts, expenses, and profits for the year 1901:

	1901.
Miles of poles and cables	193,589
Miles of wire	972,766
Number of offices	23,238
Number of messages	65,657,049
Receipts	\$26,354,150
Expenses	\$19,668,902
Profits	\$6,685,248

These figures place the United States far ahead of any other country in the world in regard to electrical enterprises, her mileage of telegraph lines being more than double that of any other nation.

## RAILROADS.

The facilities for transportation have largely increased in the past few years, the mileage of the railroads having enormously augmented, while steamboats and canal barges have played an important part in the handling of heavy freight. The following table gives the statistics of railroads in the country on June 30, 1900:

STATES AND TERRITORIES.	Area, Sq. Miles.	Population, 1900.	Miles of Railroad.
Maine.....	33,040	694,466	1,915.24
New Hampshire.....	9,305	411,588	1,239.20
Vermont.....	9,565	343,641	1,012.11
Massachusetts.....	8,315	2,805,346	2,118.58
Rhode Island.....	1,250	428,556	211.79
Connecticut.....	4,900	908,420	1,023.62
New York.....	49,170	7,268,894	8,121.03
New Jersey.....	7,815	1,883,669	2,256.69
Pennsylvania.....	45,215	6,302,115	10,330.50
Delaware.....	2,050	184,735	346.72
Maryland.....	12,210	1,188,044	1,376.16
Dist. of Columbia.....	70	278,718	31.75
Ohio.....	41,060	4,157,545	8,807.27
Michigan.....	58,915	2,420,982	8,195.18
Indiana.....	39,350	2,516,462	6,470.61
Illinois.....	56,650	4,821,550	11,002.93
Wisconsin.....	56,040	2,069,042	6,530.52
Virginia.....	42,450	1,854,184	3,779.15
West Virginia.....	24,780	958,800	2,228.05
North Carolina.....	52,250	1,893,810	3,831.16
South Carolina.....	30,570	1,340,316	2,817.93
Georgia.....	59,475	2,216,331	5,651.72
Florida.....	58,680	528,542	3,299.66
Kentucky.....	40,400	2,147,174	3,059.99
Tennessee.....	42,050	2,020,616	3,136.95
Alabama.....	52,250	1,828,697	4,225.84
Mississippi.....	46,810	1,551,270	2,919.90
Louisiana.....	48,720	1,381,625	2,824.08
Missouri.....	69,415	3,106,665	6,875.04
Arkansas.....	53,850	1,311,564	3,359.86
Indian Territory.....	64,690	392,060	1,322.75
Texas.....	265,780	3,048,710	9,886.49
Kansas.....	82,080	1,470,495	8,719.36
Colorado.....	103,925	539,700	4,587.25
New Mexico.....	122,580	195,310	1,752.52
Iowa.....	56,025	2,231,853	9,185.18
Minnesota.....	83,365	1,751,394	6,942.57
Nebraska.....	76,855	1,066,300	5,684.85
North Dakota.....	70,195	319,146	2,731.22
South Dakota.....	76,850	401,570	2,849.83
Alaska.....	590,884	63,592	21.80
Hawaii.....	6,588	154,001	100.00
Oklahoma.....	38,710	398,331	827.88
Wyoming.....	97,890	92,531	1,228.63
Montana.....	146,080	243,329	3,010.32
Washington.....	69,180	518,103	2,913.57
Idaho.....	84,800	161,772	1,261.23
Oregon.....	96,030	413,536	1,723.80
California.....	158,360	1,485,053	5,751.04
Nevada.....	110,700	42,335	909.35
Arizona.....	113,020	122,931	1,511.89
Utah.....	84,970	276,749	1,547.42

## IMMIGRATION.

The rapid increase in the population of the United States as exhibited in the table of population heretofore given has been largely due to immigration. The total number of immigrants in 1901 was 487,918, of which 388,931 came through the customs district of New York, 17,216 through Baltimore, 25,616 through Boston, 13,236 through Philadelphia, 3,655 through San Francisco, and 39,264 through other ports. The reported occupations of the immigrants were: Laborers, 161,938; farmers, 3,035; servants, 42,027; carpenters, 6,508; miners, 3,629; clerks, 3,108; tailors, 9,609; shoemakers, 5,451; blacksmiths, 2,613; bakers, 2,192; seamstresses and dressmakers, 4,232; masons, 3,414; mariners, 4,695; merchant dealers and grocers, 6,589. The total number of professional immigrants was 2,665; of miscellaneous, 272,064; of no occupation (including women and children), 148,686; occupation not stated, 3,460.

## NUMBER RETURNED.

PORTS.	Convicts.	Lunatics.	Idiots.	Liable to become public charge.	Contract laborers.	Total.
Baltimore.....				21		21
Boston.....		5		82	1	88
Galveston.....						
Key West.....				3		3
New Orleans.....						
New York.....	10	24	3	94	2	533
Portland, Me.....				6		6
Philadelphia.....			4	124		128
San Francisco.....				8		8
Total.....	10	29	7	738	3	787

## IMPORTS AND EXPORTS.

The extent of the trade of the United States in 1901 may be gathered from the returns of foreign commerce, the total imports of the year named amounting to \$823,172,165, while the total exports were \$1,487,764,991. The imports and exports at the principal ports in 1901 are given in the following table:

CUSTOMS DISTRICTS.	IMPORTS.	EXPORTS.
Baltimore.....	\$18,899,473	\$106,239,081
Boston and Charlestown.....	61,452,370	143,708,232
Brunswick.....	28,135	7,952,637
Charleston.....	1,477,719	7,084,215
Detroit.....	2,867,645	17,669,535
Galveston.....	953,801	101,857,300
Mobile.....	3,008,449	11,837,105
New Orleans.....	20,462,307	452,776,599
Newport News.....	4,090,451	32,567,912
New York.....	527,259,946	529,592,978
Norfolk and Portsmouth.....	593,930	10,308,489
Pensacola.....	238,334	13,455,761
Philadelphia.....	48,043,443	79,354,025
Portland, Me.....	633,114	12,416,793
Puget Sound.....	6,721,060	20,678,829
San Francisco.....	35,161,753	34,596,792
Savannah.....	645,067	46,738,967
Wilmington, N. C.....	180,912	12,013,659

## ARMY AND NAVY.

The figures given below exhibit the cost of maintenance of the army and navy establishments, together with Indian accounts and other miscellaneous claims indirectly connected with the military establishment:

## ARMY PAYMASTERS' DIVISION.

CHARACTER OF THE ACCOUNTS.	Number.	Amount allowed.
Army paymasters, for pay of the army..	439	\$12,122,669
Soldiers' Home accounts.....	217	639,471
National Home for Disabled Volunteer Soldiers.....	59	3,595,231
Special army accounts.....	247	246,129
Disbursing officers of the Ordnance Department, for ordnance, ordnance stores, supplies, armories, and arsenals.....	204	546,264
Disbursing officers of the Medical Department, for medical and hospital supplies and services.....	117	141,900
Recruiting officers, for regular recruiting services.....	9	49,192
Miscellaneous disbursements, for contingent expenses of the army, adjutant-general's, and commanding-general's offices, artillery schools, etc.....	27	8,379
Accounts under act of February 12, 1887	15	63,591
Telegraph accounts.....	97	2,319
Total.....	1,431	\$17,415,146



## QUARTERMASTER'S DIVISION.

CHARACTER OF THE ACCOUNTS.	Number.	Amount allowed.
Disbursing officers of the Quartermaster's Department, for regular and incidental expenses.....	1,098	\$14,784,767
Disbursing officers of the Subsistence Department.....	639	2,195,215
Disbursing officers of the Engineer Department, for military surveys, fortifications, river and harbor improvements, etc.....	162	6,609,662
Disbursing officers of the Signal Service.....	72	1,247,793
Total.....	1,971	\$24,837,437

## NAVY DIVISION.

CHARACTER OF THE ACCOUNTS.	Number.	Amount allowed.
Paymasters of the navy at navy-yards, and navy agents.....	259	\$15,237,998
Disbursing officers of the Marine Corps Navy pension agents for Navy and Marine Corps.....	17	654,258
Miscellaneous naval accounts.....	26	1,391,837
Navy financial agents.....	888	91,920
Officers' and sailors' back pay, bounty, and prize money allowed.....	3	17,423
Officers' and sailors' back pay, bounty, and prize money disallowed.....	2,228	807,178
.....	308	.....
Total.....	3,729	\$18,290,614

## MISCELLANEOUS CLAIMS DIVISION.

CHARACTER OF THE ACCOUNTS.	Number.	Amount.
Disbursing officers of the Ordnance Department, for ordnance, ordnance stores, supplies, armories, and arsenals.....	72	\$1,080,542
Recruiting officers, for regular recruiting service.....	6	66,235
Disbursing officers of the Medical Department, for medical and hospital supplies and services.....	5	200,251
Miscellaneous disbursements for contingent expenses of the army, adjutant-general's and commanding-general's offices, artillery schools, etc.....	3	2,250
Arming militia, act February 12, 1887..	21	109,064
Special telegraph accounts.....	5	1,222
Miscellaneous claims of Army Pay Department.....	147	122,128
Claims for quartermasters' stores and commissary supplies, act July 4, 1864	51	32,746
Claims for lost property, act March 3, 1849.....	1,755	233,455
Claims for lost property, act March 3, 1885.....	77	15,770
War claims of States, act 1861, etc.....	42	4,220,090
Claims for army transportation.....	658	462,613
Oregon and Washington Territory war claims.....	21	4,918
General miscellaneous claims.....	3,421	1,881,284
Telegraph accounts.....	94	3,898
Duplicate checks approved.....	661	32,330
Total.....	6,989	\$8,477,796
Included in the above are claims examined and disallowed.....	2,516	1,281,034

## INDIAN DIVISION.

CHARACTER OF THE ACCOUNTS.	Number.	Amount allowed.
Indian agents' current and contingent expenses, annuities, and installments.	213	\$1,731,807
Miscellaneous Indian claims.....	2,633	5,710,969
Indian claims disallowed.....	5	.....
Total.....	2,851	\$7,442,776

## REQUISITIONS.

During the fiscal year there were countersigned and recorded 17,314 requisitions, amounting to \$190,824,075.47, as shown by the following table:

CHARACTER.	Number.	Amount.
War Department.....	6,089	\$46,648,088.92
Navy Department.....	3,712	35,085,947.66
Interior Department, pension requisitions.....	3,770	101,761,841.29
Interior Department, Indian requisitions.....	3,743	7,328,197.62
Total.....	17,314	\$190,824,075.47

## PERSONNEL OF ARMY AND NAVY.

In addition to the general financial account presented heretofore, we subjoin a statement of the *personnel* of the naval and military establishments, together with the maintenance of each. We also give tabulated and itemized accounts of the most important departments of the civil service.

The United States Navy is composed of the following officers and men: Admiral, 1; vice-admiral, 1; rear admirals, 6; commodores, 10; captains, 45; commanders, 85; lieutenant-commanders, 74; lieutenants, 250; junior lieutenants, 75; ensigns, 181; naval cadets, 72; medical directors, 15; medical inspectors, 15; surgeons, 50; passed assistant surgeons, 58; assistant surgeons, 23; pay directors, 13; pay inspectors, 13; paymasters, 43; assistant paymasters, 14; chief engineers, 70; passed assistant engineers, 78; assistant engineers, 68; chaplains, 24; professors of mathematics, 12; secretaries, 2; naval constructors, 7; assistant naval constructors, 14; civil engineers, 10; warrant officers' boatswains, 33; gunners, 36; carpenters, 49; sailmakers, 29; mates, 31; cadets on probation at academy, 232; full number of men enlisted, 8,250.

The United States Army is constituted as follows: Major-generals, 3; brigadier-generals, 6; adjutant-general (ranking as brigadier), 1; assistant adjutant-generals (ranking as colonel), 4; assistant adjutant-generals (ranking as lieutenant-colonel), 6; assistant adjutant-generals (ranking as major), 6; inspector general, 1; inspector general assistants, 6; judge advocate general, 1; assistant judge advocate general, 1; deputy judge advocate generals, 3; judge advocates, 3; quartermaster general, 1; quartermaster general assistants, 4; quartermaster general deputy, 8; quartermasters, 14; assistant quartermasters, 29; military storekeepers, 4; commissaries, 26; surgeons (including highest ranks), 67; assistant surgeons, 124; medical storekeepers, 3; paymasters, 40; engineer corps, 109; ordnance department, 54; signal service, 15; chaplains, 31; cavalry regiments, 10; artillery regiments, 5; infantry regiments, 25. The cavalry and artillery regiments are usually officered as follows: 1 colonel, 1 lieutenant colonel, 3 majors, 12 captains; cavalry, 14 first lieutenants; artillery, 26 first lieutenants, 12 second lieutenants; entire strength of the army, 28,764.

## PENSIONS.

The amount appropriated for pensions for the current year (1901) was about the same as last year (\$139,582,231); that is an increase of \$12,000,000 over the disbursements of 1891, or nearly \$90,000,000 over those for the year 1881. The amounts actual and estimated for pensions therefore stand as follows:

Expended for the year ended June 30, 1899.....	\$139,482,696
Appropriated and estimated for year ending June 30, 1901.....	\$139,582,231
Estimated for year ending June 30, 1902.....	140,000,000

## REVENUE MARINE SERVICE.

As supplementary to the naval report we include a tabulated statement of the current annual cost, performance and constitution of the

## REVENUE MARINE.

Expenses for past year.....	\$965,500.00
Number of vessels in commission.....	37
Number of vessels found improperly anchored (six months).....	1,328
Number of violations of seal fishery laws.....	6
Number of skins seized.....	2,472
Number of miles cruised by revenue vessels.....	274,287
Number of vessels boarded.....	22,893
Number found violating laws.....	1,127
Amount of penalties inflicted on violators.....	\$445,196.70
Number of distressed vessels assisted.....	122
Value of their cargoes.....	\$2,500,000.00
Number of persons rescued from drowning.....	26
Number assisted on distressed vessels.....	1,021
Number of commissioned officers in the service.....	220
Number of pilots.....	37
Number of seamen.....	815

## CIVIL SERVICE.

We now give the figures relative to the most important branches of the civil service:

Receipts and expenditures on account of the post-office department for the fiscal year 1901, as shown by warrants.

Receipts covered into the Treasury.....	\$55,552,081.57
Receipts by postmasters.....	56,012,789.08

Total net receipts (1901).....	\$111,631,193.00
Balance due the United States June 30.....	3,923,727.00

Total.....\$115,554,920.00

Expenditures by treasurer on warrants.....	\$ 57,098,959.53
Expenditures by postmasters.....	\$ 58,012,789.08

Total expenditures (1901).....	
Balance due the United States June 30, 1900.....	

Total.....\$115,554,920.00

NOTE.—Of the receipts covered into the Treasury the sum of \$3,870,639.12 was appropriated by acts of Congress to make good deficiencies in the postal revenues.

*Life-Saving Service.*—The humane work of the service during the past fiscal year embraces the rescue from peril of 3,106 lives.

In addition to this, property exceeding in value the sum of \$5,000,000 was saved from destruction. Among the additions of the year to the facilities of the service have been three new stations, with seven others still under construction, making in all 232 stations.

*Steamboat-Inspection Service.*—The cost of this service was \$256,994.36 for the fiscal year, a slight decrease from the expense of the previous year. During the past fifteen years there has been a gain of 73 per cent. in the number of domestic steam-vessels, and an increase of 27 per cent. in the cost of inspection. The loss of life on steam-vessels has been reduced 54 per cent.

*Marine Hospital Service.*—This service, originally established for the care of sick and disabled seamen and the hygiene of merchant vessels, has become additionally charged with important duties relative to the public health. During the fiscal year nearly 50,000 sick and disabled seamen were relieved at eighteen marine hospitals and 210 relief stations.

For the safe guarding of the public health, seven national quarantine stations are in operation, besides hygienic laboratories for investigation of the causes and treatment of epidemic diseases, and a periodical bulletin is published, circulating information relative to the appearance and movement of epidemics. There has

likewise been much inland administration of a sanitary character, particularly in connection with the recent epidemic of yellow fever in Florida.

The expenditures during the fiscal year for the marine hospital service were \$540,134.53, and \$246,995 were expended for preventing the spread of epidemic disease.

## MINERALS.

The mineral products of the United States for the year 1900, as given by the United States geological report, amounted in value to \$672,090,416, which was distributed among the various minerals, as follows, coal leading the list:

PRODUCTS.	QUANTITY.	VALUE
Asbestos, short tons.....	1,100	\$ 16,500
Asphaltum, short tons.....	11,140	218,520
Asphaltic limestone, short tons.....	3,910	16,830
Bituminous sandstone, short tons.....	34,277	138,892
Barytes, short tons.....	41,466	161,717
Bauxite, long tons.....	23,445	85,922
Bismuth ore, short tons.....	221	26,500
Bromine, pounds.....	521,444	140,790
Calcium borate, short tons.....	25,350	532,350
Cement, nat. hyd., barrels.....	9,177,222	4,308,709
Cement, Portland, barrels.....	7,991,639	10,461,910
Clay products.....		78,704,678
Coal, anthracite, short tons.....	57,464,235	102,972,596
Coal, bituminous, short tons.....	210,821,727	219,460,521
Coal, cannel, short tons.....	29,471	88,413
Cobalt oxide, pounds.....	12,270	22,085
Copper sulphate, pounds.....	78,218,478	3,903,102
Corundum, short tons.....	830	58,100
Emerald, short tons.....	4,200	189,000
Feldspar, long tons.....	29,447	136,773
Fluorspar, short tons.....	21,056	114,430
Fullers earth, short tons.....	11,813	70,565
Garnet, short tons.....	3,285	92,801
Grahamite, short tons.....	3,279	98,370
Graphite, crystalline, pounds.....	4,103,052	164,122
Gypsum, short tons.....	484,202	1,316,255
Iron ore, long tons.....	25,917,393	77,752,179
Manganese ore, long tons.....	218,222	461,994
Mica, scrap, short tons.....	5,417	42,586
Mica, sheet, pounds.....	127,241	82,508
Monazite, pounds.....	908,000	50,680
Natural gas.....		18,500,000
Ochre, short tons.....	41,917	461,087
Petroleum, crude, barrels.....	62,538,544	74,246,582
Phosphate rock, long tons.....	1,527,711	5,375,956
Precious stones.....		200,000
Pyrates, long tons.....	201,317	684,477
Salt, barrels.....	20,738,729	6,439,006
Silica, brick, m.....	49,531	916,819
Flint, short tons.....	35,915	84,400
Sand, etc., long tons.....	875,000	1,312,500
Pumice, short tons.....	250	1,250
Grindstones, short tons.....	42,039	482,462
Whetstones.....		84,874
Slate, roofing, squares.....	990,036	2,885,153
Manufactures.....		502,051
Pigment, short tons.....	6,617	72,787
Soapstone, short tons.....	18,956	189,560
Soda, natural, short tons.....	14,100	195,300
Stone for building.....		41,400,000
Stone, limestone (flux), long tons.....	6,790,200	3,666,708
Sulphur, long tons.....	4,630	102,091
Sulphuric acid, short tons.....	85,000	2,045,950
Talc, common, short tons.....	7,700	60,217
Talc, fibrous, short tons.....	45,000	236,250
Zinc sulphate, short tons.....	527	22,657
Zinc ore, exported, short tons.....	42,062	1,133,663
Zinc, white, short tons.....	47,151	3,772,080
Est. product unspecified.....		5,122,134
Total.....		\$672,090,416

## PRECIOUS METALS.

The subjoined figures furnished by the commissioner and director of the mint gives the production of gold



and silver in the United States from the organization of the mint, in 1792, to 1844, and annually since.

YEARS.	Gold.	Silver.	Total.
April 2, 1792—July 31, 1834.....	\$14,000,000	Insignific't.	\$14,000,000
July 31, 1834—December 31, 1844.....	7,500,000	\$250,000	7,750,000
1845.....	1,008,327	50,000	1,058,327
1846.....	1,139,357	50,000	1,189,357
1847.....	889,085	50,000	939,085
1848.....	10,000,000	50,000	10,050,000
1849.....	40,000,000	50,000	40,050,000
1850.....	50,000,000	50,000	50,050,000
1851.....	55,000,000	50,000	55,050,000
1852.....	60,000,000	50,000	60,050,000
1853.....	65,000,000	50,000	65,050,000
1854.....	60,000,000	50,000	60,050,000
1855.....	55,000,000	50,000	55,050,000
1856.....	55,000,000	50,000	55,050,000
1857.....	55,000,000	50,000	55,050,000
1858.....	50,000,000	500,000	50,500,000
1859.....	50,000,000	100,000	50,100,000
1860.....	46,000,000	150,000	46,150,000
1861.....	43,000,000	2,000,000	45,000,000
1862.....	39,200,000	4,500,000	43,700,000
1863.....	40,000,000	8,500,000	48,500,000
1864.....	46,100,000	11,000,000	57,100,000
1865.....	53,225,000	11,250,000	64,475,000
1866.....	53,500,000	10,000,000	63,500,000
1867.....	51,725,000	13,500,000	65,225,000
1868.....	48,000,000	12,000,000	60,000,000
1869.....	49,500,000	12,000,000	61,500,000
1870.....	50,000,000	16,000,000	66,000,000
1871.....	43,500,000	23,000,000	66,500,000
1872.....	36,000,000	28,750,000	64,750,000
1873.....	36,000,000	35,750,000	71,750,000
1874.....	33,500,000	37,300,000	70,800,000
1875.....	33,400,000	31,700,000	65,100,000
1876.....	39,900,000	38,800,000	78,700,000
1877.....	46,900,000	39,800,000	86,700,000
1878.....	51,200,000	45,200,000	96,400,000
1879.....	38,900,000	40,800,000	79,700,000
1880.....	36,000,000	39,200,000	75,200,000
1881.....	34,700,000	43,000,000	77,700,000
1882.....	32,500,000	46,800,000	79,300,000
1883.....	30,000,000	46,200,000	76,200,000
1884.....	30,800,000	48,800,000	79,600,000
1885.....	31,800,000	51,600,000	83,400,000
1886.....	35,000,000	51,000,000	86,000,000
1887.....	33,000,000	53,350,000	86,350,000
1900.....	79,000,000	35,741,100	114,741,100
Total.....	\$1,852,051,769	\$839,191,140	\$2,691,242,909

### PERIODICAL LITERATURE.

Out of a total of 50,000 newspapers the United States publishes over 20,000, leaving the balance to be divided among all the nations of the earth. The number of new books published in the year 1900 was 6,356. Number of reprints of other countries made in America, 6,358. The following exhibit gives the record of copyright entries with the librarian of congress.

	1889.	1901.
Books.....	15,785	21,783
Periodicals.....	8,100	9,086
Dramatic Compositions.....	480	589
Musical Compositions.....	9,002	9,066
Photographs.....	3,480	3,064
Chronos and Engravings.....	2,163	2,988
Maps and Charts.....	1,358	1,684
Prints.....	740	684
Designs.....	603	842
Drawings, etc.....	508	439
Total.....	42,139	51,225

### PATENTS.

The total number of applications at the patent office for patent protection during the year 1900 was 47,789, and the number of applications granted was 26,499

### EDUCATION.

The report of the State commissioner of common schools for 1900 gives the following figures:

STATES AND TERRITORIES.	Pupils Enrolled.	Per cent of Population Enrolled.	Average Daily Attendance.	Total Number of Teachers.
<b>N. Atlantic Division.</b>				
Maine.....	139,918	18.86	97,697	6,455
New Hampshire.....	65,193	15.98	47,733	3,740
Vermont.....	68,964	19.20	47,020	3,742
Massachusetts.....	474,891	16.93	366,136	13,575
Rhode Island.....	64,537	15.39	46,087	1,913
Connecticut.....	155,228	17.09	111,564	4,166
New York.....	1,209,574	16.62	857,488	34,848
New Jersey.....	315,055	17.12	203,003	6,669
Pennsylvania.....	1,151,880	18.28	854,040	29,390
<b>S. Atlantic Division.</b>				
Delaware.....	33,174	19.33	22,693	840
Maryland.....	229,332	19.44	132,685	5,127
District of Columbia.....	46,519	16.69	35,463	1,226
Virginia.....	358,825	19.58	203,136	8,836
West Virginia.....	232,343	24.23	151,254	7,179
North Carolina.....	400,452	21.15	266,918	7,387
South Carolina.....	281,891	21.03	201,295	5,504
Georgia.....	482,673	21.78	298,237	10,120
Florida.....	108,874	20.60	75,003	2,729
<b>S. Central Division.</b>				
Kentucky.....	501,893	24.41	308,697	9,960
Tennessee.....	485,354	24.02	338,566	9,195
Alabama.....	376,423	20.59	297,508	6,578
Mississippi.....	360,177	23.65	201,593	8,156
Louisiana.....	196,169	14.20	146,328	4,157
Texas.....	578,418	18.97	393,780	15,020
Arkansas.....	314,662	23.99	195,481	6,959
Oklahoma.....	99,602	25.02	63,718	2,343
<b>Indian Territory.</b>				
<b>N. Central Division.</b>				
Ohio.....	829,160	19.95	616,365	26,017
Indiana.....	564,807	22.44	429,566	15,617
Illinois.....	958,911	19.89	737,576	26,313
Michigan.....	498,665	20.92	350,000	15,564
Wisconsin.....	445,142	21.51	309,800	13,063
Minnesota.....	399,207	22.79	243,224	10,586
Iowa.....	554,992	25.28	394,409	28,694
Missouri.....	719,817	23.17	460,012	16,201
North Dakota.....	77,686	24.34	43,560	4,083
South Dakota.....	96,822	24.11	68,000	4,802
Nebraska.....	288,227	26.97	181,874	9,463
Kansas.....	389,583	26.49	261,783	11,513
<b>Western Division.</b>				
Montana.....	39,430	16.20	24,100	1,214
Wyoming.....	14,512	15.69	10,160	570
Colorado.....	117,555	21.78	73,291	3,597
New Mexico.....	36,735	18.81	22,433	966
Arizona.....	16,504	13.42	10,177	399
Utah.....	73,042	26.39	50,595	1,466
Nevada.....	6,676	15.77	4,698	324
Idaho.....	36,669	22.67	21,962	1,060
Washington.....	97,916	20.45	61,192	3,321
Oregon.....	89,504	21.62	64,411	3,742
California.....	269,736	18.17	197,395	7,605
United States.....	15,341,220	20.38	10,513,518	421,288

### MISCELLANEOUS.

Among matters of general interest to the reader may be mentioned the following subjects, which are grouped under this head and in the form and manner following on account of being more easy of access and of greater utility in this shape than if they were arranged in the body of the article with any attempt made at regular sequence.

### PRESIDENTIAL VOTE.

The following gives the presidential vote (popular vote) for every election since and including 1824 Prior to that time the electors were chosen by State legislatures:

1824—J. Q. Adams had 105,321 to 155,872 for Jackson, 44,282 for Crawford, and 46,587 for Clay. Jackson over Adams, 50,551. Adams less than combined vote of others, 140,861.

Of the whole vote Adams had 29.92 per cent.; Jackson 44.27; Clay 13.23; Crawford 13.23. Adams elected by House of Representatives.

1828—Jackson had 647,231 to 509,097 for J. Q. Adams. Jackson's majority, 138,134. Of the whole vote Jackson had 55.97 per cent., Adams 44.03.

1832—Jackson had 687,502 to 530,189 for Clay, and 33,108 for Floyd and Wirt combined. Jackson's majority, 124,205. Of the whole vote Jackson had 54.96 per cent., Clay 42.39, and the others combined 2.65.

1836—Van Buren had 761,549 to 736,656, the combined vote for Harrison, White, Webster, and Maguin. Van Buren's majority, 24,893. Of the whole vote Van Buren had 50.83 per cent. and the others combined 49.17.

1840—Harrison had 1,275,017 to 1,128,702 for Van Buren, and 7,059 for Birney. Harrison's majority, 139,256. Of the whole vote Harrison had 52.89 per cent., Van Buren 46.82, and Birney 29.

1844—Polk had 1,337,243 to 1,299,068 for Clay and 62,300 for Birney. Polk over Clay, 38,175. Polk less than others combined, 24,125. Of the whole vote Polk had 49.55 per cent., Clay 48.14, and Birney 2.21.

1848—Taylor had 1,360,101 to 1,240,544 for Cass, and 291,263 for Van Buren. Taylor over Cass, 139,577. Taylor less than others combined, 151,706. Of the whole vote Taylor had 47.36 per cent., Cass 42.50, and Van Buren 10.14.

1852—Pierce had 1,601,474 to 1,386,578 for Scott, and 156,149 for Hale. Pierce over all, 58,747. Of the whole vote Pierce had 50.90 per cent., Scott 44.10, and Hale 4.97.

1856—Buchanan had 1,838,169 to 1,341,264 for Fremont, and 874,534 for Fillmore. Buchanan over Fremont, 496,905. Buchanan less than combined vote of others, 377,629. Of the whole vote Buchanan had 45.34 per cent., Fremont 33.09, and Fillmore 21.57.

1860—Lincoln had 1,866,352 to 1,375,157 for Douglas, 845,763 for Breckinridge, and 589,581 for Bell. Lincoln over Breckinridge, 491,195. Lincoln less than Douglas and Breckinridge combined, 354,568. Lincoln less than combined vote of all others, 944,149. Of the whole vote Lincoln had 39.91 per cent., Douglas 29.40, Breckinridge 18.08, and Bell 12.61.

1864—Lincoln had 2,216,067 to 1,808,725 for McClellan (eleven States not voting, viz: Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and Virginia). Lincoln's majority, 408,342. Of the whole vote Lincoln had 55.06 per cent., and McClellan 44.94.

1868—Grant had 3,015,071 to 2,709,613 for Seymour (three States not voting, viz: Mississippi, Texas, and Virginia). Grant's majority, 305,458. Of the whole vote Grant had 52.67 per cent., and Seymour 47.33.

1872—Grant had 3,597,070 to 2,834,079 for Greeley, 29,408 for O'Connor, and 5,608 for Black. Grant's majority, 729,975. Of the whole vote Grant had 55.63 per cent., Greeley 43.83, O'Connor 1.15, Black .09.

1876—Hayes had 4,033,950 to 4,284,885 for Tilden, 81,740 for Cooper, 9,522 for Smith, and 2,636 scattering. Tilden's majority over Hayes, 250,935. Tilden's majority of the entire vote cast, 157,037. Hayes less than the combined vote of others, 344,833. Of the whole vote cast Hayes had 47.95 per cent., Tilden 50.94, Cooper .97, Smith .11, scattering .03.

1880—Garfield had 4,449,053 to 4,442,035 for Hancock, 307,306 for Weaver, and 12,576 scattering. Garfield over Hancock, 7,018. Garfield less than the combined vote for others, 313,864. Of the popular vote Garfield had 48.26 per cent., Hancock 48.25, Weaver 3.33, scattering .13.

1884—Cleveland had 4,874,986 to 4,851,981 for Blaine, 150,369 for St. John, 173,370 for Butler. Cleveland had over Blaine 23,006. Cleveland had 48.48 per cent., Blaine 48.22, St. John 1.49, Butler 1.74.

1888—Harrison had 5,441,902 to 5,538,560 for Cleveland, 249,937 for Fisk, 147,521 for Streeter, 3,073 for Cowdrey, 1,591 for Curtis, and 9,845 scattering. Harrison had 96.65 less than Cleveland. Of the whole vote Harrison had 47.83 per cent., Cleveland 48.63 per cent., Fisk 2.21 per cent., and Streeter 1.30 per cent.

Of the presidents, Adams, Federalist; Polk, Buchanan, and Cleveland, Democrats; Taylor, Whig; Lincoln, Hayes, Garfield, and Harrison, Republicans, did not, when elected, receive a majority of the popular vote.

# UNAPPROPRIATED PUBLIC LANDS.

The area of the public lands of the United States unappropriated up to June 30, 1901, is here shown. These figures do not, however, indicate the amount of land yet available for settling purposes, as the Indian reservations and other public lands in temporary occupation, as well as school lands, are included in the estimate:

STATES AND TERRITORIES.	UNAPPROPRIATED LANDS.	AREA, LAND SURFACE.	
	Acres.	Acres.	Sq. Miles.
Alabama.....	359,250	32,657,920	51,028
Arkansas.....	3,493,444	33,543,680	52,412
California.....	42,407,512	99,999,920	156,203
Colorado.....	39,650,247	66,348,160	103,669
Florida.....	1,596,411	35,072,640	54,801
Illinois.....		35,842,560	56,004
Indiana.....		22,950,400	35,860
Iowa.....		35,646,080	55,697
Idaho.....	43,286,694	53,293,440	83,271
Kansas.....	1,196,900	52,382,720	81,848
Louisiana.....	442,224	29,055,360	45,399
Michigan.....	430,483	36,819,200	57,530
Minnesota.....	4,696,203	51,198,080	79,997
Mississippi.....	285,804	29,685,120	46,383
Missouri.....	337,946	43,795,840	68,431
Montana.....	67,963,057	93,593,600	146,240
Nebraska.....	9,798,088	49,137,280	76,777
Nevada.....	61,277,506	70,336,640	109,901
North Dakota.....	18,725,239	44,910,080	70,172
Ohio.....		26,062,720	40,723
Oregon.....	34,377,907	61,277,440	95,746
South Dakota.....	11,930,809	49,206,400	76,885
Utah.....	42,967,451	52,541,440	82,096
Wisconsin.....	313,565	35,274,880	55,117
Washington.....	11,125,883	42,746,880	66,792
Wyoming.....	48,358,169	62,433,280	97,552
Alaska.....	359,492,760	368,103,680	575,162
Arizona.....	50,286,986	72,792,320	113,738
Indian Territory.....		19,658,880	30,717
New Mexico.....	56,541,170	78,428,800	122,545
Oklahoma.....	5,733,572	24,774,400	38,710
Total.....	917,135,880	1,809,539,840	2,827,406

## RELIGIOUS DENOMINATIONS.

In the following table the various denominations and their sects are treated of according to their precedence of numbers: [The discrepancies between this table and the published church reports are to be accounted for by the fact that some of the denominations are treated of as composed of more than one body or sect:]

DENOMINATIONS.	Churches.	Ministers.	Com'ts.
1 Roman Catholics*.....	7,424	7,956	4,438,019
2 Regular Baptists.....	32,900	21,420	2,997,774
3 Methodist Episcopal.....	21,361	12,802	2,154,345
4 Meth. Episcopal South.....	11,432	41,687	1,140,097
5 Presbyterian (Northern).....	6,543	5,789	723,021
6 Disciples of Christ.....	6,437	3,263	620,000
7 Congregationalists.....	4,569	4,284	475,608
8 Protestant Episcopal.....	5,053	3,910	450,042
9 African M. E.....	3,600	2,043	390,000
10 African M. E. Zion.....	2,600	2,600	325,000
11 Lutheran Synod'l Con.....	1,703	1,162	320,811
12 Lutheran Gen. Council.....	1,401	840	244,788
13 United Brethren.....	4,451	1,490	204,517
14 Reformed (German).....	1,512	823	190,527
15 Colored Meth. Episcopal.....	2,016	1,729	165,000
16 Presbyterian (Southern).....	2,280	1,153	156,249
17 Presbyterian Cumberland.....	2,648	1,584	151,929
18 Methodist Protestant.....	1,871	1,282	147,503
19 Evangelical Association.....	1,916	1,159	141,853
20 Lutheran General Synod.....	1,337	938	141,631

\* We estimate the number of Catholic communicants on the basis of 7,855,294 Catholic population, using the ratio which Lutheran statistics have established between souls and communicants in the Synodical Conference—viz.: 1.77.

\* Really three sects.



# THE CABINETS OF THE PRESIDENTS

FROM THE FOUNDING OF THE GOVERNMENT TO THE PRESENT TIME.

## George Washington—First Cabinet.

*Secretary of State.*—Thomas Jefferson, of Va.  
*Secretary of the Treasury.*—Alexander Hamilton, of N. Y.  
*Secretary of War and Navy.*—Henry Knox, of Mass.  
*Attorney-General.*—Edmund Randolph, of Va.  
These were all noted for their Congressional service with the exception of the distinguished Gen. Knox.  
Washington's second Cabinet was a continuation of the first.

## John Adams—Third Cabinet.

*Secretary of State.*—Timothy Pickering, of Mass.  
*Secretary of the Treasury.*—Oliver Wolcott, of Conn.  
*Secretary of War.*—James McHenry, of Md.  
*Secretary of the Navy.*—George Cabot, of Mass.  
*Attorney-General.*—Charles Lee, of Va.

## Thomas Jefferson—Fourth Cabinet.

*Secretary of State.*—James Madison, of Va.  
*Secretary of the Treasury.*—Albert Gallatin, of Tenn.  
*Secretary of War.*—Henry Dearborn, of Mass.  
*Secretary of the Navy.*—Benjamin Stoddard, of Md.  
*Attorney-General.*—Levi Lincoln, of Mass.

## Thomas Jefferson—Fifth Cabinet.

In this Cabinet of Mr. Jefferson's second term three members were continued, and before his term was ended he had further availed himself of the services of John Breckinridge, and Caesar Rodney, of Del.

## James Madison—Sixth Cabinet.

*Secretary of State.*—Robert Smith, of Md., followed by James Monroe, of Va.  
*Secretary of the Treasury.*—Albert Gallatin.  
*Secretary of War.*—William Eustis, of Mass.; John Armstrong, of N. Y.  
*Secretary of the Navy.*—Paul Hamilton, of S. C.; William Jones, of Pa.  
*Attorney-General.*—C. A. Rodney, of Del.; William Pinckney, of Md.

## James Madison—Seventh Cabinet.

In this Cabinet Monroe, Gallatin, Armstrong, Jones, and Pinckney were continued. Later, George W. Campbell, of Tenn., succeeded Gallatin.

## James Monroe—Eighth Cabinet.

*Secretary of State.*—J. Q. Adams, of Mass.  
*Secretary of the Treasury.*—William H. Crawford, of Ga.  
*Secretary of War.*—John C. Calhoun, of S. C.  
*Secretary of the Navy.*—B. W. Crowningshield, of Mass.  
*Attorney-General.*—William Wirt, of Va.

## James Monroe—Ninth Cabinet.

At the close of this Administration this Cabinet stood as above, except that Samuel L. Southard, a Senator from N. J., was appointed Secretary of the Navy.

## John Q. Adams—Tenth Cabinet.

*Secretary of State.*—Henry Clay.  
*Secretary of the Treasury.*—Richard Rush.  
*Secretary of War.*—James Barbour, of Va.; P. B. Porter, of N. Y.  
*Secretary of the Navy.*—S. L. Southard, of N. J.  
*Attorney-General.*—William Wirt, of Va.

## Andrew Jackson—Eleventh Cabinet.

*Secretary of State.*—Martin Van Buren, of N. Y.; Edward Livingston, of La.  
*Secretary of the Treasury.*—S. D. Ingham, of Pa.; Lewis McLean, of Del.  
*Secretary of War.*—John H. Eaton, of Tenn.; Lewis Cass, of Mich.  
*Secretary of the Navy.*—John Branch, of N. C.; Levi Woodbury, of N. H.  
*Postmaster-General.*—William T. Barry, of Ky.  
*Attorney-General.*—J. M. Berrien, of Ga.; R. B. Taney, of Md.

## Andrew Jackson—Twelfth Cabinet.

In this Cabinet Livingston, McLean, Woodbury, and Barry were continued, and during the term Mahlon Dickerson, of N. J., was made Secretary of the Navy.

## Martin Van Buren—Thirteenth Cabinet.

*Secretary of State.*—John Forsythe, of Ga.  
*Secretary of the Treasury.*—Levi Woodbury, of N. H.  
*Secretary of War.*—J. R. Poinsett, of S. C.  
*Secretary of the Navy.*—Mahlon Dickerson, of N. J.  
*Postmaster-General.*—Amos Kendall, John M. Niles, of Conn.  
*Attorney-General.*—B. F. Butler, of N. Y.; Felix Grundy, of Tenn.; H. D. Gilpin, of Pa.

## W. H. Harrison—Fourteenth Cabinet.

*Secretary of State.*—Daniel Webster, of Mass.  
*Secretary of the Treasury.*—Thomas Ewing, of O.  
*Secretary of War.*—John Bell, of Tenn.  
*Secretary of the Navy.*—George Badger, of N. C.  
*Postmaster-General.*—Francis Granger, of N. Y.  
*Attorney-General.*—John J. Crittenden.

## John Tyler—Fifteenth Cabinet.

At first Mr. Tyler continued all the Cabinet as appointed by Mr. Harrison. His own reorganization was as follows:  
*Secretary of State.*—H. S. Legare, of S. C.; A. P. Upshur, of Va.; John C. Calhoun, of S. C.  
*Secretary of the Treasury.*—Walter Forward, of Pa.; George M. Bibb, of Ky.  
*Secretary of War.*—J. C. Spencer, of N. Y.; William Wilkins, of Pa.  
*Secretary of the Navy.*—David Henshaw, of Mass.; Thomas W. Gilmer, of Va.; John Y. Mason, of Va.  
*Postmaster-General.*—G. A. Wicliffe, of Ky.  
*Attorney-General.*—John Nelson, of Md.

## James K. Polk—Sixteenth Cabinet.

*Secretary of State.*—James Buchanan, of Pa.  
*Secretary of the Treasury.*—R. J. Walker, of Miss.  
*Secretary of War.*—W. L. Marcy, of N. Y.  
*Secretary of the Navy.*—George Bancroft, of Mass.; John Y. Mason, of Va.  
*Postmaster-General.*—Cave Johnson, of Tenn.  
*Attorney-General.*—John Y. Mason, of Va.; Nathan Clifford, of Me.; Isaac Toucey, of Conn.

## Zachary Taylor—Seventeenth Cabinet.

*Secretary of State.*—John M. Clayton, of Del.  
*Secretary of the Treasury.*—William M. Meredith, of Pa.  
*Secretary of War.*—George W. Crawford, of Ga.  
*Secretary of the Navy.*—William B. Preston, of Va.  
*Secretary of the Interior.*—Thomas Ewing, of O.  
*Postmaster-General.*—Jacob Collamar, of Vt.  
*Attorney-General.*—Reverdy Johnson, of Md.

### Millard Fillmore—Eighteenth Cabinet.

The Cabinet of Mr. Taylor was continued by Mr. Fillmore until he reorganized it as follows:

*Secretary of State.*—Daniel Webster, of Mass.; Edward Everett, of Mass.  
*Secretary of the Treasury.*—Thomas Corwin, of O.  
*Secretary of War.*—Charles M. Conrad, of La.  
*Secretary of the Navy.*—William A. Graham, of N. C.; John P. Kennedy, of Md.  
*Secretary of the Interior.*—A. H. H. Stuart, of Va.  
*Postmaster-General.*—Nathan K. Hall, of N. Y.; S. D. Hubbard, of Conn.  
*Attorney-General.*—John J. Crittenden, of Ky.

### Franklin Pierce—Nineteenth Cabinet.

*Secretary of State.*—William L. Marcy, of N. Y.  
*Secretary of the Treasury.*—James Guthrie, of Ky.  
*Secretary of War.*—Jefferson Davis, of Miss.  
*Secretary of the Navy.*—J. C. Dobbin, of N. C.  
*Secretary of the Interior.*—Robert McClelland, of Mich.  
*Postmaster-General.*—James Campbell, of Pa.  
*Attorney-General.*—Caleb Cushing, of Mass.

### James Buchanan—Twentieth Cabinet.

*Secretary of State.*—Lewis Cass, of Mich.; J. S. Black, of Pa.  
*Secretary of the Treasury.*—Howell Cobb, of Ga.; B. F. Thomas, of Md.; John A. Dix, of N. Y.  
*Secretary of War.*—J. B. Floyd, of Va.; Joseph Holt, of Ky.  
*Secretary of the Navy.*—Isaac Toucey, of Conn.  
*Secretary of the Interior.*—Jacob Thompson, of Miss.  
*Postmaster-General.*—A. V. Brown, of Tenn.; Joseph Holt, of Ky.; Horatio King, of Me.  
*Attorney-General.*—J. S. Black, of Pa.; E. M. Stanton, of O.

### Abraham Lincoln—Twenty-first Cabinet.

*Secretary of State.*—William H. Seward, of N. Y.  
*Secretary of the Treasury.*—S. P. Chase, of O.; W. P. Fessenden, of Me.  
*Secretary of War.*—Simon Cameron, of Pa.; E. M. Stanton, of Pa.  
*Secretary of the Navy.*—Gideon Welles, of Conn.  
*Secretary of the Interior.*—Caleb B. Smith, of Ind.; John P. Usher, of Ind.  
*Postmaster-General.*—Montgomery Blair, of Md.; William Dennison, of O.  
*Attorney-General.*—Edward Bates, of Mo.; James Speed, of Ky.

### Abraham Lincoln—Twenty-second Cabinet.

This Cabinet, at the beginning of Mr. Lincoln's term, remained as above, except that Hugh McCulloch, of Ind., became Secretary of the Treasury.

### Andrew Johnson—Twenty-third Cabinet.

Mr. Lincoln's second Cabinet was continued by Mr. Johnson until reorganized by the appointment of Gen. Schofield as Secretary of War; James Harlan, of Ia., and after him Orville H. Browning, of Ill., Secretaries of the Interior; Alexander W. Randall, Postmaster-General, and Henry Stanberry, of Ky., and after him William M. Evarts, of N. Y., Attorneys-General.

### U. S. Grant—Twenty-fourth Cabinet.

*Secretary of State.*—E. B. Washburne, of Ill.; Hamilton Fish, of N. Y.  
*Secretary of the Treasury.*—George S. Boutwell, of Mass.  
*Secretary of War.*—John A. Rawlins, of Ill.; W. W. Belknap, of Ia.  
*Secretary of the Navy.*—A. E. Borie, of Pa.; George M. Robeson, of N. J.  
*Secretary of the Interior.*—J. D. Cox, of O.; Columbus Delano, of O.  
*Postmaster-General.*—J. A. J. Creswell, of Md.  
*Attorney-General.*—E. R. Hoar, of Mass.; A. T. Ackerman, of Ga.; G. H. Williams, of Ore.

### U. S. Grant—Twenty-fifth Cabinet.

*Secretary of State.*—Hamilton Fish, of N. Y.  
*Secretary of the Treasury.*—William A. Richardson, of Mass.; B. H. Bristow, of Ky.  
*Secretary of War.*—W. W. Belknap, of Ia.; Alphonso Taft, of O.; J. D. Cameron, of Pa.  
*Secretary of the Navy.*—G. M. Robeson, of N. J.  
*Secretary of the Interior.*—Columbus Delano, of O.; Zachariah Chandler, of Mich.  
*Postmaster-General.*—J. A. J. Creswell, of Md.; J. W. Marshall, of Va.; M. Jewell, of Conn.; J. W. Tyner, of Ind.  
*Attorney-General.*—G. H. Williams, of Ore.; Edwards Pierpont, of N. Y.; Alphonso Taft, of O.

### R. B. Hayes—Twenty-sixth Cabinet

*Secretary of State.*—William M. Evarts, of N. Y.  
*Secretary of the Treasury.*—John Sherman, of O.  
*Secretary of War.*—George W. McCrary, of Ia.  
*Secretary of the Navy.*—Richard W. Thompson, of Ind.; Nathan Goff, of W. Va.  
*Secretary of the Interior.*—Carl Schurz, of Mo.  
*Postmaster-General.*—D. M. Key, of Tenn.  
*Attorney-General.*—Charles Devens, of Mass.

### James A. Garfield—Twenty-seventh Cabinet.

*Secretary of State.*—James G. Blaine, of Me.  
*Secretary of the Treasury.*—William Windom, of Minn.  
*Secretary of War.*—Robert T. Lincoln, of Ill.  
*Secretary of the Navy.*—William H. Hunt, of Ia.  
*Secretary of the Interior.*—S. J. Kirkwood, of Ia.  
*Postmaster-General.*—Thomas L. James, of N. Y.  
*Attorney-General.*—Wayne MacVeagh, of Pa.

### Chester A. Arthur—Twenty-eighth Cabinet.

*Secretary of State.*—F. T. Frelinghuysen, of N. J.  
*Secretary of the Treasury.*—Charles J. Folger, of N. Y.; Walter Q. Gresham, of Ind.; Hugh McCulloch, of N. Y.  
*Secretary of War.*—Robert T. Lincoln, of Ill.  
*Secretary of the Navy.*—William E. Chandler, of N. H.  
*Secretary of the Interior.*—H. M. Teller, of Colo.  
*Postmaster-General.*—Timothy O. Howe, of Wis.; Walter Q. Gresham, of Ind.; Frank Hatton, of Ia.  
*Attorney-General.*—Benjamin H. Brewster, of Pa.

### Grover Cleveland—Twenty-ninth Cabinet.

*Secretary of State.*—Thomas F. Bayard, of Del.  
*Secretary of the Treasury.*—Daniel Manning, of N. Y.; Charles S. Fairchild, of N. Y.  
*Secretary of War.*—William C. Endicott, of Mass.  
*Secretary of the Navy.*—William C. Whitney, of N. Y.  
*Secretary of the Interior.*—Lucius Q. C. Lamar, of Miss.  
*Postmaster-General.*—William F. Vilas, of Wis.  
*Attorney-General.*—Augustus H. Garland, of Ark.  
*Secretary of Agriculture.*—Norman J. Coleman, of Mo.

### Benjamin Harrison—Thirtieth Cabinet.

*Secretary of State.*—James G. Blaine, of Me.; J. W. Foster, of Ind.  
*Secretary of the Treasury.*—William Windom, of Minn.; Charles Foster, of O.  
*Secretary of War.*—Redfield Proctor, of Vt.; Stephen B. Elkins, of W. Va.  
*Secretary of the Navy.*—Benjamin F. Tracy, of N. Y.  
*Secretary of the Interior.*—John W. Noble, of Mo.  
*Postmaster-General.*—John Wanamaker, of Pa.  
*Attorney-General.*—William H. Miller, of Ind.  
*Secretary of Agriculture.*—Jeremiah Rusk, of Wis.

### Grover Cleveland—Thirty-first Cabinet.

*Secretary of State.*—Walter Q. Gresham, of Ill.; Richard Olney, of Mass.  
*Secretary of the Treasury.*—John G. Carlisle, of Ky.  
*Secretary of War.*—Daniel S. Lamont, of N. Y.  
*Secretary of the Navy.*—Hilary A. Herbert, of Ala.  
*Secretary of the Interior.*—Hoke Smith, of Ga.  
*Postmaster-General.*—W. S. Bissell, of N. Y.; W. L. Wilson, of W. Va.  
*Attorney-General.*—R. Olney, of Mass.; J. Harmon, of O.  
*Secretary of Agriculture.*—J. Sterling Morton, of Neb.

### William McKinley—Thirty-second Cabinet.

*Secretary of State.*—John Sherman, of O.; William R. Day, of O.; John Hay, of O.  
*Secretary of the Treasury.*—Lyman J. Gage, of Ill.  
*Secretary of War.*—R. A. Alger, of Mich.; E. Root, of N. Y.  
*Secretary of the Navy.*—John D. Long, of Mass.  
*Secretary of the Interior.*—Cornelius N. Bliss, of N. Y.; Ethan A. Hitchcock, of Mo.  
*Postmaster-General.*—James A. Gary, of Md.; Charles Emory Smith, of Pa.  
*Attorney-General.*—Joseph McKenna, of Cal.; John W. Griggs, of N. J.; P. C. Knox, of Pa.  
*Secretary of Agriculture.*—James Wilson, of Ia.

### Theodore Roosevelt—Thirty-third Cabinet.

*Secretary of State.*—John Hay, of O.; Elihu Root, of N. Y.  
*Secretary of the Treasury.*—Leslie M. Shaw, of Ia.  
*Secretary of War.*—E. Root, of N. Y.; W. H. Taft, of O.  
*Secretary of the Navy.*—John D. Long, of Mass.; Paul Morton, of Ill.; Charles J. Bonaparte, of Md.  
*Secretary of the Interior.*—Ethan A. Hitchcock, of Mo.  
*Postmaster-General.*—Henry C. Payne, of Wis.; Robert J. Wynne, of Pa.; George B. Cortelyou, of N. Y.  
*Attorney-General.*—Philander C. Knox, of Pa.; William H. Moody, of Mass.  
*Secretary of Agriculture.*—James Wilson, of Ia.  
*Secretary of Commerce and Labor.*—George B. Cortelyou, of N. Y.; Victor H. Metcalf, of Cal.



## ELECTORAL VOTES FOR PRESIDENT AND VICE-PRESIDENT OF THE UNITED STATES, 1789-1888.

Year of Election.	No. of States.	Total Elect. V.	Political Party.	* Presidents.			* Vice-Presidents.		
				Candidates.	Vote.		Candidates.	Electoral Vote.	
					States.	Elect.			
1789	10	73		George Washington.....	..	69	.....	..	..
				John Adams.....	..	..	.....	34	..
				John Jay.....	..	..	.....	9	..
				R. H. Harrison.....	..	..	.....	6	..
				John Rutledge.....	..	..	.....	6	..
				John Hancock.....	..	..	.....	4	..
				George Clinton.....	..	..	.....	3	..
				Samuel Huntingdon.....	..	..	.....	3	..
				John Milton.....	..	..	.....	2	..
				James Armstrong.....	..	..	.....	1	..
				Benjamin Lincoln.....	..	..	.....	1	..
				Edward Telfair.....	..	..	.....	1	..
				Vacancies.....	..	4	.....	4	..
1792	15	135	Federalist.....	George Washington.....	..	132	.....	..	..
			Federalist.....	John Adams.....	..	..	.....	77	..
			Republican.....	George Clinton.....	..	..	.....	50	..
				Thomas Jefferson.....	..	..	.....	4	..
				Aaron Burr.....	..	..	.....	1	..
				Vacancies.....	..	3	.....	3	..
1796	16	138	Federalist.....	John Adams.....	..	71	.....	..	..
			Republican.....	Thomas Jefferson.....	..	..	.....	68	..
			Federalist.....	Thomas Pinckney.....	..	..	.....	59	..
			Republican.....	Aaron Burr.....	..	..	.....	30	..
				Samuel Adams.....	..	..	.....	15	..
				Oliver Ellsworth.....	..	..	.....	11	..
				George Clinton.....	..	..	.....	7	..
				John Jay.....	..	..	.....	5	..
				James Iredell.....	..	..	.....	3	..
				George Washington.....	..	..	.....	2	..
				John Henry.....	..	..	.....	2	..
				S. Johnson.....	..	..	.....	2	..
				Charles C. Pinckney.....	..	..	.....	1	..
1800	16	138	Republican.....	Thomas Jefferson.....	..	173	.....	..	..
			Republican.....	Aaron Burr.....	..	..	.....	173	..
			Federalist.....	John Adams.....	..	..	.....	65	..
			Federalist.....	Charles C. Pinckney.....	..	..	.....	64	..
				John Jay.....	..	..	.....	7	..
1804	17	176	Republican.....	Thomas Jefferson.....	15	162	George Clinton.....	162	..
			Federalist.....	Charles C. Pinckney.....	2	14	Rufus King.....	14	..
1808	17	176	Republican.....	James Madison.....	12	122	George Clinton.....	113	..
			Federalist.....	Charles C. Pinckney.....	5	47	Rufus King.....	47	..
				George Clinton.....	..	6	John Langdon.....	9	..
				.....	..	..	James Madison.....	3	..
				.....	..	..	James Monroe.....	3	..
				Vacancy.....	..	1	.....	1	..
1812	18	218	Republican.....	James Madison.....	11	128	Elbridge Gerry.....	131	..
			Federalist.....	De Witt Clinton.....	7	89	Jared Ingersoll.....	86	..
				Vacancy.....	..	1	.....	1	..

\* Previous to the election of 1804 each elector voted for two candidates for president; the one receiving the highest number of votes, if a majority, was declared elected president; and the next highest vice-president.

† Three States out of thirteen did not vote, viz.: New York, which had not passed an electoral law; and North Carolina and Rhode Island, which had not adopted the constitution.

‡ There having been a tie vote, the choice devolved upon the House of Representatives. A choice was made on the thirty-sixth ballot, which was as follows: Jefferson—Georgia, Kentucky, Maryland, New Jersey, New York, North Carolina, Pennsylvania, Tennessee, Vermont, and Virginia—10 States; Burr—Connecticut, Massachusetts, New Hampshire, and Rhode Island—4 States; blank—Delaware and South Carolina—2 States.

ELECTORAL VOTES FOR PRESIDENT AND VICE-PRESIDENT—*Continued.*

Year of Election.	No. of States.	Total Elect. V.	Political Party.	Presidents.			Vice-Presidents.		
				Candidates	States.	Elect.	Candidates.	Electoral	Vote.
1816	19	221	Republican.....	James Monroe.....	16	183	D. D. Tompkins.....	183	
			Federalist.....	Rufus King.....	3	34	John E. Howard.....	22	
			.....	.....	..	..	James Ross.....	5	
			.....	.....	..	..	John Marshall.....	4	
			.....	.....	..	..	Robert G. Harper.....	3	
			.....	Vacancies.....	..	4	.....	4	
1820	24	235	Republican.....	James Monroe.....	24	231	D. D. Tompkins.....	18	
			Opposition.....	John Q. Adams.....	..	1	Richard Stockton.....	8	
			.....	.....	..	..	Daniel Rodney.....	4	
			.....	.....	..	..	Robert G. Harper.....	1	
			.....	.....	..	..	Richard Rush.....	1	
			.....	Vacancies.....	..	3	.....	3	
1824	24	261	Republican.....	Andrew Jackson.....	10	*99	John C. Calhoun.....	182	
			Coalition.....	John Q. Adams.....	8	84	Nathan Sanford.....	30	
			Republican.....	Wm. H. Crawford.....	3	41	Nathaniel Macon.....	24	
			Republican.....	Henry Clay.....	3	37	Andrew Jackson.....	13	
			.....	.....	..	..	M. Van Buren.....	9	
			.....	Vacancy.....	..	..	Henry Clay.....	2	
1828	24	261	Democratic.....	Andrew Jackson.....	15	178	John C. Calhoun.....	171	
			National Republican	John Q. Adams.....	9	83	Richard Rush.....	83	
			.....	.....	..	..	William Smith.....	7	
1832	24	288	Democratic.....	Andrew Jackson.....	15	219	M. Van Buren.....	189	
			National Republican	Henry Clay.....	7	49	John Sergeant.....	49	
			.....	John Floyd.....	1	11	Henry Lee.....	11	
			Anti-Mason.....	William Wirt.....	1	7	Amos Ellmaker.....	7	
			.....	.....	..	..	William Wilkins.....	30	
			.....	Vacancies.....	..	2	.....	2	
1836	26	294	Democratic.....	Martin Van Buren.....	15	170	R. M. Johnson†.....	147	
			Whig.....	Wm. H. Harrison.....	7	73	Francis Granger.....	77	
			Whig.....	Hugh L. White.....	2	26	John Tyler.....	47	
			Whig.....	Daniel Webster.....	1	14	William Smith.....	23	
			Whig.....	W. P. Mangum.....	1	11	.....	..	
			.....	.....	..	..	.....	..	
1840	26	294	Whig.....	Wm. H. Harrison.....	19	234	John Tyler.....	234	
			Democratic.....	Martin Van Buren.....	7	60	R. M. Johnson.....	48	
			Liberty.....	James G. Birney.....	..	..	Francis Lemoyne.....	..	
			.....	.....	..	..	L. W. Tazewell.....	11	
1844	26	275	Whig.....	James K. Polk.....	15	170	George M. Dallas.....	170	
			Whig.....	Henry Clay.....	11	105	T. Frelinghuysen.....	105	
			Liberty.....	James G. Birney.....	..	..	Thomas Morris.....	..	
1848	30	290	Whig.....	Zachary Taylor.....	15	163	Millard Fillmore.....	163	
			Democratic.....	Lewis Cass.....	15	127	William O. Butler.....	127	
			Free Soil.....	Martin Van Buren.....	..	..	Charles F. Adams.....	..	

\* No choice having been made by the Electoral College, the choice devolved upon the House of Representatives. A choice was made on the first ballot, which was as follows: Adams—Connecticut, Illinois, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Missouri, New Hampshire, New York, Ohio, Rhode Island, and Vermont—13 States; Jackson—Alabama, Indiana, Mississippi, New Jersey, Pennsylvania, South Carolina, and Tennessee—7 States; Crawford—Delaware, Georgia, North Carolina, and Virginia—4 States.

† No candidates having received a majority of the votes of the Electoral College, the Senate elected R. M. Johnson vice-president, who received 33 votes; Francis Granger received 10.



## ELECTORAL VOTES FOR PRESIDENT AND VICE-PRESIDENT—Continued.

Year of Election.	No. of States.	Total Elect. V.	Political Party	Presidents.			Vice-Presidents.		
				Candidates.	Vote.		Candidates.	Electoral Vote.	
					States.	Elect.			
1852	31	296	Democratic . . . . . Whig. . . . . Free Democratic. . . . .	Franklin Pierce. . . . . Winfield Scott. . . . . John P. Hale. . . . .	27 4 ..	254 42 ..	William R. King. . . . . William A. Graham. . . . . George W. Julian. . . . .	254 42 ..	
1856	31	296	Democratic . . . . . Republican . . . . . American. . . . .	James Buchanan. . . . . John C. Fremont. . . . . Millard Fillmore. . . . .	19 11 1	174 114 8	J. C. Breckinridge. . . . . William L. Dayton. . . . . A. J. Donelson. . . . .	174 114 8	
1860	33	303	Republican. . . . . Democratic. . . . . Conservative Union. . . . . Ind. Democratic. . . . .	Abraham Lincoln. . . . . J. C. Breckinridge. . . . . John Bell. . . . . S. A. Douglas. . . . .	17 11 3 2	180 72 39 12	Hannibal Hamlin. . . . . Joseph Lane. . . . . Edward Everett. . . . . H. V. Johnson. . . . .	180 72 39 12	
1864	*36	314	Republican . . . . . Democratic . . . . .	Abraham Lincoln. . . . . George B. McClellan. . . . . States not voting. . . . .	22 3 11	212 21 81	Andrew Johnson. . . . . G. H. Pendleton. . . . .	212 21 81	
1868	†37	317	Republican. . . . . Democratic. . . . .	Ulysses S. Grant. . . . . Horatio Seymour. . . . . States not voting. . . . .	26 8 3	214 80 23	Schuyler Colfax. . . . . F. P. Blair, Jr. . . . .	214 80 23	
1872	37	366	Republican . . . . . Democrat and Liberal . Not counted. . . . .	Ulysses S. Grant. . . . . Horace Greeley. . . . . . . . . . Thomas A. Hendricks. . . . . B. Gratz Brown. . . . . Charles J. Jenkins. . . . . David Davis. . . . . . . . . . Not counted. . . . .	31 6 . 42 18 2 1 . 17	286 . . 3 3 3 1 1 . 14	Henry Wilson. . . . . B. Gratz Brown. . . . . George W. Julian. . . . . A. H. Colquitt. . . . . John M. Palmer. . . . . T. E. Bramlette. . . . . W. S. Groesbeck. . . . . Willis B. Machen. . . . . N. P. Banks. . . . .	286 47 5 5 3 3 1 1 1 14	
1876	38	369	Republican. . . . . Democratic. . . . .	Rutherford B. Hayes. . . . . Samuel J. Tilden. . . . .	21 17	185 184	William A. Wheeler. . . . . T. A. Hendricks. . . . .	185 184	
1880	38	369	Republican. . . . . Democratic. . . . .	James A. Garfield. . . . . Winfield S. Hancock. . . . .	19 19	214 155	Chester A. Arthur. . . . . William H. English. . . . .	214 155	
1884	38	401	Democratic. . . . . Republican. . . . .	Grover Cleveland. . . . . James G. Blaine. . . . .	20 18	219 182	T. A. Hendricks. . . . . John A. Logan. . . . .	219 182	
1888	38	401	Republican. . . . . Democratic. . . . .	Benjamin Harrison. . . . . Grover Cleveland††. . . . .	20 18	233 168	Levi P. Morton. . . . . A. G. Thurman. . . . .	233 168	
1892		444	Democratic. . . . . Republican. . . . . People. . . . .	Grover Cleveland. . . . . Benjamin Harrison. . . . . James B. Weaver. . . . .	277 145 22	Adlai E. Stevenson. . . . . Whitelaw Reid. . . . . James G. Field. . . . .	277 145 22		
1896		447	Republican. . . . . Democratic. . . . .	William McKinley. . . . . William J. Bryan. . . . .	271 176	Garret A. Hobart. . . . . Arthur Sewall. . . . .	271 176		
1900		447	Republican. . . . . Democratic. . . . .	William McKinley. . . . . William J. Bryan. . . . .	292 155	Theodore Roosevelt. . . . . Adlai E. Stevenson. . . . .	292 155		

\* Eleven States did not vote, viz.: Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and Virginia.

† Three States did vote, viz.: Mississippi, Texas, and Virginia.

† A curious reversal of the verdicts of popular opinion is seen in the fact that Grover Cleveland was elected again to the Presidency in 1892, against Harrison, by about the majority given against him by the latter in 1888.

## REQUISITES OF VOTERS.

The requisites for suffrage in each of the States of the Union are as below. In the Territories the matter is under jurisdiction of the United States.

STATES.	Requirement as to Citizenship.	RESIDENCE IN			Registration.	Excluded from Voting.
		State.	County.	Precinct		
Alabama.....	Citizens or declared intention..	1 year	3 mos...	1 month	Required by law.....	Idiots, Indians, convicted of crime, lunatics.
Arkansas....	Citizens or declared intention..	1 year	6 mos...	1 month	Prohib. as a bar to suffrage.....	Idiots, Indians, convicted of felony until pardoned.
California....	Actual citizens.....	1 year	90 days.	30 days.	Required by law.....	Idiots, Indians, convicts, Chinese.
Colorado.....	Citizens or declared intention..	6 mos.	90 days.	10 days.	Required by constitution	Persons in prison.
Connecticut...	Actual citizens.....	1 year	6 mos...	6 mos..	Required by law.....	Those unable to read and convicts.
Delaware.....	Actual county taxpayers.....	1 year	1 month	.....	No registration required.	Idiots, insane, paupers, criminals.
Florida.....	Citizens or declared intention..	1 year	6 mos...	.....	Required by constitution	Idiots, insane, criminals, bettors on elections, duelists.
Georgia.....	Actual citizens.....	1 year	6 mos...	.....	Leg. may regulate; no act.....	Idiots, insane, criminals, non-tax-payers.
Illinois.....	Actual citizens.....	1 year	90 days.	30 days.	Required by law.....	Convicts unless pardoned.
Indiana.....	Citizens or declared intention..	6 mos.	60 days.	30 days.	No law for registration..	Fraudulent voters and bribers.
Iowa.....	Actual citizens.....	6 mos.	60 days.	.....	Required by law.....	Idiots, insane, criminals.
Kansas.....	Citizens or declared intention..	6 mos.	.....	30 days.	Required in cities only.	Idiots, insane, convicts, rebels.
Kentucky.....	Actual citizens.....	2 yrs..	1 year.	60 days.	No registration required.	Bribery, robbery, forgery, etc.
Louisiana....	Citizens or declared intention..	1 year	6 mos...	30 days.	Required by law.....	Idiots, insane, criminals.
Maine.....	Actual citizens.....	3 mos.	3 mos...	3 mos..	Required by law.....	Paupers and Indians not taxed.
Maryland....	Actual citizens.....	1 year	6 mos...	1 day...	Required by constitution	Lunatics, convicts guilty of bribery.
Massachusetts	Citizens.....	1 year	.....	6 mos...	Required by law.....	Paupers, persons under guardians, non-taxpayers, unable to read and write.
Michigan.....	Citizens or declared intention..	3 mos.	10 days.	10 days	Required by law.....	Duelists.
Minnesota....	Citizens or declared intention..	4 mos.	.....	10 days.	Required by law.....	Idiots, insane, convicts.
Mississippi...	Actual citizens.....	6 mos.	1 month	.....	Required by constitution	Idiots, insane, criminals.
Missouri.....	Citizens or declared intention..	1 year	60 days.	60 days.	Required by consti., cities only.....	Inmates of asylums, poor-houses, and prisons; U. S. army.
Montana.....	Citizens.....	1 year	90 days.	60 days.	No registration required	Idiots, convicts, insane.
Nebraska.....	Citizens or declared intention..	6 mos.	40 days.	10 days.	Required by law.....	Convicts, idiots, U. S. army.
Nevada.....	Citizens or declared intention..	6 mos.	30 days.	.....	Required by constitution	Idiots, insane, convicts.
N. Hampshire	Actual citizens.....	6 mos.	6 mos...	Town 6 mos..	Required by law.....	Paupers.
New Jersey..	Actual citizens.....	1 year	5 mos...	.....	Required in cities of 10,000.....	Paupers, idiots, insane, convicts.
New York....	Actual citizens.....	1 year	4 mos...	30 days.	Required in cities of 7,000	Election bettors or bribers, convicts.
Nor. Carolina	Actual citizens.....	1 year	90 days.	.....	Required by constitution	Convicts.
North Dakota	Citizens or declared intention and civilized Indians.....	1 year	6 mos...	90 days	No registration required	Idiots, insane, convicts.
Ohio.....	Actual citizens.....	1 year	30 days.	20 days.	No registration required	Idiots, insane.
Oregon.....	Citizens or declared intention..	6 mos.	.....	.....	No registration required	Idiots, insane, convicts, U. S. army, Chinese
Pennsylvania.	Actual citizens.....	1 year	.....	2 mos...	Required by constitution	Non-taxpayers and political bribers.
Rhode Island.	Actual citizens.....	1 year	.....	Town 6 mos..	Required by law.....	Paupers, idiots, insane, convicts.
Sou. Carolina.	Actual citizens.....	1 year	60 days.	.....	Required by constitution	Insane; inmates of asylums, almshouses, and prisons; U. S. army, duelists.
South Dakota	Citizens or declared intention..	6 mos.	3 mos...	30 days.	No registration required	Idiots, convicts, insane.
Tennessee....	Actual citizens.....	1 year	6 mos...	.....	No registration required	Non-payers of poll-tax.
Texas.....	Citizens or declared intention..	1 year	6 mos...	6 mos...	Prohib. by constitution..	Lunatics, idiots, paupers, convicts, U. S. army.
Vermont.....	Actual citizens.....	1 year	.....	.....	Required by law..	Bribers.
Virginia.....	Actual citizens.....	1 year	.....	Town 3 mos...	Required by law.....	Lunatics, idiots, convicts, duelists, U. S. army, non-payers of capitation tax.
Washington...	Citizens or declared intention..	1 year	90 days.	30 days.	No registration required	Idiots, insane, convicts.
West Virginia.	Actual citizens.....	1 year	60 days.	.....	Prohib. by constitution...	Lunatics, paupers, convicts.
Wisconsin....	Citizens or declared intention..	1 year	.....	.....	Required by law.....	Insane, idiots, convicts, bribers, bettors, duelists.

NOTE.—All the forty-four States limit suffrage to male citizens, but in Colorado, Massachusetts, New Hampshire, Vermont, New York, New Jersey, Nebraska, Minnesota, Kentucky, Indiana, Michigan, Oregon, Wisconsin, and Kansas women may vote at school-district elections, and in some of these States at municipal elections.



## PRESIDENTS AND VICE-PRESIDENTS OF THE UNITED STATES.

TERMS.	Presidents.	Vice-Presidents.
1789-93	1. George Washington, Virginia.	1. John Adams, Mass.
1793-97	George Washington.	John Adams.
1797-1801	2. John Adams.	2. Thomas Jefferson, Va.
1801-05	3. Thomas Jefferson, Va.	3. Aaron Burr, N. Y.
1805-09	Thomas Jefferson.	4. George Clinton, N. Y.
1809-13	4. James Madison.	George Clinton (died 1812).
1813-17	James Madison.	5. Elbridge Gerry, Mass. (died 1814).
1817-21	5. James Monroe, Va.	6. Daniel D. Tompkins, New York.
1821-25	James Monroe.	Daniel D. Tompkins.
1825-29	6. John Quincy Adams, Mass.	7. Jno. Caldwell Calhoun, South Carolina.
1829-33	7. Andrew Jackson, Tenn.	John C. Calhoun (res. 1832).
1833-37	Andrew Jackson.	8. Martin Van Buren, New York.
1837-41	8. Martin Van Buren, New York.	9. Richard Mentor Johnson, Ky.
1841-45	9. William Henry Harrison, O. (died 1847).	10. John Tyler, Va.
1845-49	10. John Tyler.	11. George Mifflin Dallas, Pennsylvania.
1849-53	11. James Knox Polk, Tenn.	12. Millard Fillmore, N.Y.
1853-57	12. Zachary Taylor, La. (died 1850).	13. William Rufus King, Ala. (died 1853).
1857-61	13. Millard Fillmore.	14. John Cabell Breckinridge, Ky.
1861-65	14. Franklin Pierce, N.H.	15. Hannibal Hamlin, Me.
1865-69	15. James Buchanan, Pa.	16. Andrew Johnson, Tennessee.
1869-73	16. Abraham Lincoln, Ill.	17. Schuyler Colfax, Ind.
1873-77	17. Andrew Johnson.	18. Henry Wilson, Mass.
1877-81	18. Ulysses S. Grant, Ill.	19. William Almon Wheeler, N. Y.
1881-85	19. Ulysses S. Grant.	20. Chester Alan Arthur, New York.
1885-89	20. James Abram Garfield, Ohio (died 1881).	21. Thomas Andrew Hendricks, Ind. (d. 1885).
1889-	21. Chester Alan Arthur.	22. Levi P. Morton, N. Y.
1892-	22. Grover Cleveland, New York.	23. Adlai Stevenson.
1896-00	23. Benjamin Harrison, Indiana.	24. Garret A. Hobart.
1900-	24. Grover Cleveland.	25. Theodore Roosevelt.
	25. William McKinley.	
	26. William McKinley.	

The following table shows the order in which the different States became members of the Federal Union:

1. Delaware ratified the Constitution.....	Dec. 7, 1787
2. Pennsylvania ratified the Constitution.....	Dec. 12, 1787
3. New Jersey ratified the Constitution.....	Dec. 18, 1787
4. Georgia ratified the Constitution.....	Jan. 2, 1788
5. Connecticut ratified the Constitution.....	Jan. 9, 1788
6. Massachusetts ratified the Constitution.....	Feb. 6, 1788
7. Maryland ratified the Constitution.....	Apr. 28, 1788
8. South Carolina ratified the Constitution.....	May 23, 1788
9. New Hampshire ratified the Constitution.....	June 21, 1788
10. Virginia ratified the Constitution.....	June 25, 1788
11. New York ratified the Constitution.....	July 26, 1788
12. North Carolina ratified the Constitution.....	Nov. 21, 1789
13. Rhode Island ratified the Constitution.....	May 29, 1790
14. Vermont admitted to the Union.....	Mar. 4, 1791
15. Kentucky admitted to the Union.....	June 1, 1792
16. Tennessee admitted to the Union.....	June 1, 1796
17. Ohio admitted to the Union.....	Nov. 29, 1802
18. Louisiana admitted to the Union.....	Apr. 30, 1812
19. Indiana admitted to the Union.....	Dec. 11, 1816
20. Mississippi admitted to the Union.....	Dec. 10, 1817
21. Illinois admitted to the Union.....	Dec. 3, 1818
22. Alabama admitted to the Union.....	Dec. 14, 1819
23. Maine admitted to the Union.....	Mar. 15, 1820
24. Missouri admitted to the Union.....	Aug. 10, 1821
25. Arkansas admitted to the Union.....	June 15, 1836
26. Michigan admitted to the Union.....	Jan. 26, 1837
27. Florida admitted to the Union.....	Mar. 3, 1845
28. Texas admitted to the Union.....	Dec. 29, 1845
29. Iowa admitted to the Union.....	Dec. 28, 1846
30. Wisconsin admitted to the Union.....	May 29, 1848

31. California admitted to the Union.....	Sept. 9, 1850
32. Minnesota admitted to the Union.....	May 11, 1858
33. Oregon admitted to the Union.....	Feb. 14, 1859
34. Kansas admitted to the Union.....	Jan. 29, 1861
35. West Virginia admitted to the Union.....	June 19, 1863
36. Nevada admitted to the Union.....	Oct. 31, 1864
37. Nebraska admitted to the Union.....	Mar. 1, 1867
38. Colorado admitted to the Union.....	Aug. 1, 1876
39. North Dakota admitted to the Union.....	Nov. 3, 1889
40. South Dakota admitted to the Union.....	Nov. 3, 1889
41. Montana admitted to the Union.....	Nov. 8, 1889
42. Washington admitted to the Union.....	Nov. 11, 1889
43. Idaho admitted to the Union.....	July 3, 1890
44. Wyoming admitted to the Union.....	July 8, 1890
45. Utah admitted to the Union.....	Jan. 4, 1896

## INCREMENT OF WEALTH.

The following table gives the estimated increase of wealth in the chief cities of the United States in 1901, as represented by the assessed valuation of their taxable property:

CITIES.	Assessed Valuation of Taxable Property.
Albany, N. Y.....	\$ 69,007,884
Allegheny, Pa.....	78,531,250
Atlanta, Ga.....	53,177,717
Baltimore, Md.....	439,779,622
Boston, Mass.....	1,152,309,299
Bridgeport, Ct.....	61,638,185
Brooklyn Boro., N. Y.....	748,203,743
Buffalo, N. Y.....	242,349,138
Cambridge, Mass.....	94,465,930
Camden, N. J.....	28,654,210
Charleston, S. C.....	17,509,901
Chicago, Ill.....	345,196,479
Cincinnati, O.....	216,000,000
Cleveland, O.....	200,000,000
Columbus, O.....	66,847,590
Dayton, O.....	42,565,200
Denver, Col.....	62,202,405
Des Moines, Ia.....	13,871,430
Detroit, Mich.....	247,248,500
Duluth, Minn.....	24,600,333
Fall River, Mass.....	74,554,380
Grand Rapids, Mich.....	59,956,729
Hartford, Ct.....	69,761,120
Indianapolis, Ind.....	126,740,040
Jersey City, N. J.....	95,500,000
Kansas City, Mo.....	79,776,841
Lawrence, Mass.....	39,841,697
Louisville, Ky.....	125,000,000
Lowell, Mass.....	71,496,735
Lynn, Mass.....	52,168,015
Memphis, Tenn.....	42,824,724
Milwaukee, Wis.....	158,174,873
Minneapolis, Minn.....	101,513,531
Nashville, Tenn.....	38,785,840
Newark, N. J.....	137,320,684
New Bedford, Mass.....	62,896,040
New Haven, Ct.....	114,499,483
New Orleans, La.....	141,349,610
New York City.....	3,787,970,871
Omaha, Neb.....	36,374,186
Paterson, N. J.....	48,788,855
Philadelphia, Pa.....	999,103,285
Pittsburgh, Pa.....	321,696,550
Portland, Ore.....	102,000,000
Providence, R. I.....	192,801,860
Reading, Pa.....	43,493,592
Richmond, Va.....	66,720,949
Rochester, N. Y.....	127,935,545
San Francisco, Cal.....	415,000,000
Savannah, Ga.....	38,361,080
Saverton, Pa.....	22,817,329
Seattle, Wash.....	43,080,924
Somerville, Mass.....	53,799,200
Springfield, Mass.....	74,338,927
St. Joseph, Mo.....	23,588,380
St. Louis, Mo.....	394,782,704
St. Paul, Minn.....	98,000,000
Syracuse, N. Y.....	91,042,166
Toledo, O.....	51,780,400
Trenton, N. J.....	32,221,462
Troy, N. Y.....	59,000,000
Washington, D. C.....	198,488,413
Wilmington, Del.....	40,000,000
Worcester, Mass.....	112,043,973

## METEOROLOGICAL.

In a country so vast, and of such varied conformation as the United States, there must of necessity be an almost infinite variety of climate. We give here the reports of the signal service for the entire country, extending over the period indicated below.

The following exhibit shows the meteorological and climatological conditions of the United States at selected stations for the past fourteen years.

STATES AND STATIONS.	TEMPERATURE.					RAIN- FALL.		Av. Cloudiness. Scale of 0 to 10.
	Average of Twelve Years.	Maximum.	Year.	Minimum.	Year.	Average.	No. of Years.	
Alabama—								
Mobile.....	67.4	101.0	1883	13.9	1884	65.06	15	4.7
Mongomery....	65.6	106.9	1881	9.6	1880-4	53.87	14	4.9
Alaska—								
Sitka.....	43.9	79.0	1881	4.0	1882	111.72	5	6.9
Unalaska.....	40.6	78.0	1881-2	5.0	1883	109.34	4	8.0
Arizona—								
Fort Grant.....	59.3	103.0	1879	10.0	1883	16.14	8	3.1
Prescott.....	51.0	103.0	1878	18.0	1879	15.72	10	2.4
Yuma.....	72.0	113.0	1878	22.5	1883	2.82	10	1.6
Arkansas—								
Little Rock....	62.3	102.0	1881	5.5	1884	55.02	7	4.5
California—								
San Francisco..	55.6	95.2	1883	34.0	1879	23.82	15	4.1
San Diego.....	61.3	101.0	1883	32.0	79-80	10.83	15	4.3
Colorado—								
Denver.....	49.2	105.0	1878	29.0	1875	15.06	15	3.8
Las Animas....	49.2	104.0	1883-4	22.7	1884	13.46	4	4.1
Connecticut—								
New London....	49.9	93.0	1876-8	10.0	1882	49.38	16	4.8
Delaware—								
Del. Breakwater.	54.0	93.0	1881	1.0	1880	.....	.....	5.1
Dist. Columbia—								
Washington....	55.1	104.3	1881	14.0	1881	44.39	16	5.2
Florida—								
Jacksonville...	70.2	104.0	1879	19.0	1880	57.06	15	4.3
Key West.....	78.2	97.0	1888	44.0	1876	39.11	16	4.2
Georgia—								
Atlanta.....	61.7	97.5	1881	1.3	1884	55.66	8	5.1
Savannah.....	67.9	105.0	1879	15.0	1880	53.40	16	4.7
Idaho—								
Boise City....	49.4	106.0	1877	27.0	1883	14.04	8	4.6
Illinois—								
Cairo.....	58.5	103.0	1881	16.0	1884	45.17	15	5.1
Chicago.....	48.8	99.0	1874	23.0	1872	37.10	15	5.1
Springfield....	53.0	101.5	1879	22.3	1884	43.99	7	4.9
Indiana—								
Indianapolis....	53.3	101.0	1881	25.0	1884	46.03	15	5.3
Indian Territory—								
Fort Gibson....	50.4	109.0	1879	.....	.....	.....	.....	.....
Fort Sill.....	59.2	107.0	1884	9.0	1879	31.62	8	4.0
Iowa—								
Des Moines.....	48.5	103.0	1881	30.4	1884	39.97	8	5.2
Kansas—								
Leavenworth....	53.3	107.0	1874	29.0	1873	38.16	15	4.7
Dodge City....	52.2	108.0	1876	20.0	1883	21.18	12	3.9
Kentucky—								
Louisville.....	57.4	104.6	1881	19.5	1884	48.34	14	5.2
Louisiana—								
New Orleans....	70.2	97.0	1881	20.0	1879	63.75	16	4.9
Shreveport....	65.8	107.0	1875	6.0	1879	53.75	15	4.7
Maine—								
Eastport.....	41.6	88.0	1880	21.0	1884	50.73	12	5.7
Portland.....	47.8	97.0	1876	17.0	1872	40.34	15	5.0
Maryland—								
Baltimore....	56.1	101.0	1881	6.0	1881	43.11	16	5.0
Massachusetts—								
Boston.....	48.4	101.5	1881	13.0	1882	47.69	16	5.1
Michigan—								
Alpena.....	41.2	97.0	1874-6	27.0	1881-2	37.90	14	5.7
Detroit.....	49.7	100.0	1878	24.0	1872	33.85	16	5.5
Marquette.....	40.5	100.0	1878	27.0	1875	33.06	14	5.7
Minnesota—								
St. Paul.....	43.9	100.0	1883	39.0	1879	28.82	15	5.0
St. Vincent....	33.2	93.0	1883	47.8	1884	18.22	6	4.6
Mississippi—								
Vicksburg.....	66.2	103.0	1881	10.0	1875	60.54	15	4.6
Missouri—								
St. Louis.....	55.1	106.0	1881	21.5	1884	38.76	16	4.9
Montana—								
Helena.....	42.6	98.0	1880	40.0	1880	14.61	5	4.5
Poplar River...	36.3	.....	.....	63.1	1885	8.95	4	4.6
Nebraska—								
North Platte....	47.4	107.0	1877	29.0	1883	19.03	12	4.4
Omaha.....	49.5	105.0	1874	32.0	1884	35.00	16	4.8
Nevada—								
Winnemucca....	48.0	104.0	1877	23.0	1883	9.74	6	3.5
New Hampshire—								
Mt. Washington.	26.5	74.0	1881	49.0	1872	83.53	15	6.0
New Jersey—								
Atlantic City....	52.5	99.0	1880	7.0	1880	42.98	13	5.2
New York—								
Albany.....	50.4	96.0	1881	18.0	1875-8	37.52	13	5.6
Rochester.....	47.5	98.0	1881	12.0	1873-5	36.21	15	6.0
New Mexico—								
Fort Stanton....	.....	.....	.....	18.2	1887	18.04	2	.....
Santa Fe.....	46.8	95.5	1878	13.0	79-83	14.14	12	3.7
North Carolina—								
Charlotte.....	60.6	101.0	1879	5.0	1880	55.95	8	5.2
Wilmington....	64.1	103.0	1879	9.0	1884	57.87	16	4.9
North Dakota—								
Bismarck.....	39.0	105.0	1876	40.0	1884	20.10	12	4.8
Fort Buford....	38.1	107.0	1882-3	46.0	79-83	14.20	8	4.8
Ohio—								
Cincinnati....	56.5	103.5	1881	10.0	1870	42.36	16	5.3
Cleveland.....	49.0	98.7	1881	17.0	1873	37.48	16	5.8
Oregon—								
Portland.....	51.4	99.0	1876	3.0	1875-9	51.49	15	6.0
Roseburg.....	51.5	97.2	1884	3.3	1884	35.05	8	5.1
Pennsylvania—								
Philadelphia....	54.1	101.5	1881	5.0	75-80	40.43	15	5.0
Pittsburg.....	53.1	102.7	1881	12.0	1875	36.84	15	5.8
Rhode Island—								
Narragansett Pr.	.....	91.0	1884	9.0	1883-4	.....	.....	.....
Block Island....	49.6	86.5	1881	4.0	1882	52.30	6	4.7
South Carolina—								
Charleston....	66.9	104.0	1879	13.0	1880-4	58.92	16	4.5
South Dakota—								
Deadwood.....	41.2	102.0	1881	32.0	1883	26.39	8	4.3
Yankton.....	45.6	103.0	73-83	34.0	1879	28.43	13	4.5
Tennessee—								
Knoxville.....	58.2	100.0	79-81	16.0	1884	54.39	16	5.0
Memphis.....	61.7	102.0	1881	2.0	1884	54.96	15	4.8
Texas—								
Fort Davis.....	59.2	111.0	1881	1.0	1.81	18.39	7	3.1
Fort Elliot....	54.6	102.0	1881	12.0	1883	26.15	6	3.4
Galveston.....	70.5	98.5	1874	18.0	1880	52.22	15	4.6
Brownsville....	72.6	102.0	1878	18.0	1880-1	35.36	11	4.9
Utah—								
Salt Lake City..	50.3	101.0	1875	27.0	1883	17.36	12	4.3
Frisco.....	.....	.....	.....	.....	.....	.....	.....	.....
Virginia—								
Lynchburg.....	57.0	101.8	1881	5.0	1880	43.44	15	4.6
Norfolk.....	60.1	102.5	1876	6.0	1880	51.27	16	4.9
Vermont—								
Burlington....	45.0	97.0	1876	24.0	1882	.....	.....	.....
Washington—								
Olympia.....	48.9	95.0	1878	2.0	1884	53.77	9	6.4
Spokane Falls..	46.2	101.5	1882	30.5	1888	19.16	5	4.7
West Virginia—								
Morgantown....	53.1	97.0	1874	10.0	1875	.....	.....	.....
Wisconsin—								
Milwaukee.....	45.5	98.0	1874	25.0	1875	33.54	16	5.5
Wyoming—								
Cheyenne.....	43.5	100.5	1881	38.0	1875	11.40	15	5.4



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**UNIVERSALIST CHURCH**, a religious body in the United States of America, especially in the New England States, which has for its distinguishing tenet the doctrine of the final salvation of all souls from sin through Christ. The pioneers of Universalism in America were Dr. George De Benneville, who taught from 1741 principally in Pennsylvania; Dr. Charles Chauncy, of the First Church, Boston (notably in *The Salvation of All Men*, published in 1784); Dr. Joseph Huntington, of Coventry, Conn. (whose *Calvinism Improved* was published after his death in 1796); John Murray, Elhanan Winchester, Caleb Rich, and, very specially, Hosea Ballou. Murray is, however, regarded as "the father of Universalism in America." In 1750 James Rely had avowed himself a Universalist, basing his belief on a theory quite peculiar; Murray, who had preached as a Methodist in England and Ireland, was Rely's most distinguished convert. In 1770 he came to America, and, under circumstances so strange that most Universalists regard them as providential, overcoming a deep reluctance, he preached at Good Luck, New Jersey, and organized a society, "The Independent Christian Church," at Gloucester, Mass. Hosea Ballou—a convert from the Calvinist Baptists—took up the cause in 1790, and published the work that is regarded by Universalists as epoch-making, *A Treatise on Atonement*. The number of ministers increased and societies were formed. These in due time became the constituents of larger organizations, till a "New England convention" saw occasion, in 1803, to adopt a "profession of faith," which in three short articles avowed belief in the Bible as making known in a Divine revelation the nature of God, the mission of Christ, the final holiness of all souls, and the necessity of good works. In 1866 a general convention, composed of delegates from the State conventions, was incorporated. It has jurisdiction throughout the United States and Canada. It has a "Murray fund" of about \$135,000. Under the auspices of the Universalist Church are the "woman's centenary association," the "Universalist historical society," several organized charities, four colleges, three theological schools, and five academies—the total value of the schools, including endowments, being hardly less than \$3,000,000. It publishes eight periodicals. The *Year Book* for 1887 gives the following summary: 1 general convention; 22 State conventions; 945 parishes, 38,429 families; 696 churches, 35,550 members; 634 Sunday schools, 51,871 members; 789 church edifices; value above indebtedness, \$7,493,927; 673 clergymen in fellowship and 120 licensed lay preachers.

In 1901 there were in the United States 971 Universalist parishes; 41,474 families; 735 preachers; 764 churches, with 48,780 members; 657 Sunday schools, with 53,205 members; and 816 church edifices. The total value of church property at the close of the year was \$8,915,796.

**UNIVERSITIES.** The mediæval Latin term *universitas* (from which the English word "university" is derived) was originally employed to denote any community or corporation regarded under its collective aspect. When used in its modern sense, as denoting a body devoted to learning and education, it required the addition of other words in order to complete the definition—the most frequent form of expression being *\*universitas magistrorum et scholarium* (or *\*discipulorum*). In the course of time, probably toward the latter part of the fourteenth century, the term began to be used by itself, with the exclusive meaning of a community of teachers and scholars whose corporate existence had been recognized and sanctioned by civil or ecclesiastical authority or by both. The university, in

its earliest stage of development, appears to have been simply a scholastic guild—a spontaneous combination of teachers or scholars, and formed probably on the analogy of the trades guilds, which, in the course of the thirteenth and fourteenth centuries, are to be found springing up in most of the great European centers. And so the university, composed as it was to a great extent of students from foreign countries, was a combination formed for the protection of its members from extortion of the townsmen and the other annoyances incident in mediæval times to residence in a foreign state.

In order, however, clearly to understand the conditions under which the earliest universities came into existence, it is necessary to take account, not only of their organization, but also of their studies, and to recognize the main influences which, from the sixth to the twelfth century, served to modify both the theory and the practice of education. In the former century the schools of the Roman empire had been almost entirely swept away by the barbaric invasions. The latter century marks the period when the institutions which supplied their place—the episcopal schools attached to the cathedrals and the monastic schools—attained to their highest degree of influence and reputation. The cathedral school taught only what was supposed to be necessary for the education of the priest; the monastic school taught only what was supposed to be in harmony with the aims of the monk. But between the pagan system and the Christian system by which it had been superseded there yet existed something that was common to both; the latter, even in the narrow and meager instruction which it imparted, could not altogether dispense with the ancient text-books, simply because there were no others in existence. Under the rule of the Merovingian dynasty even these scanty traditions of learning declined throughout the Frankish dominions; but in England the designs of Gregory the Great, as carried out by Theodorus, Bede, and Alcuin, resulted in a great revival of education and letters. In order adequately to explain the remarkable development and novel character which that teaching assumed in the course of the twelfth and thirteenth centuries, it is necessary to take account of the operation of certain more general causes to which the origin of the great majority of the earlier universities may in common unhesitatingly be referred. These causes are—(1) the introduction of new subjects of study, as embodied in a new or revived literature; (2) the adoption of new methods of teaching which were rendered necessary by the new studies; (3) the growing tendency to organization which accompanied the development and consolidation of the European nationalities.

It was at a considerable interval after the rise of the school at Salerno, about the year 1113, that Irnerius commenced at Bologna his lectures on the civil law. This instruction, again, was of a kind which the monastic and cathedral schools could not supply, and it also met a new and pressing want. But the distinctly secular character of this new study, and its intimate connection with the claims and prerogatives of the Western emperor, aroused at first the susceptibilities of the Roman see, and for a time Bologna and its civilians were regarded by the church with distrust and even with alarm. These sentiments were not, however, of long duration. In the year 1151 the appearance of the *Decretum* of Gratian, largely compiled from spurious documents, invested the studies of the canonist with fresh importance; and numerous decrees of past and almost forgotten pontiffs now claimed to take their stand side by side with the enactments contained in the *Corpus Juris Civilis*. It was necessary, accordingly,

that the *Decretum* should be known and studied beyond the walls of the monastery or the episcopal palace, and that its pages should receive authoritative exposition at some common center of instruction. Such a center was to be found in Bologna. The needs of the secular student and of the ecclesiastical student were thus brought for a time into accord, and from the days of Irnerius down to the close of the thirteenth century we have satisfactory evidence that Bologna was generally recognized as the chief school both of the civil and the canon law.

But, though there was a flourishing school of study, it is to be observed that Bologna did not possess a university until the close of the twelfth century. The "universities" at Bologna were really student guilds, modeled, not on the trade guilds which arose in Bologna in the thirteenth century, but on the Teutonic guilds which arose nearly a century earlier in northwestern Europe, being essentially "spontaneous confederations of aliens on a foreign soil."

Denifle considers that the "universities" at Bologna were at one time certainly more than four in number, and we know that the Italian students alone were subdivided into two—the Tuscans and the Lombards. In the centers formed by secession from the parent body, a like subdivision took place. At Vercelli there were four "universitates," composed respectively of Italians, English, Provençals, and Germans; at Padua there were similar divisions into Italians, French (*i.e.*, *Francigena*, comprising both English and Normans), Provençals (including Spaniards and Catalans). When accordingly we learn from Odofred that in the time of the eminent jurist Azo, who lectured at Bologna about 1200, the number of the students there amounted to some ten thousand, of whom the majority were foreigners, it seems reasonable to conclude that the number of these confederations of students at Bologna was yet greater.

With the middle of the thirteenth century, these various confederations became blended, for the first time, into one or other of the two great divisions already referred to—those of the Ultramontani and the Citramontani, Johannes de Varanis being rector of the former and Pantaleon de Venetiis of the latter. About the year 1200 were formed the two faculties of medicine and philosophy (or the arts), the former being somewhat the earlier. In the year 1371 the cardinal legate, Anglicus, compiled, as chief director of ecclesiastical affairs in the city, an account of the university, which he presented to Urban V. Of the professors there were twelve of civil law and six of canon law; three of medicine, three of practical medicine, and one of surgery; two of logic, and one each of astrology, rhetoric, and notarial practice. The professors of theology, who, as members of the religious orders, received no state remuneration, are unmentioned.

Of the general fact that the early universities rose in response to new wants the commencement of the university of Paris supplies us with a further illustration. The study of logic, which, prior to the twelfth century, was founded exclusively on one or two meager compends, received about the year 1100, on two occasions, a powerful stimulus—in the first instance from the memorable controversy between Lanfranc and Berengar; in the second from the no less famous controversy between Anselm and Roscellinus. Dialectic was looked upon as "the science of sciences;" and when, somewhere in the first decade of the twelfth century, William of Champeaux opened in Paris a school for the more advanced study of dialectic as an art, his teaching was attended with marked success.

Abelard taught in the first instance at the cathedral

school at Notre Dame, and subsequently at the school on the Montagne Sainte-Geneviève, of which he was the founder, and where he imparted to logic its new development. The schools out of which the university arose were those attached to the cathedral on the Île de la Cité, and presided over by the chancellor—a dignitary who must be carefully distinguished from the later chancellor of the university. But the flame which Abelard's teaching had kindled was not destined to expire. Among his pupils was Peter Lombard, who was bishop of Paris in 1159, and widely known to posterity as the compiler of the famous volume of the *Sentences*.

As the university of Paris became the model, not only for the universities of France north of the Loire, but also for the great majority of those of central Europe as well as for Oxford and Cambridge, some account of its early organization will here be indispensable. The original university, as already stated, took its rise entirely out of the movement carried on by teachers on the island, who taught by virtue of the license conferred by the chancellor of the cathedral. In the second decade of the thirteenth century, it is true, we find masters withdrawing themselves from his authority by repairing to the left bank of the Seine and placing themselves under the jurisdiction of the abbot of the monastery of Ste. Geneviève; and in 1255 this dignitary is to be found appointing a chancellor whose duty it should be to confer "*licentia docendi*" on those candidates who were desirous of opening schools in that district. But it was around the bestowal of this license by the chancellor of Notre Dame, on the Île de la Cité, that the university of Paris grew up. The previous stage of the students' academic career, that of bachelorhood, had been one of apprenticeship for the mastership; and his emancipation from this state was symbolized by placing the magisterial cap (*biretta*) upon his head, a ceremony which, in imitation of the old Roman ceremony of manumission, was performed by his former instructor, "under whom" he was said to incept. He then gave a formal inaugural lecture, and, after this proof of magisterial capacity, was welcomed into the society of his professional brethren with set speeches, and took his seat in the master's chair. This community of teachers of recognized fitness did not in itself suffice to constitute a university, but some time between the years 1150 and 1170, the period when the *Sentences* of Peter Lombard were given to the world, the university of Paris came formally into being.

In comparing the relative antiquity of the universities of Paris and Bologna, it is difficult to give an unqualified decision. Apart from the broad differences in their organization, the very conception of learning, it will be observed, was different at Bologna from what it was at Paris. In the former it was entirely professional,—designed, that is to say, to prepare the student for a definite and practical career in after life; in the latter it was sought to provide a general mental training, and to attract the learner to studies which were speculative rather than practical. In the sequel, the less mercenary spirit in which Paris cultivated knowledge added immensely to her influence and reputation. The university became known as the great school where theology was studied in its most scientific spirit; and the decisions of its great doctors upon those abstruse questions which absorbed so much of the highest intellectual activity of the Middle Ages were regarded as almost final. The popes themselves, although averse from theological controversies, deemed it expedient to cultivate friendly relations with a center of such importance for the purpose of securing their influence in a yet wider field. Down therefore to the time of the great schism (1378), they at once conciliated the university of Paris and coe-



sulted what they deemed to be the interests of the Roman see, by discouraging the creation of faculties of theology elsewhere.

In their earliest stage, however, the importance of these new institutions was but imperfectly discerned alike by the civil and the ecclesiastical power, and the first four universities of Italy, after Bologna, rose into existence, like Bologna itself, without a charter from either pope or emperor. Of these the first were those of Reggio and Modena, both of which are to be found mentioned as schools of civil law before the close of the twelfth century. Both of them would seem to have been formed independently of Bologna, but the university of Vicenza was probably the outcome of a migration of the students from the former city, which took place in the year 1204. In the course of the century Vicenza attained to considerable prosperity; its students were divided into four nations, each with its own rector; and in 1264 it included in its professoriate teachers, not only of the civil law, but also of medicine, grammar, and dialectic. The university of Padua was founded in 1222 as the direct result of the migration of a considerable number of students from Bologna. In the year 1228 the students of Padua were compelled by circumstances to transfer their residence to Vercelli, and the latter city guaranteed them, besides other privileges, the right to rent no less than five hundred lodging houses at a fixed rental for a period of eight years. At first Padua was a school only of the civil and canon law; and during the oppressive tyranny of Ezzelin (1237-1260) the university maintained its existence with some difficulty. But in the latter part of the century it incorporated the faculties of grammar, rhetoric, and medicine, and became known as one of the most flourishing schools of Italy and a great center of the Dominicans, at that time among the most active promoters of learning.

The university of Naples was founded by the emperor Frederick II. in the year 1225, as a school of theology, jurisprudence, the arts, and medicine—his design being that his subjects in the kingdom of Naples should find in the capital adequate instruction in every branch of learning, and "not be compelled in the pursuit of knowledge to have recourse to foreign nations or to beg in other lands." The university never attained to much eminence, and after the death of Frederick came for a time altogether to an end, but was restored in 1258 by King Manfred. In 1266 its faculty of medicine was reconstituted, and from 1272-74 Thomas Aquinas was one of its teachers of theology. The two universities of Piacenza and Pavia stand in close connection with each other. The former is noted by Denifle as the earliest in Italy which was founded by virtue of a papal charter (February 6, 1248), although the scheme remained for a long time inoperative. At length, in the year 1398, the university was reconstituted by Giovanni Galeazzo Visconti, duke of Milan, who in the same year caused the university of Pavia to be transferred thither.

With the death of Galeazzo in 1402, this precarious activity suddenly came to an end; and in 1404 the university had ceased to exist. Even before Inerius taught at Bologna, Pavia had been widely known as a seat of legal studies, and more especially of the Lombard law, although the evidence is wanting which would serve to establish a direct connection between this early school and the university which was founded there in 1361 by virtue of the charter granted by the emperor Charles IV. It shared again in the decline which overtook the university of Piacenza after the death of Giovanni Galeazzo, and during the period from 1404 to 1412 it altogether ceased to exist. But in October, 1412, the lect-

ures were recommenced, and the university entered upon the most brilliant period of its existence. Arezzo appears to have been known as a center of study so early as 1215, and its earliest statutes are assigned to the year 1255. After the year 1373 the school gradually dwindled, although it did not become altogether extinct until about the year 1470. The university of Rome (which is to be carefully distinguished from the school attached to the curia) owed its foundation (1303) to Boniface VIII., and was especially designed by that pontiff for the benefit of the poor foreign students sojourning in the capital.

The university maintained its existence throughout the period of the residence of the popes at Avignon (see *POPEDOM*), and, under the patronage of Leo X., could boast, in 1514, of no less than eighty professors. Scarcely any of the universities in Italy in the fourteenth century attracted a larger concourse than that of Perugia, where the study chiefly cultivated was that of the civil law. The university received its charter as a studium generale from Clement V. in the year 1308, but had already, in 1306, been formally recognized by the civic authorities, by whom it was commended to the special care and protection of the "podestà." In common with the rest of the Italian universities, it suffered severely from the great plague of 1348-49; but in 1355 it received new privileges from the emperor, and, in 1362 its first college, dedicated to Gregory the Great, was founded by the bishop of Perugia. The university of Treviso, which received its charter from Frederick the Fair in 1318, was of little celebrity and but short duration.

The circumstances of the rise of the university of Florence are unknown, but the earliest evidence of academic instruction belongs to the year 1320. The dispersion of the university of Bologna, in the March and April of the following year, afforded a favorable opportunity for the creation of a studium generale, but the necessary measures were taken somewhat tardily, and in the meantime the greater number of the Bolognese students had betaken themselves to Siena. The charter of foundation for Florence was accordingly not granted until May 31, 1349, when Clement VI. decreed that there should be instituted a studium generale in theology, jurisprudence, medicine, and every other recognized faculty of learning, the teachers to be professors who had obtained the degree of doctor or master either at Bologna or Paris, or "some other studium generale of celebrity." On January 2, 1364, the university also obtained the grant of imperial privileges from Charles IV. On February 14, 1388, it adopted a body of statutes which are still extant, and afford an interesting study in connection with the university history of the period. The university now entered upon that brilliant period in its history which was destined to so summary an extinction. In the year 1472, however, under the influence of Lorenzo de' Medici, it was decided that Florence was not a convenient seat for a university, and its students were removed to Pisa. The commencement of the university of Siena belongs to about the year 1241, but its charter was first granted by the emperor Charles IV., at the petition of the citizens, in the year 1357. It was founded as a studium generale in jurisprudence, the arts, and medicine. The imperial charter was confirmed by Gregory XII. in 1408, and the various bulls relating to the university which he subsequently issued afford a good illustration of the conditions of academic life in these times. Residence on the part of the students appears to have been sometimes dispensed with. The graduates were to be admitted to the same privileges as those of Bologna or Paris: and a faculty of theology was added to the curriculum of

studies. The university of Ferrara owes its foundation to the house of Este,—Alberto, marquis of Este, having obtained from Boniface IX. in 1391 a charter couched in terms precisely similar to those of the charter for Pisa. In the first half of the fifteenth century the university was adorned by the presence of several distinguished humanists, but its fortunes were singularly checkered, and it would appear for a certain period, to have been altogether extinct. It was, however, restored, and became in the latter part of the century one of the most celebrated of the universities of Italy. In later times Ferrara has been noted as a school of medicine.

Of the universities modeled on that of Paris, Oxford would appear to have been the earliest, and the manner of its development was probably similar. Certain schools, opened within the precincts of the dissolved nunnery of St. Frideswyde and of Oseney abbey, are supposed to have been the nucleus round which the university grew up. In the year 1133 one Robert Pullen, a theologian of considerable eminence (but whether an Englishman or a Breton is uncertain), arrived from Paris, and delivered lectures on the Bible. He was followed a few years later by Vacarius, a native of Lombardy, who, as a student at Bologna, had inherited the tradition of the teaching of Irnerius. In one respect, indeed, Oxford was more favored than even Paris, for the town authorities could not pretend to assert any right of interference with the university such as that to which the French monarch and the court frequently laid claim. In the year 1257, when the bishop of Lincoln, as diocesan, had trespassed too closely on the liberties of the community, the deputies from Oxford, when preferring their appeal to the king at St. Albans, could venture to speak of the university as "*schola secunda ecclesie*," or second only to Paris. Its numbers about this time were probably some 3,000; but it was essentially a fluctuating body, and whenever plague or tumult led to a temporary dispersion a serious diminution in its numerical strength generally ensued for some time after. Against such vicissitudes the foundation of colleges proved the most effectual remedy. Of these the three earliest were University College, founded in 1249 by William of Durham; Balliol College, founded about 1263 by John Balliol, the father of the king of Scotland of the same name; and Merton College, founded in 1264. The last-named is especially notable as associated with a new conception of university education, namely, that of collegiate discipline for the secular clergy, instead of for any one of the religious orders, for whose sole benefit all similar foundations had hitherto been designed. The university of Cambridge, although it rose into existence somewhat later than Oxford, may reasonably be held to have had its origin in the same century.

Turning to France, or rather to the territory included within the boundaries of modern France, we find Montpellier a recognized school of medical science as early as the twelfth century. William VIII., lord of Montpellier, in the year 1181 proclaimed it a school of free resort, where any teacher of medical science, from whatever country, might give instruction. Before the end of the century it possessed also a faculty of jurisprudence, a branch of learning for which it afterward became famed. The university of medicine and that of law continued, however, to be totally distinct bodies with different constitutions. On October 26, 1289, Montpellier was raised by Nicholas IV. to the rank of a "*studium generale*." The university also now included a faculty of arts; and there is satisfactory evidence of the existence of a faculty of theology before the close of the fourteenth century, although not formally

recognized by the pope before the year 1421. The university of Toulouse is to be noted as the first founded in any country by virtue of a papal charter. It took its rise in the efforts of Rome for the suppression of the Albigensian heresy, and its foundation formed one of the articles of the conditions of peace imposed by Louis IX. on Count Raymond of Toulouse. In the year 1233 it first acquired its full privileges as a "*studium generale*" by virtue of a charter given by Gregory IX. As a school of arts, jurisprudence, and medicine, although faculties of each existed, it never attained to any reputation. The university of Orleans had a virtual existence as a *studium generale* as early as the first half of the thirteenth century, but in the year 1305 Clement V. endowed it with new privileges, and gave its teachers permission to form themselves into a corporation. The schools of Orleans had an existence, it is said, as early as the sixth century, and subsequently supplied the nucleus for the foundation of a university at Blois; but of this university no records now exist. Orleans, in its organization, was modeled mainly on Paris, but its studies were complementary rather than in rivalry to the older university.

Orleans subsequently incorporated a faculty of arts, but its reputation from this period was always that of a school of legal studies, and in the fourteenth century its reputation in this respect was surpassed by no other university in Europe. Prior to the thirteenth century it had been famed for its classical learning; and Angers, which received its charter at the same time, also once enjoyed a like reputation, which, in a similar manner, it exchanged for that of a school for civilians and canonists. The university of Avignon was first recognized as a "*studium generale*" by Boniface VIII. in the year 1303, with power to grant degrees in jurisprudence, arts, and medicine. The university of Cahors enjoyed the advantage of being regarded with especial favor by John XXII. The two schools in France which, down to the close of the fourteenth century, most closely resembled Paris, were Orleans and Cahors. The university of Perpignan, founded, according to Denifle, in 1379 by Clement VII., and that of Orange, founded in 1365 by Charles IV., were universities only by name and constitution, their names rarely appearing in contemporary chronicles, while their very existence becomes at times a matter for reasonable doubt.

To some of the earlier Spanish universities—such as Palencia, founded about the year 1214 by Alfonso VIII.; Huesca, founded in 1354 by Pedro IV.; and Lerida, founded in 1300 by James II.—the same description is applicable; and their insignificance is probably indicated by the fact that they entirely failed to attract foreign students. Valladolid, founded in 1346 by Pope Clement VI., attained, however, to some celebrity; and the foreign teachers and students frequenting the university became so numerous that in 1373 King Henry II. caused an enactment to be passed for securing to them the same privileges as those already accorded to the native element. But the total number of the students in 1403 was only 116, and grammar and logic, along with jurisprudence (which was the principal study), constituted the sole curriculum. Whatever reputation, indeed, was enjoyed by Spain for nearly five centuries after the commencement of the university era, centered mainly in Salamanca, to which Seville, in the south, stood in the relation of a kind of subsidiary school, having been founded in 1254 by Alfonso the Wise, simply for the study of Latin and of the Semitic languages, especially Arabic. Salamanca was founded in 1243 by Ferdinand III. of Castile as a "*studium generale*," in the three faculties of jurisprudence, the arts, and medicine. Ferdinand extended his special protection to the



students, granting them numerous privileges and immunities. The earliest of the numerous colleges founded at Salamanca was that of St. Bartholomew, long noted for its ancient library and valuable collection of manuscripts, which now form part of the royal library of Madrid. The one university possessed by Portugal had its seat in mediæval times alternately in Lisbon and in Coimbra, until, in the year 1537, it was permanently attached to the latter city. Its formal foundation took place in 1309, when it received from King Diniz a charter, the provisions of which were mainly taken from those of the charter given to Salamanca. In 1772 the university was entirely reconstituted. Of the German universities, Prague, which existed as a "studium" in the thirteenth century, was the earliest, and was at first frequented mainly by students from Styria and Austria, countries at that time ruled by the king of Bohemia. On January 26, 1347, at the request of Charles IV., Pope Clement VI. promulgated a bull authorizing the foundation of a "studium generale" in all the faculties. In the following year Charles himself issued a charter for the foundation.

The university of Cracow in Poland was founded in May, 1364, by virtue of a charter given by King Casimir the Great, who bestowed on it the same privileges as those possessed by the universities of Bologna and Padua. Toward the close of the fifteenth century the university is said to have been in high repute as a school of both astronomical and humanistic studies. The Avignonese popes appear to have regarded the establishment of new faculties of theology with especial jealousy; and when, in 1364, Duke Rudolph IV. founded the university of Vienna, with the design of constituting it a "studium generale" in all the faculties, Urban V. refused his assent to the foundation of a theological school, but after the accession of Duke Albert III., who may be regarded as its real founder, it acquired privileges, and its prosperity became marked and continuous. Like Prague, Vienna was for a long time distinguished by the comparatively little attention bestowed by its teachers on the study of the civil law. No country in the fourteenth century was looked upon with greater disfavor at Rome than Hungary. It was stigmatized as the land of heresy and schism. When, accordingly, in 1367 King Louis applied to Urban V. for the sanction of the scheme of founding a university at Fünfkirchen, Urban would not consent to the foundation of a faculty of theology; he even made it a condition of his sanction for a "studium generale" that King Louis should first undertake to provide for the payment of the professors. We hear but little concerning the university after its foundation, and it is doubtful whether it survived for any length of time the close of the century, having been about that period absorbed in all probability in the university of Ofen. The foundation of this university is also involved in considerable obscurity, and its original charter is lost.

The university of Heidelberg received its charter (October 23, 1385) from Urban VI. as a "studium generale" in all the recognized faculties save that of the civil law—the form and substance of the document being almost identical with those of the charter granted to Vienna. It was granted at the request of the elector palatine, Rupert I., but the real founder, as he was also the organizer and teacher, of the university was Marsilius of Inghen, to whose ability and energy Heidelberg was indebted for no little of its early reputation and success. No mediæval university achieved a more rapid and permanent success. Regarded with favor alike by the civil and ecclesiastical potentates, its early annals were singularly free from crises like those which characterize the history of many of the mediæval univer-

sities. The number of those admitted to degrees from the commencement of the first session (October 19, 1386 to December 16, 1387) amounted to 579. Owing to the labors of the Dominicans, Cologne had gained a reputation as a seat of learning long before the founding of its university; and it was through the advocacy of some leading members of the Mendicant orders that, at the desire of the city council, its charter as a "studium generale" (May 21, 1388) was obtained from Urban VI. In common with the other early universities of Germany—Prague, Vienna, and Heidelberg—Cologne owed nothing to imperial patronage, while it would appear to have been, from the first, the object of special favor with Rome. In the fifteenth century the number of its students was larger than that at any other German university—a fact attributable partly to the reputation it had acquired as a school of jurisprudence, and partly to the ardor with which the philosophic controversies of the time were debated in its midst. The collegiate system is to be noted as a feature common to all these early German universities, and, in nearly all, the professors were partly remunerated by the appropriation of certain prebends, appertaining to some neighboring church, to their maintenance.

In northern Germany and in the Netherlands, the growing wealth and prosperity of the different states especially favored the formation of new centers of learning. In the flourishing duchy of Brabant the university of Louvain (1426) was to a great extent controlled by the municipality; and their patronage, although ultimately attended with detrimental results, long enabled Louvain to outbid all the other universities of Europe in the munificence with which she rewarded her professors. In the course of the next century the "Belgian Athens," as she is styled by Lipsius, ranked second only to Paris in numbers and reputation. In its numerous separate foundations and general organization—it possessed no less than twenty-eight colleges—it closely resembled the English universities; while its active press afforded facilities to the author and the controversialist of which both Cambridge and Oxford were at that time almost destitute. It embraced all the faculties, and no degrees in Europe stood so high as guarantees of general acquirements. In 1788 the faculties of jurisprudence, medicine, and philosophy were removed to Brussels, and in 1797 the French suspended the university altogether. When Belgium was formed into an independent state in 1831, the university was reformed as a Roman Catholic foundation. The circumstances of the foundation of the university of Leipsic are especially noteworthy, it having been the result of the migration of almost the entire German element from the university of Prague. This element comprised (1) Bavarians, (2) Saxons, (3) Poles (this last-named division being drawn from a wide area, which included Meissen, Lusatia, Silesia, and Prussia), and, being represented by three votes in the assemblies of the university, while the Bohemians possessed but one, had acquired a preponderance in the direction of affairs which the latter could no longer submit to. Religious differences, again, evoked mainly by the preaching of John Huss, further intensified the existing disagreements; and eventually, in the year 1409, King Wenceslaus, at the prayer of his Bohemian subjects, issued a decree which exactly reversed the previous distribution of votes, three votes being assigned to the Bohemian nation and only one to all the rest. The Germans took deep umbrage, and seceded to Leipsic, where, a bull having been obtained from Alexander V. (September 9, 1409), a new "studium generale" was founded by the landgrave of Thuringia and the margraves of Meissen. Two

colleges were founded, a greater and a smaller, but designed, not for poor students, but for masters of arts—twelve being admitted on the former and eight on the latter foundation. The first university of northern Germany was that of Rostock, founded by the dukes John and Albert of Mecklenburg, the scheme receiving the sanction of Martin V. in a bull dated February 13, 1419, as that of a "studium generale" in all the faculties excepting theology. The faculty of theology was added in the year 1432. Two colleges were also founded, with the same design and on the same scale as at Leipzig.

No little illustration is afforded by the circumstances attending the foundation of the French Universities of the struggle that was going on between the crown and the Roman see. The earliest foundation in the fifteenth century was that of Poitiers. It was instituted by Charles VII. in 1431, almost immediately after his accession, with the special design of creating a center of learning less favorable to English interests than Paris had at that time shown herself to be. The foundation of the university of Caen, in the diocese of Bayeux, was attended by conditions almost exactly the reverse of those which belonged to the foundation of that at Poitiers. It was founded under English auspices during the short period of the supremacy of the English arms in Normandy in the fifteenth century. Its charter (May, 1437) was given by Eugenius IV., and the bishop of Bayeux was appointed its chancellor. On October 30, 1452, its charter was given afresh by Charles in terms which left the original charter unrecognized; both teachers and learners were made subject to the civil authorities of the city, while all privileges conferred in the former charter in cases of legal disputes were abolished. From this time the university of Caen was distinguished by its loyal spirit and firm resistance to ultramontane pretensions, and, although swept away at the French Revolution, it was afterward restored, owing to the sense of the services it had thus once rendered to the national cause. No especially notable circumstances characterize the foundation of the university of Bordeaux (1441) or that of Valence (1452), but that of Nantes, which received its charter from Pius II. in 1463, is distinguished by the fact that it did not receive the ratification of the king of France, and the conditions under which its earlier traditions were formed thus closely resemble those of Poitiers. The bull for the foundation of the university of Bourges was given in 1465 by Paul II., at the request of Louis XI. and his brother. It confers on the community the same privileges as those enjoyed by the other universities of France. The royal sanction was given at the petition of the citizens; but, from reasons which do not appear, they deemed it necessary further to petition that their charter might also be registered and enrolled by the *parlement* of Paris.

In Germany, the first of the universities representing new influences is that of Greifswald. A wealthy burgo-master, who had graduated as a master of arts at Rostock, was the chief mover; and, his proposal being cordially seconded by the city council, the duke of the province, and certain abbots of neighboring monasteries, the necessary bull was obtained from Calixtus III., (May 29, 1456.) The first session was commenced in October of the same year. Three colleges were at the same time founded—two for masters of arts, as at Leipzig and Rostock, and a third for jurists. The chairs in the different faculties were distributed as follows: theology three, jurisprudence five, medicine one, arts four—the number of jurists showing that the study of the civil law still obtained a certain preponderance. The university of Freiburg was founded by the archduke Albert, brother of the emperor Frederick III.—the papal bull being

given April 20, 1455, and the imperial ratification in the following year. In the same year, and probably in a spirit of direct rivalry, was opened the university of Basel. The cathedral school in that ancient city, together with others attached to the monasteries, afforded a sufficient nucleus for a "studium," and Pius II., who, as Aeneas Sylvius, had been a resident in the city, was easily prevailed upon to grant the charter (November 12, 1459). In the character of its endowments, and in the relative importance attached to the study of the civil law, Basel much resembled Greifswald, but its success throughout the fifteenth century was marred by the languid character of the support afforded it by the civic authorities. Before he had signed the bull for the foundation of the university of Basel, Pius II., at the request of duke William of Bavaria, had issued another bull for the foundation of a university at Ingolstadt (April 7, 1459). But it was not until 1472 that the work of teaching was actually commenced there.

The next two universities took their rise in the archiepiscopal seats of Treves and Mainz. That at Treves received its charter as early as 1450; but the first academical session did not commence until 1473. Here the ecclesiastical influences appear to have been unfavorable to the project. It was not until 1722 that the assembly of deputies, by a formal grant, relieved the university from the difficulties in which it had become involved. The university of Mainz, on the other hand, was almost entirely indebted to the archbishop Diether for its foundation. It was at his petition that Sixtus IV. granted the charter, November 23, 1476; and Diether, being himself an enthusiastic humanist, thereupon circulated a letter, couched in elegant Latinity, addressed to students throughout his diocese, inviting them to repair to the new center, and dilating on the advantages of academic studies and of learning. The rise of these two universities, however, neither of which attained to much distinction, represents little more than the incorporation of certain already existing institutions into a homogeneous whole, the power of conferring degrees being superadded. But the university of Tübingen, founded by charter of Sixtus IV. (November 9, 1476), represents an entirely new creation. Its real founder was Mathilda, the mother of Count Eberhard of Würtemberg, who appropriated five livings and eight prebends to the endowment. Of the chairs, three were for theology, three for the canon and two for the civil law, two for medicine, and four for arts. The general financial condition of this university in the year 1541–42 and the sources whence its revenues were derived, have been illustrated by Hoffmann in a short paper which shows the fluctuating character of the resources of a university in those days—liable to be affected, as they were, both by the seasons and the markets.

Nearly contemporaneous with these foundations were those of Upsala (1477) and Copenhagen (1479), which, although lying without the political boundaries of Germany, reflected her influence. The charter for Copenhagen was given by Sixtus IV. as early as 1475. The students attracted to this new center were mainly from within the radius of the university of Cologne, and its statutes were little more than a transcript of those of the latter foundation.

The electorates of Wittenberg and Brandenburg were now the only two considerable German territories which did not possess a studium generale, and the university founded at Wittenberg by Maximilian I. (July 6, 1502) is notable as the first established in Germany by virtue of an imperial as distinguished from a papal decree. Wittenberg is constituted a "studium generale" in all the four faculties—the right to confer degrees in theol-



ogy and canon law having been sanctioned by the papal legate some months before, February 2, 1502. No university in Germany attracted to itself a larger share of the attention of Europe at its commencement. And it was its distinguishing merit that it was the first academic center north of the Alps where the antiquated methods and barbarous Latinity of the scholastic era were overthrown. The last university founded in Germany prior to the Reformation was that of Frankfort-on-the-Oder. The design, first conceived by the elector John of Brandenburg, was carried into execution by his son Joachim, at whose request Pope Julius II. issued a bull for the foundation, March 15, 1506. An imperial charter, identical in its contents with the papal bull, followed on October 26th. The university received an endowment of canonries and livings similar to that of Wittenberg, and some houses in the city were assigned for its use by the elector.

The first university in Scotland was that of St. Andrews, founded in 1411 by Henry Wardlaw, bishop of that see, and modeled chiefly on the constitution of the university of Paris. It acquired all its three colleges—St. Salvator's, St. Leonard's, and St. Mary's—before the Reformation—the first having been founded in 1456 by Bishop James Kennedy; the second in 1512 by the youthful archbishop, Alexander Stuart (natural son of James IV.), and John Hepburn, the prior of the monastery of St. Andrews; and the third, also in 1512, by the Beaton, who in the year 1537 procured a bull from Pope Paul III. dedicating the college to the Blessed Virgin Mary of the Assumption, and adding further endowments. The most ancient of the Universities of Scotland, with its three colleges, was thus reared in an atmosphere of mediæval theology, and undoubtedly designed as a bulwark against heresy and schism. The university of Glasgow was founded as a "studium generale" in 1453, and possessed two colleges. Prior to the Reformation it acquired but little celebrity; its discipline was lax, and the number of the students but small, while the instruction was not only inefficient but irregularly given; no funds were provided for the maintenance of regular lectures in the higher faculties; and there was no adequate executive power for the maintenance of discipline. The university of Aberdeen, which was founded in 1494, at first possessed only one college—namely, King's. Marischal College, founded in 1593 by George Keith, fifth Earl Marischal, was constituted by its founder independent of the university in Old Aberdeen, being itself both a college and a university, with the power of conferring degrees. Bishop Elphinstone, the founder both of the university and of King's College (1505), had been educated at Glasgow, and had subsequently both studied and taught at Paris and at Orleans. But in all the mediæval universities of Germany, England, and Scotland, modeled as they were on a common type, the absence of adequate discipline was, in a greater or less degree, a common defect. In connection with this feature we may note the comparatively small percentage of matriculated students proceeding to the degrees of B.A. and M.A. when compared with later times.

The German universities in these times seem to have admitted for the most part their inferiority in learning to older and more favored centers; and their consciousness of the fact is shown by the efforts which they made to attract instructors from Italy, and by the frequent resort of the more ambitious students to schools like Paris, Bologna, Padua, and Pavia. At almost every university—Leipsic, Greifswald, and Prague (after 1409) being the principal exceptions—the so-called Realists and Nominalists represented two great parties occupied with an internecine struggle. At Paris, owing to the overwhelming strength of the theologians, the Nomi-

nalists were indeed under a kind of ban; but at Heidelberg they had altogether expelled their antagonists. It was much the same at Vienna and Erfurt—the latter, from the ready reception which it gave to new speculation, being styled by its enemies, *novorum omnium portus*. At Basel, under the leadership of the eminent Johannes a Lapide, the Realists with difficulty maintained their ground. Freiburg, Tübingen, and Ingolstadt, in the hope of diminishing controversy, arrived at a kind of compromise, each party having its own professor, and representing a distinct "nation." At Mainz the authorities adopted a manual of logic which was essentially an embodiment of Nominalistic principles.

In Italy, almost without exception, it was decided that these controversies were endless, and that their effects were pernicious. It was resolved, accordingly, to expel logic, and allow its place to be filled by rhetoric. It was by virtue of this decision, which was of a tacit rather than a formal character, that the expounders of the new learning in the fifteenth century, men like Emmanuel Chrysoloras, Guarino, Leonardo Bruni, Bessarion, Argyropoulos, and Valla, carried into effect that important revolution in academic studies which constitutes a new era in university learning, and largely helped to pave the way for the Reformation. The professorial body also attained to an almost unrivaled reputation. It was exceptionally select, only those who were in receipt of salaries being permitted, as a rule, to lecture; it was also famed for its ability, the institution of concurrent chairs proving an excellent stimulus. These chairs were of two kinds—"ordinary" and "extraordinary,"—the former being the more liberally endowed and fewer in number. The Reformation represents the great boundary line in the history of the mediæval universities, and also, for a long time after, the main influence in the history of those new foundations which subsequently arose in Protestant countries. Even in Catholic countries its secondary effects were scarcely less perceptible, as they found expression in connection with the Counter-Reformation. In Germany the Thirty Years' War was attended by consequences which were felt long after the seventeenth century. In France the Revolution of 1789 resulted in the actual uprooting of the university system.

The first Protestant university was that of Marburg, founded by Philip the Magnanimous, landgrave of Hesse, May 30, 1527. Expressly designed as a bulwark of Lutheranism, it was mainly built up out of the confiscation of the property of the religious orders in the Hessian capital. The house of the Dominicans, who had fled on the first rumor of spoliation, was converted into lecture-rooms for the faculty of jurisprudence. The church and convent of the order known as the "Kugelheirn" was appropriated to the theological faculty. The friary of the Barefooted Friars was shared between the faculties of medicine and philosophy. The university, which was the object of the margrave's peculiar care, rapidly rose to celebrity; it was resorted to by students from remote countries, even from Greece, and its professors were of distinguished ability. The Lutheran university of Königsberg was founded August 17, 1544, by Albert III., margrave of Brandenburg, and the first duke of Prussia, and his wife Dorothea, a Danish princess. In this instance, the religious character of the foundation not having been determined at the commencement, the papal and the imperial sanction were both applied for, although not accorded. King Sigismund of Poland, however, which kingdom exercised at that time a protectorate over the Prussian duchy, ultimately gave the necessary charter (September 29, 1561), at the same time ordaining that all students who graduated as masters in the



faculty of philosophy should rank as nobles of the Polish kingdom. When Prussia was raised to the rank of a kingdom (1701) the university was made a royal foundation, and the "collegium Fridericianum," which was then erected, received corresponding privileges. In 1862 the university buildings were rebuilt, and the number of the students is now nearly 1,000. The Lutheran university of Jena had its origin in a gymnasium founded by John Frederick the Magnanimous, elector of Saxony, during his imprisonment, for the express purpose of promoting Evangelical doctrines and repairing the loss of Wittenberg, where the Philipists had gained the ascendancy. Its charter, which the emperor Charles V. refused to grant, and which was obtained with some difficulty from his brother, Ferdinand I., eventually enabled the authorities to open the university February 2, 1558.

For a long time it was chiefly noted as a school of medicine, and, in the seventeenth and eighteenth centuries, it was in bad repute for the lawlessness of its students, among whom dueling prevailed to a scandalous extent. The beauty of its situation and the eminence of its professoriate have, however, generally attracted a considerable proportion of students from other countries. Its numbers, in 1885, were 566. The Lutheran university of Helmstädt, founded by Duke Julius (of the house of Brunswick-Wolfenbüttel), and designated after him in its official records as "Academia Julia," received its charter May 8, 1575, from the emperor Maximilian II. No university in the sixteenth century commenced under more favorable auspices. It was munificently endowed by the founder and by his son; and distinguished by its comparatively temperate maintenance of the Lutheran tenets, it attracted a considerable concourse of students, especially from the upper classes, not a few being of princely rank. Throughout its history, until suppressed in 1809, Helmstädt enjoyed the special and powerful patronage of the dukes of Saxony. The "Gymnasium Ægidianum" of Nuremberg, founded in 1526, and removed in 1575 to Altdorf, represents the origin of the university of Altdorf. A charter was granted, in 1578, by the emperor Rudolph II., and the university was formally opened in 1580. It was at first, however, empowered only to grant degrees in arts; but, in 1623, the emperor Ferdinand II. added the permission to create doctors of law and medicine, and also to confer crowns on poets; and, in 1697, its faculties were completed by the permission given by the emperor Leopold I. to create doctors of theology.

The conversion of Marburg into a school of Calvinistic doctrine gave occasion to the foundation of the universities of Giessen and of Rinteln. Of these the former, founded by the margrave of Darmstadt, Louis V., as a kind of refuge for the Lutheran professors from Marburg, received its charter from the emperor Rudolph II., May 19, 1607. When, however, the margraves of Darmstadt acquired possession of Marburg, in 1625, the university was transferred thither; in 1650 it was moved back again to Giessen. The number of matriculated students at the commencement of the century was about 250; in 1887 it was 484. The university of Rinteln was founded July 17, 1621, by the emperor Ferdinand II. Almost immediately after its foundation it became the prey of contending parties in the Thirty Years' War, and its early development was thus materially hindered. It never, however, attained to much distinction, and in 1819 it was suppressed. The university of Strasburg was founded in 1621 on the basis of an already existing academy, to which the celebrated John Sturm stood, during the latter part of his life, in the relation of *rector perpetuus*, and of which we

are told that in 1578 it included more than a thousand scholars, among whom were 200 of the nobility, twenty-four counts and barons, and three princes. It also attracted students from all parts of Europe, and especially from Portugal, Poland, Denmark, France, and England. The method of Sturm's teaching became the basis of that of the Jesuits, and, through them, of the public school instruction in England. In 1621 Ferdinand II. conferred on this academy full privileges as a university. It 1681 Strasburg became French, and remained so until 1870. The university of Dorpat (now Russian) was founded by Gustavus Adolphus in 1632 and reconstituted by the emperor Alexander I. in 1802. A special interest attaches to this university from the fact that it has for a long time been the scene of the contending influences of Teutonism and Slavonianism.

The study of the Slavonic languages has here received considerable stimulus, and by a decree in May, 1887, the use of the Russian language having been made obligatory in all places of instruction through the Baltic provinces, Russian has now taken the place of German as the language of the lecture-room. Dorpat possesses a fine library of over 80,000 volumes, and is also noted for its admirable botanical collection. The general influence of the university has been rapidly extending during the last few years far beyond the Baltic provinces. The number of students, which in 1879 was 1,106, in 1886 was 1,751. A like contest between contending nationalities has recently met with a final solution at Prague, where a Czech university has been established on an independent basis, the German university having commenced its separate career in the winter session of 1882-83. The German foundation retains its endowments, but the state subvention is divided between the two.

The repudiation on the part of the Protestant universities of both papal and episcopal authority evoked a counter-demonstration among those centers which still adhered to Catholicism. It was on the tide of this reaction, aided by their own skill and sagacity, that the Jesuits were borne to that commanding position which made them for a time the arbiters of education in Europe. The earliest university whose charter represented this reaction was that of Bamberg, founded by the prince-bishop Melchior Otto, after whom it was named "Academia Ottoniana." It was opened September 1, 1648, and received both from the emperor Frederick III. and Pope Innocent X. all the civil and ecclesiastical privileges of a mediæval foundation. At first, however, it comprised only the faculties of arts and of theology; to these were added in 1729 that of jurisprudence, and in 1764 that of medicine. In this latter faculty Dr. Ignatius Döllinger (the father of the historian) was for a long time a distinguished professor. The university of Innsbruck was founded in 1672 by the emperor Leopold I., from whom it received its name of "Academia Leopoldina." In the following century, under the patronage of the empress Maria Theresa, it made considerable progress, and received from her its ancient library and bookshelves in 1745. In 1886 the number of professors was 74, and of students 869. The foundation of the university of Breslau was contemplated as early as the year 1505, but Pope Julius II., in the assumed interests of Cracow, withheld his assent. Nearly two centuries later, in 1702, the Jesuits prevailed upon the emperor Leopold I. to found a university without soliciting the papal sanction. When Frederick the Great conquered Silesia in 1741, he took both the university and the Jesuits in Breslau under his protection, and when in 1774 the order was suppressed by Clement XIV. he established them as priests in the Royal Scholastic Institute, at the same time giving new stat-



utes to the university. In 1811 the university was considerably augmented by the incorporation of that at Frankfort-on-the-Oder. At the present time it possesses both a Catholic and a Lutheran faculty. Its faculty is in high repute. The total number of students in 1887 was 1,347. In no country was the influence of the Jesuits on the universities more marked than in France.

Their schools arose at Toulouse and Bordeaux, at Auch, Agen, Rhodéz, Périgueux, Limoges, Le Puy, Aubenas, Béziers, Tournon, in the colleges of Flanders and Lorraine, Douai and Pont-à-Mousson—places beyond the jurisdiction of the *parlement* of Paris or even of the crown of France. The university was rescued from the fate which seemed to threaten it only by the excellent statutes given by Richer in 1598, and by the discerning protection extended to it by Henry IV.

The "college of Edinburgh" was founded by charter of James VI., dated April 14, 1582. Its first course of instruction was commenced in the Kirk of Field, under the direction of Robert Rollock, who had been educated at St. Andrews under Andrew Melville, the eminent Covenanter. In 1585 both Rollock and Nairne subscribed the National Covenant, and a like subscription was from that time required from all who were admitted to degrees in the college.

In the year 1693 the foundation of the university of Halle opened up a career to two very eminent men, whose influence, widely different as was its character, may be compared for its effects with that of Luther and Melancthon, and served to modify the whole current of German philosophy and German theology, Christian Thomasius and A. H. Francke. Thomasius and Francke had both been driven from Leipsic owing to the disfavor with which their liberal and progressive tendencies were there regarded by the academic authorities, and on many points the two teachers were in agreement. It was the aim of Thomasius, as far as possible, to secularize education, and to introduce among his countrymen French habits and French modes of thought; Francke, who became the leader of the Pietists, was shocked at the worldly tone and disregard for sacred things which characterized his brother professor. Both, however, commanded a considerable following among the students. Thomasius was professor in the faculty of jurisprudence, Francke in that of theology. And it was a common prediction in those days with respect to a student who proposed to pursue his academic career at Halle, that he would infallibly become either an atheist or a Pietist. But the services rendered by Thomasius to learning were genuine and lasting. He was the first to set the example, soon after followed by all the universities of Germany, of lecturing in the vernacular instead of in the customary Latin; and the discourse in which he first departed from the traditional method was devoted to the consideration of how far the German nation might with advantage imitate the French in matters of social life and intercourse. On the influence of Francke, as the founder of that Pietistic school with which the reputation of Halle afterward became especially identified, it is unnecessary here to dilate. J. C. Wolf, who followed Thomasius as an assertor of the new culture, was driven from Halle by the accusations of the Pietists, who declared that his teaching was fraught with atheistical principles. In 1740, however, he was recalled by Frederick II., and reinstated in high office with every mark of consideration and respect. Throughout the whole of the eighteenth century Halle was the leader of academic thought and culture in Protestant Germany, although sharing that leadership, after the middle of the century, with Göttingen. The university of Göttingen (named after its founder "Georgia Augusta") was endowed with the

amplest privileges as a university by George II. of England, elector of Hanover, December 7, 1736, and was formally opened September 17, 1737. The king himself assumed the office of "rector magnificentissimus," and the liberality of the royal endowments (doubling those of Halle), and the not less liberal character of the spirit that pervaded its organization, soon raised it to a foremost place among the schools of Germany. Halle had just expelled Wolf; and Göttingen, modeled on the same lines as Halle, but rejecting its Pietism and disclaiming its intolerance, appealed with remarkable success to the most enlightened feeling of the time. It included all the faculties, and two of its first professors—Mosheim, the eminent theologian, from Helmstadt, and Böhmer, the no less distinguished jurist, from Halle—together with Gesner, the man of letters, at once established its reputation.

Not least among its attractions was also its splendid library, located in an ancient monastery, and now containing over 200,000 volumes and 5,000 MSS. In addition to its general influence as a distinguished seat of learning, Göttingen may claim to have been mainly instrumental in diffusing a more adequate conception of the importance of the study of history. The labors of the professors at Göttingen, especially Putter, Gatterer, Schlözer, and Spittler, combined with those of Moscow at Leipsic, did much toward promoting both a more catholic treatment and a wider scope. Not less beneficial was the example set at Göttingen of securing the appointment of its professors by a less prejudiced and partial body than a university board is only too likely to become. The system of patronage adopted at Göttingen was, in fact, identical with that which had already been instituted in the universities of the Netherlands by Douza. The university of Erlangen, a Lutheran center, was founded by Frederick, margrave of Baireuth. Its charter was granted by the emperor Charles VII., February 21, 1743, and the university was formally constituted November 4th. From its special guardian, Alexander, the last margrave of Ansbach, it was styled "Academia Alexandrina." In 1791, Ansbach and Baireuth having passed into the possession of Prussia, Erlangen became subject to the Prussian Government. The number of the students, which at the commencement of the century was under 300, was 880 in 1887.

The political storms which marked the close of the last and the commencement of the present century gave the death-blow to not a few of the ancient universities of Germany. Mainz and Cologne ceased to exist in 1798, Bamberg, Dillingen, and Duisberg in 1804; Rinteln and Helmstadt in 1809; Salzburg in 1810; Erfurt in 1816. Altdorf was united to Erlangen in 1807, Frankfort-on-the-Oder to Breslau in 1809, and Wittenberg to Halle in 1815. The university of Ingolstadt was first moved in 1802 to Landshut, and thence in 1826 to Munich, where it was united to the academy of sciences which was founded in the Bavarian capital in 1759. What ever loss may have attended their suppression has been far more than compensated by the activity and influence of the three great German universities which have risen in the present century. Munich has become a distinguished center of study in all the faculties; and its numbers, allowing for the two great wars, have been continuously on the increase. The number of its professors in 1887 was over ninety, and that of its students at the commencement of the session 1886-87 3,209. The university of Berlin, known as the Royal Friedrich Wilhelm university, was founded in 1809, immediately after the peace of Tilsit, when Prussia had been reduced to the level of a third-rate power. Under the guiding influence of Wilhelm von Humboldt, however, the principles

which were adopted in connection with the new seat of learning not only raised it to a foremost place among the universities of Europe, but also largely conduced to the regeneration of Germany. Its subsequent growth was astonishing. In 1813 Berlin had only thirty-six teachers altogether; in 1860 there were 173 in all—ninety-seven professors, sixty-six privatdozenten, and seven lecturers. In 1886 there were 296 teachers and 5,357 students; and among the former a large proportion of the names are already of world-wide reputation, while its classical school stands unrivaled in Europe. The university of Bonn, founded in 1818, and known as the Rhenish Friedrich Wilhelm university, has eighty-eight professors and 1,125 students. Equally distinguished as a school of philosophy and a school of theology, it is notable for the manner in which it combines the opposed schools of theological doctrine—that of the Evangelical (or Lutheran) Church and that of the Roman Catholic Church here standing side by side, and both adorned by eminent names. This combination (which also exists at Tübingen and at Breslau) has been attended with complete success and (according to Doctor Döllinger) with unmistakable advantages. When tried, however, a generation before, at Erfurt and at Heidelberg, its failure was not less conspicuous, and Erfurt was ruined by the experiment.

Doctor Conrad, professor of political science at Halle, has recently made the statistics relating to the German universities the subject of a careful investigation and analysis, which offer some interesting results. The total cost of the universities of the German empire is shown to be much smaller than the total revenues of the English universities and colleges, although the number both of professors and students is much larger, and although 42 per cent. of the total expenditure is upon establishments, such as hospitals, museums and so forth. But in Germany 72 per cent. of the cost of the universities is defrayed by the state, the students paying, in the shape of fees, only 9.3 per cent. To a great extent, however, the German universities are to be looked upon as professional schools, giving an education which directly fits a man to earn his bread as a clergyman, a lawyer, a judge, a physician, a schoolmaster, a chemist, an engineer, or an agriculturist. Notwithstanding the rapid growth in the numbers of the students, the growth of the professoriate has fully kept pace with it.

The universities of the United Provinces, like those of Protestant Germany, were founded by the state as schools for the maintenance of the principles of the Reformation. The earliest, that of Leyden, founded in 1575, commemorated the gallant and successful resistance of the citizens to the Spanish fleet under Requesens. Throughout the seventeenth century Leyden was distinguished by its learning, the ability of its professors, and the shelter it afforded to the more liberal thought associated at that period with Arminianism. Much of its early success was owing to the wise provisions and the influence of the celebrated Janus Douza. The university of Franeker was founded in 1585 on a somewhat less liberal basis than Leyden. Its four faculties were those of theology, jurisprudence, medicine, and "the three languages and the liberal arts."

With like organization were founded—in 1600 the university of Harderwijk, in 1614 that of Groningen, and in 1634 that of Utrecht. The restoration of the House of Orange, and establishment of the kingdom of the Netherlands (March 23, 1815), was followed by important changes in connection with the whole kingdom. The universities of Franeker and Harderwijk were suppressed, while their place was taken by the newly-founded centers at Ghent (1816) and Liège (1816). After the redivision of the kingdom in 1831, Ghent and

Liège were constituted state universities, and each received a subsidy from the government (see BELGIUM). The university of Brussels, founded in 1834, is an independent institution, supported by the liberal party, while the reconstituted university at Louvain represents the party of Roman Catholicism, and is almost exclusively a theological school for the education of the Catholic clergy. In Holland, the foundation of the university of Amsterdam (1877) has more than repaired the loss of Franeker and Harderwijk, and the progress of this new center during the ten years of its existence has been remarkably rapid, so that it bids fair to rival, if not to outstrip, both Utrecht and Leyden. The higher education of women has made some progress in the Netherlands; and in 1882-83 there were eighteen women studying at Amsterdam, eleven at Groningen, four at Leyden, and seven at Utrecht. In Sweden the university of Lund, founded in 1668 and modeled on the same plan as its predecessor at Upsala, has adhered to its antiquated constitution with remarkable tenacity. The university of Christiania in Norway, founded in 1811, and the Swedish universities are strongly Lutheran in character; and all alike are closely associated with the ecclesiastical institutions of the Scandinavian kingdoms. The same observation applies to Copenhagen. The university of Kiel (1665), on the other hand, has come much more under Teutonic influences, and is now a distinguished center of scientific teaching.

In France the fortunes of academic learning were even less happy than in Germany. The university of Paris was distracted throughout the seventeenth century by theological dissensions. Its studies, discipline, and numbers alike suffered. Toward the close of the century a certain revival took place, and a succession of illustrious names appear on the roll of its teachers. But this improvement was soon interrupted by the controversies excited by the promulgation of the bull *Unigenitus* in 1713, condemning the tenets of Quesnel, when Rollin himself, although a man of singularly pacific disposition, deemed it his duty to head the opposition to Clement XI. and the French episcopate. At last, in 1762, the *parlement* of Paris issued a decree (August 6th) placing the colleges of the Jesuits at the disposal of the university, and this was immediately followed by another for the expulsion of the order from Paris. Concurrently with this measure the prospects of the university assumed a more favorable character, the curriculum of its studies was extended, and both history and natural science began to be cultivated with a certain success. These better prospects were, however, soon obscured by the outbreak of the Revolution; and on September 15, 1793, the universities and colleges throughout France, together with the faculties of theology, medicine, jurisprudence, and arts, were abolished by a decree of the Convention.

In Switzerland all the higher education is supported mainly by the German and Protestant cantons. The four universities of Basel, Bern, Zurich, and Geneva have an aggregate of some 1,400 or 1,500 students, and all possess faculties of philosophy, jurisprudence, theology, and medicine. Basel is, however, the chief center for theology, as is Bern for jurisprudence and Zurich for philosophy.

Switzerland almost takes the lead in connection with female education on the Continent, and in 1882-83 there were fifty-two women at the university of Geneva, thirty-six at Bern, and twenty-four at Zurich. In Spain the universities at present existing are those of Barcelona, Granada, Madrid (transferred in 1837 from Alcalá), Oviedo, Salamanca, Santiago, Seville, Valencia, Valladolid, and Zaragoza. They are all, with the exception perhaps of Madrid, in a lamentably depressed



condition, and mainly under the influence of French ideas and modeled on French examples. But in Portugal, Coimbra, which narrowly escaped suppression in the sixteenth century as a suspected center of political disaffection, is now a flourishing school. Its instruction is given gratis; but it is one of the most aristocratic schools in Europe. There are five faculties, viz., theology, jurisprudence, medicine, mathematics, and philosophy. Of these, that of law is by far the most flourishing, the number of students in this faculty nearly equalling the aggregate of all the rest. There is a valuable library, largely composed of collections formerly belonging to suppressed convents. In Italy the universities are numerically much in excess of the requirements of the population, there being no less than sixteen state universities and four free universities. Education for the church is almost entirely given at the numerous "seminaries," where it is of an almost entirely elementary character. In 1875 a laudable effort was made by Bonghi, the minister of education, to introduce reforms and to assimilate the universities in their organization and methods to the German type.

In Austria the universities, being modeled on the same system as that of Prussia, present no especially noteworthy features. Vienna is chiefly distinguished for its school of medicine, which enjoyed in the last century a reputation almost unrivaled in Europe. The number of the matriculated students in 1887 was 4,893, and that of the professors 138. The university of Olmütz, founded in 1581, was formerly in possession of what is now the imperial library, and contained also a valuable collection of Slavonic works which were carried off by the Swedes and ultimately dispersed. It was suppressed in 1853, and is now represented only by a theological faculty. The university of Graz, the capital of Styria, was founded in 1586, and is now one of the most flourishing centers, containing some 1,200 students. The university of Salzburg, founded in 1623, was suppressed in 1810; that of Lemberg, founded in 1784 by the emperor Joseph II., was removed in 1805 to Cracow and united to that university. In 1816 it was opened on an independent basis. In the bombardment of the town in 1848 the university buildings were burnt down, and the site was changed to what was formerly a Jesuit convent. The fine library and natural history museum were at the same time almost entirely destroyed. The university at the present time numbers over 1,000 students. The most recent foundation is that of Czernowitz, founded in 1875, and numbering about 300 students. The universities of the Hungarian kingdom are three in number—Budapest, originally founded at Tynau in 1635, now possessing four faculties, theology, jurisprudence, medicine, and philosophy (number of professors in 1885 180, students 3,117); Kolozsvár (Klausenburg), now the chief Magyar center, founded in 1872, and also comprising four faculties, but where mathematics and natural science supply the place of theology (number of professors in 1877 64, students 391); Zágráb (Agram), the Slovak university, in Croatia, founded in 1869, but not opened until 1874, with three faculties, viz., jurisprudence, theology, and philosophy. The chief center of Protestant education is the college at Debreczin, founded in 1531, which in past times was not infrequently subsidized from England. It now numbers over 2,000 students, and possesses a fine library.

Russia possesses, besides Dorpat, seven other universities. (1) Helsingfors, in Finland, was originally established by Queen Christina in Abo (1640), and removed in 1826 to Helsingfors, where the original charter, signed by the celebrated Oxenstierna, is still preserved. It has four faculties, thirty-eight professors,

and 700 students. (2) Moscow is really the oldest Russian university, having been founded in 1755; it includes the faculties of history, physics, jurisprudence, and medicine; the professors are sixty-nine in number, the students about 1,660. (3) The university of St. Vladimir at Kieff, originally founded at Vilna in 1803, was removed thence to Kieff in 1833; the students number about 900, and the library contains 107,000 volumes. (4) Kazan (1804) includes the same faculties as Moscow; the students are about 450 in number, and it has a library containing 80,000 volumes. (5) Kharkoff (1804) numbers 600 students, and its library 55,000 volumes. (6) St. Petersburg (1819) includes the four faculties of history, physics, jurisprudence, and Oriental languages, and numbers 1,500 students. (7) Odessa, founded in 1865, represents the university of New Russia. Generally speaking, the universities of Russia are not frequented by the aristocratic classes; they are largely subsidized by the government, and the annual fees payable by students are less than \$35 a head. The university of Athens (founded May 22, 1837) is modeled on the university systems of northern Germany, on a plan originally devised by Professor Brandis. It includes four faculties, viz., theology, jurisprudence, medicine, and philosophy. The professors (ordinary and extraordinary) are upward of sixty in number, the students about 1,500. There is also a school of pharmacy, chemistry, and anatomy, and a library of 130,000 volumes, with 800 manuscripts.

The history of the two English universities during the sixteenth and following centuries has presented, for the most part, features which contrast strongly with those of the Continental seats of learning. Both suffered severely from confiscation of their lands and revenues during the period of the Reformation, but otherwise have generally enjoyed a remarkable immunity from the worst consequences of civil and political strife and actual warfare. Both long remained centers chiefly of theological teaching, but their intimate connection at once with the state and with the Church of England, as "by law established," and the modifications introduced into their constitutions, prevented their becoming arenas of fierce polemical contentions like those which distracted the Protestant universities of Germany. The influence of the Renaissance, and the teaching of Erasmus, who resided for some time at both universities, exercised a notable effect alike at Oxford and at Cambridge. The labors of Erasmus at Cambridge, as the author of a new Latin version of the New Testament, with the design of placing in the hands of students a text free from the errors of the Vulgate, were productive of important effects, and the university became a center of Reformation doctrine some years before the writings of Luther became known in England. The foundation of Christ's College (1505) and St. John's College (1511), through the influence of Fisher with the countess of Richmond, also materially aided the general progress of learning at Cambridge. The royal injunctions of 1535, embodying the views and designs of Thomas Cromwell, mark the downfall of the old scholastic methods of study at both universities; and the foundation of Trinity College, Cambridge, in 1546 (partly by an amalgamation of two older societies), represents the earliest conception of such an institution in England in complete independence of Roman Catholic traditions. Trinity (1554) and St. John's (1555) at Oxford, on the other hand, founded during the reactionary reign of Mary, serve rather as examples of a transitional period.

In the reign of Elizabeth, Cambridge became the center of another great movement—that of the earlier Puritanism, St. John's and Queens' being the strongholds of the party led by Cartwright. Walter Travers,

and others. But the movement continued to gather strength; and Emmanuel College, founded in 1584, owed much of its early prosperity to the fact that it was a known school of Puritan doctrine. Most of the Puritans objected to the discipline enforced by the university and ordinary college statutes—especially the wearing of the cap and the surplice and the conferring of degrees in divinity. The Anglican party, headed by such men as Whitgift and Bancroft, resorted in defense to a repressive policy, of which subscription to the Acts of Supremacy and Uniformity, and the Elizabethan statutes of 1570 were the most notable results. Oxford, although the Puritans were there headed by Leicester, the chancellor, devised at the same time a similar scheme, the rigid discipline of which was further developed in the Laudian or Caroline statutes of 1636. It was under these respective codes—the Elizabethan statutes of 1570 and the Laudian statutes of 1636—that the two universities were governed until the introduction of the new codes of 1858.

During the seventeenth century Cambridge became the center of another movement, a reflex of the influence of the Cartesian philosophy, which attracted for a time considerable attention. Its leaders, known as the Cambridge Platonists, were men of high character and great learning, although too much under the influence of an ill-restrained enthusiasm and purely speculative doctrines. The spread of the Baconian philosophy, and the example of a succession of eminent scientific thinkers, began to render the exact sciences more and more an object of study, and the institution of the tripos examinations in the course of the first half of the eighteenth century established the reputation of Cambridge as a school of mathematical science. At Oxford, where no similar development took place, and where the statutable requirements with respect to study and exercises were suffered to fall into neglect, the degeneracy of the whole community as a school of academic culture is attested by evidence too emphatic to be gainsaid. The moral tone at both universities was at this time singularly low; and the rise of Methodism, as associated with the names of the two Wesleys and Whitefield at Oxford and that of Berridge at Cambridge, operated with greater effect upon the nation at large than on either of the two centers where it had its origin. With the advance of the present century, however, a perceptible change took place. The labors of Simeon at Cambridge, in connection with the Evangelical party, and the far more celebrated movement known as Tractarianism, at Oxford, exercised considerable influence in developing a more thoughtful spirit at either university. At both centers, also, the range of studies was extended: written examinations took the place of the often merely formal *viva voce* ceremonies; at Cambridge classics were raised in 1824 to the dignity of a new tripos. The number of the students at both universities was largely augmented. Further schemes of improvement were put forward and discussed, and in 1850 it was decided by the government to appoint commissioners to inquire what additional reforms might advantageously be introduced. In 1869 a statute was enacted at Cambridge admitting students as members of the university without making it imperative that they should be entered at any hall or college, but simply be resident either with their parents or in duly licensed lodgings. The entire abolition of tests followed next. After several rejections in parliament it was eventually carried as a government measure, and passed the House of Lords in 1871.

In 1877 the reports of two new commissions were followed by further changes, the chief features of which were the diversion of a certain proportion of the revenues of the colleges to the uses of the university,

especially with a view to the encouragement of studies in natural science; the enforcement of general and uniform regulations with respect to the salaries, selection, and duties of professors, lecturers and examiners; the abolition (with a few exceptions) of all clerical restrictions on headships or fellowships; and the limitation of fellowships to a uniform amount. That these successive and fundamental changes have, on the whole, been in unison with the national wishes and requirements may fairly be inferred from the remarkable increase in numbers during the last quarter of a century, and especially at Cambridge, where the number of undergraduates, which in 1862 was 1,526, was in 1887 no less than 2,979. In the academic year 1886-87 the number of matriculations was 448, and in 1886-87 1,009.

So long ago as the year 1640 an endeavor had been made to bring about the foundation of a northern university for the benefit of the counties remote from Oxford and Cambridge. Manchester and York both petitioned to be made the seat of the new center. Cromwell, however, rejected both petitions, and decided in favor of Durham. Here he founded the university of Durham (1657), endowing it with the sequestered revenues of the dean and chapter of the cathedral, and entitling the society "The Mentor or Provost, Fellows, and Scholars of the College of Durham, of the foundation of Oliver, etc." This scheme was canceled at the Restoration, and not revived until the present century; July 4, 1832, a bill for the foundation of a university at Durham received the royal assent, the dean and chapter being thereby empowered to appropriate an estate at South Shields for the establishment and maintenance of a university for the advancement of learning. A college, modeled on the plan of those at the older universities, and designated University College, Durham, was founded in 1837, Bishop Hatfield's Hall in 1846, and Bishop Cosin's Hall (which no longer exists) in 1851. The university includes all the faculties, and in 1865 there was added to the faculty of arts a school of physical science, including pure and applied mathematics, chemistry, geology, mining, engineering, etc. In 1871 the corporation of the university, in conjunction with some of the leading landed proprietors in the adjacent counties, gave further extension to this design by the foundation of a college of physical science at Newcastle-upon-Tyne, designed to teach scientific principles in their application to engineering, mining, manufactures, and agriculture. Students who had passed the required examinations were made admissible as associates in physical science of the university. There is also a medical college which stands in similar relations to Durham, of which university Codrington College, Barbados, and Fourah Bay College, Sierra Leone, are likewise affiliated colleges.

The university of London had its origin in a movement initiated in the year 1825 by Thomas Campbell, the poet, in conjunction with Henry (afterward Lord) Brougham, Mr. (afterward Sir) Isaac Lyon Goldsmid, Joseph Hume, and some influential Dissenters, most of them connected with the congregation of Doctor Cox of Hackney. The first council, appointed December, 1825, comprised names representative of nearly all the religious denominations, including (besides those above mentioned) Zachary Macaulay, George Grote, James Mill, William Tooke, Lord Dudley and Ward, Dr. Olinthus Gregory, Lord Lansdowne, Lord John Russell, and the duke of Norfolk. On February 11, 1826, the deed of settlement was drawn up; and in the course of the year seven acres, constituting the site of University College, were purchased, the foundation stone of the new buildings being laid by the duke of Sussex April 30, 1827.



The course of instruction was designed to include "languages, mathematics, physics, the mental and the moral sciences, together with the laws of England, history, and political economy, and the various branches of knowledge which are the objects of medical education." In October, 1828, the college was opened as the university of London. But in the meantime a certain section of the supporters of the movement, while satisfied as to the essential soundness of the primary design as a development of national education, entertained considerable scruples as to the propriety of altogether disassociating such an institution from the national church. This feeling found expression in the foundation and incorporation of King's College (August 14, 1829), opened October 8, 1831, and designed to combine with the original plan instruction in "the doctrines and duties of Christianity, as the same are inculcated by the United Church of England and Ireland." This new phase of the movement was so far successful that in 1836 it was deemed expedient to disassociate the university of London from University College as a "teaching body," and to limit its action simply to the institution of examinations and the conferring of degrees—the college itself receiving a new charter, and being thenceforth designated as University College, London, while the rival institution was also incorporated with the university, and was thenceforth known as King's College, London. The charters of the University of London and of University College, London, were signed on the same day, November 28, 1836. In 1869 both the colleges gave their adhesion to the movement for the higher education of women which had been initiated elsewhere, and in 1880 ladies were for the first time admitted to degrees. The wisdom of the movement has been fully justified by the high grade of scholarship which the female graduates have maintained.

The Victoria University was founded March 12, 1851, for the purpose of affording to students who were unable, on the ground of expense, to resort to Oxford or Cambridge an education of an equally high class with that given at those centers. The institution was, from the first, unsectarian in character. In July, 1877, a memorial was presented to the privy council praying for the grant of a charter to the college, conferring on it the rank of a university, to be called the "university of Manchester." The localization implied in this title having met with opposition from the Yorkshire College at Leeds, it was resolved that the university should be called the "Victoria University." Under this name the foundation received its charter April 20, 1880. "The characteristic features of the Victoria University, as compared with other British universities, are these:—(a) it does not, like London, confer its degrees on candidates who have passed certain examinations only, but it also requires attendance on prescribed courses of academic study in a college of the university; (b) the constitution of the university contemplates its (ultimately) becoming a federation of colleges; but these colleges will not be situated, like those of Oxford and Cambridge, in one town, but wherever a college of adequate efficiency and stability shall have arisen. University College, Liverpool, and the Yorkshire College, Leeds, having fulfilled these requirements, have become affiliated with the university. Like the Johns Hopkins University in America, the Victoria University has instituted certain fellowships (styled the Berkeley fellowships) for the encouragement of research.

In Scotland the chief change to be noted in connection with the university of St. Andrews is the appropriation, in 1579, of the two colleges of St. Salvador and St. Leonard to the faculty of philosophy, and that of St. Mary to theology. In 1747 an Act of Parliament was obtained for the union of the two former colleges

into one. Glasgow, in the year 1577, received a new charter, and its history from that date down to the Restoration was one of almost continuous progress. The restoration of Episcopacy, however, involved the alienation of a considerable portion of its revenues, and the consequent suspension of several of its chairs. In 1864 the old university buildings were sold, and, a government grant having been obtained, together with private subscriptions, the present new buildings were erected from the joint fund. The faculties now recognized at Glasgow are those of arts, theology, jurisprudence, and medicine. At Aberdeen an amalgamation, similar to that at St. Andrews, took place, by virtue of the Universities Act of 1858, of the two universities of King's College and Marischal College. In conjunction with Glasgow, this university returns a member to parliament. The great landmark in the history of the Scottish, as in that of the English universities, is represented by the remodeling of the several constitutions of these bodies in the year 1858. The commissioners of 1858-62 left the University of Edinburgh in the possession of constitutional autonomy, with its studies and degrees regulated by ordinances. The students also received the rectorial franchise, but were not, as at Glasgow and Aberdeen, divided into nations. In arts the B.A. degree was abolished, the M.A. representing the only degree in this faculty, as at the other Scottish universities. The course of study was divided into three departments:—(1) classics; (2) mathematics, including natural philosophy; (3) mental science and English literature.

In the twenty years beginning with 1863, 1,400 M.A. degrees were conferred, as against 250 in the twenty years preceding. In the faculty of medicine, the original single degree of doctor of medicine gave place to three classes—bachelor of medicine (M.B.), master in surgery (C.M.) and doctor of medicine (M.D.). In 1866 it was further laid down that theses should no longer be demanded from candidates for the lower degrees of M.B. and C.M., and, on the other hand, that the degree of M.D. should not be conferred on persons not showing any evidence of medical study after leaving the university, but that a thesis should be invariably required. Since the enactment of these ordinances the number of the medical students has increased from about 500 to over 1,700. In the faculty of law the title of the degree was to be LL.B., and it was to be conferred only on those who had already graduated as M.A. But the minor degree, that of "bachelor of law" (B.L.), might be conferred if the candidate had attended one course of lectures in the faculty of arts, and passed a preliminary examination in (1) Latin, (2) Greek, French or German, and (3) any two of the three subjects—logic, moral philosophy, and mathematics. The chair of public law was reconstituted, and the chair of universal civil history was converted into a professorship of history and constitutional law. Chairs of Sanskrit, engineering, geology, commercial and political economy, education, fine art, and the Celtic languages have also been founded. By the Representation of the People (Scotland) Act, 1868, the universities of Edinburgh and St. Andrews were empowered to return jointly a member to the House of Commons. A parliamentary return for the ten years ending March 30, 1883, showed that the sums voted annually by parliament or chargeable on the consolidated fund to the four universities had amounted during that period to £329,105 for Aberdeen, £425,000 for Edinburgh, £330,000 for Glasgow, and £190,555 for St. Andrews. In addition to these sums Edinburgh had received \$400,000 and Glasgow \$100,000 in the form of special grants in aid.

The following table contains the name, location, and religious denomination of American universities, on January 1, 1902, together with the number of instructors and students:

College Name.	Location.	Religious Denomination.	No. of Instructors.	No. of Students.	College Name.	Location.	Religious Denomination.	No. of Instructors.	No. of Students.
Allegheny	Meadville, Pa.	Me. Epis.	18	323	Oberlin	Oberlin, O.	Non-Sec.	84	1,357
Amherst	Amherst, Mass.	Non-Sec.	36	410	Ohio State Univ.	Columbus, O.	Non-Sec.	130	1,465
Antioch	Yellow Springs, O.	Non-Sec.	12	118	Ohio University	Athens, Ohio	Non-Sec.	26	405
Bates	Lewiston, Me.	Free Bap.	23	330	Ohio Wesleyan U.	Delaware, O.	Me. Epis.	115	1,358
Baylor Univ.	Waco, Tex.	Baptist	47	936	Oregon Agri. Col.	Corvallis, Ore.	Non-Sec.	28	502
Berea	Berea, Ky.	Non-Sec.	33	825	Ottawa Univ.	Ottawa, Kan.	Baptist	23	603
Bethany	Lindsborg, Kan.	Luth. ran	30	700	Pennsylvania	Gettysburg, Pa.	Luth. ran	16	276
Boston University	Boston, Mass.	Me. Epis.	144	1,350	Princeton Univ.	Princeton, N. J.	Non-Sec.	102	1,340
Bowdoin	Brunswick, Me.	Cong.	40	360	Radcliffe	Cambridge, Mass.	Non-Sec.	112	435
Brown University	Providence, R. I.	Non-Sec.	75	899	Randolph-Macon.	Lynchburg, Va.	Metho't	23	276
Bryn Mawr	Bryn Mawr, Pa.	Non-Sec.	44	417	Roanoke	Salem, Va.	Luth. ran	10	195
Canisius	Buffalo, N. Y.	R. Cath.	32	285	Rollins	Winter Park, Fla.	Non-Sec.	29	179
Case Sc. App'l Sci.	Cleveland, O.	Non-Sec.	24	350	Rutgers	N. Brunswick, N. J.	Non-Sec.	29	222
Cath'lic Univ. Am.	Washington, D. C.	R. Cath.	27	150	Seton Hall	South Orange, N. J.	R. Cath.	22	150
Central Univ.	Danville, Ky.	Presb.	112	1,280	Shaw University	Raleigh, N. C.	Baptist	28	578
Charleston	Charleston, S. C.	Non-Sec.	7	58	Simpson	Indianola, Iowa	Me. Epis.	32	629
Clark University	Atlanta, Ga.	Me. Epis.	21	550	Smith	N'hampton Mass.	Non-Sec.	83	1,043
Colby	Waterville, Me.	Baptist	14	180	S'thwest'n Bap. U.	Jackson, Tenn.	Baptist	23	376
Coll. City of N. Y.	Man'h'n Boro, N.Y.	Non-Sec.	80	2,126	Stan'd Leland, Jr.	Palo Alto, Cal.	Non-Sec.	115	1,378
Columbia Univ.	Man'h'n Boro, N.Y.	Non-Sec.	384	4,036	State Col. of Ky.	Lexington, Ky.	Non-Sec.	38	620
Columbian Univ.	Washington, D. C.	Baptist	164	1,415	State Univ. of Ia.	Iowa City, Iowa	Non-Sec.	150	1,542
Cornell	Mt. Vernon, Iowa	Me. Epis.	35	716	Stevens Inst. Tech.	Hoboken, N. J.	Non-Sec.	22	270
Cornell Univ.	Ithaca, N. Y.	Non-Sec.	366	2,980	St. Francis Xavier	Man'h'n Boro, N. Y.	R. Cath.	31	710
Cumberland Univ.	Lebanon, Tenn.	C'b Pres.	23	237	St. John's	Annapolis, Md.	Non-Sec.	13	155
Dartmouth	Hanover, N. H.	Non-Sec.	68	768	St. Lawrence U.	Canton, N. Y.	Univ'list	16	150
Davidson	Davidson, N. C.	Presb.	13	175	St. Louis Univ.	St. Louis, Mo.	R. Cath.	34	435
Denison Univ.	Granville, O.	Baptist	34	484	St. Olaf	Northfield, Minn.	Luth. ran	17	306
Denver Univ.	Univ. Park, Col.	Me. Epis.	114	878	Swarthmore	Swarthmore, Pa.	Friends	28	206
De Pauw Univ.	Greencastle, Ind.	Me. Epis.	28	635	Syracuse Univ.	Syracuse, N. Y.	Me. Epis.	152	1,800
Dickinson	Carlisle, Pa.	Me. Epis.	29	490	Talladega	Talladega, Ala.	Cong.	25	586
Drake University	Des Moines, Iowa	Christi'n	90	1,764	Trinity	Hartford, Conn.	Prot. Ep.	25	141
Drew Theol. Sem.	Madison, N. J.	Me. Epis.	7	185	Trinity	Durham, N. C.	M. Ep. S.	22	167
Drury	Springfield, Mo.	Non-Sec.	21	350	Tufts	Tufts Coll., Mass.	Univ'list	125	900
Emory	Oxford, Ga.	M. Ep. S.	14	279	Tulane Univ.	New Orleans, La.	Non-Sec.	80	1,145
Eureka	Eureka, Ill.	Disciples	16	225	Tuskegee Inst.	Tuskegee, Ala.	Non-Sec.	58	1,253
Findlay	Findlay, O.	C. of G'd	15	285	Union	Schenectady, N. Y.	Non-Sec.	20	192
Fisk University	Nashville, Tenn.	Cong.	30	502	Union Theol. Sem.	Man'h'n Boro, N. Y.	Presb.	18	125
Fort Worth Univ.	Fort Worth, Tex.	Me. Epis.	51	869	U. of Alabama	Tuscaloosa, Ala.	Non-Sec.	46	413
Franklin	Franklin, Ind.	Baptist	11	178	U. of California	Berkeley, Cal.	Non-Sec.	230	2,932
Franklin & Mars'l	Lancaster, Pa.	R. in U. S.	26	403	U. of Chicago	Chicago, Ill.	Non-Sec.	296	3,520
Furman Univ.	Greenville, S. C.	Baptist	13	243	U. of Cincinnati	Cincinnati, O.	Non-Sec.	150	1,287
Gen. Theol. Sem.	Man'h'n Boro, N. Y.	Prot. Ep.	14	144	U. of Colorado	Boulder, Col.	Non-Sec.	92	900
Georgetown Univ.	Washington, D. C.	R. Cath.	103	725	U. of Georgia	Athens, Ga.	Non-Sec.	131	1,994
Hamilton	Clinton, N. Y.	Non-Sec.	20	183	U. of Illinois	Urbana, Ill.	Non-Sec.	334	3,000
Hampden-Sidney	Hamp. Sidney, Va.	Non-Sec.	9	109	U. of Kansas	Lawrence, Kan.	Non-Sec.	8	1,150
Hanover	Hanover, Ind.	Presb.	13	175	U. of Kentucky	Lexington, Ky.	Christi'n	61	1,108
Harvard Univ.	Cambridge, Mass.	Non-Sec.	483	5,124	U. of Michigan	Ann Arbor, Mich.	Non-Sec.	233	3,800
Haverford	Haverford, Pa.	Friends	19	125	U. of Minnesota	Minneapolis, Minn.	Non-Sec.	250	3,550
Heidelberg Univ.	Tiffin, O.	R. in U. S.	22	374	U. of Mississippi	Near Oxford, Miss.	Non-Sec.	21	260
Hiram	Hiram, O.	Disciples	25	450	U. of Missouri	Columbia, Mo.	Non-Sec.	109	1,021
Hiwassee	Hiwassee, Tenn.	Non-Sec.	6	135	U. of Nashville	Nashville, Tenn.	Non-Sec.	67	1,370
Hobart	Geneva, N. Y.	Prot. Ep.	15	94	U. of Nebraska	Lincoln, Neb.	Non-Sec.	220	2,256
Howard Univ.	Washington, D. C.	Non-Sec.	55	910	U. of N. Carolina	Chapel Hill, N. C.	Non-Sec.	45	546
Ill. Wesleyan Univ.	Bloomington, Ill.	Me. Epis.	34	1,421	U. of Notre Dame	Notre Dame, Ind.	R. Cath.	65	800
Indiana Univ.	Bloomington, Ind.	Non-Sec.	70	1,137	U. of Penn'slvania	Philadelphia, Pa.	Non-Sec.	268	2,475
Iowa	Grinnell, Iowa	Cong.	30	442	U. of S. Dakota	Vermilion, S. Dak.	Non-Sec.	28	425
Iowa State Col.	Ames, Iowa	Non-Sec.	69	1,160	U. of the South	Sewanee, Tenn.	Prot. Ep.	62	518
Johns Hopkins U.	Baltimore, Md.	Non-Sec.	143	651	U. of Tennessee	Knoxville, Tenn.	Non-Sec.	85	721
Kenyon	Gambier, O.	Prot. Ep.	25	215	U. of Texas	Austin, Texas	Non-Sec.	97	1,121
Knox	Galesburg, Ill.	Non-Sec.	26	665	U. of Utah	Salt Lake City, U.	Non-Sec.	28	648
Lafayette	Easton, Pa.	Presb.	29	426	U. of Vermont	Burlington, Vt.	Non-Sec.	62	560
Lake Forest Univ.	Lake Forest, Ill.	Presb.	55	373	U. of Virginia	Charlot'sville, Va.	Non-Sec.	55	600
Lane Theol. Sem.	Cincinnati, O.	Presb.	6	20	U. of Washington	Seattle, Wash.	Non-Sec.	53	614
Lawrence Univ.	Appleton, Wis.	Int'den'l	26	451	U. of Wisconsin	Madison, Wis.	Non-Sec.	171	2,619
Lehigh Univ.	S. Bethlehem, Pa.	Non-Sec.	44	542	U. of Wooster	Wooster, O.	Presb.	26	800
Lincoln	Lincoln, Ill.	C'b Pres.	14	174	U. S. Military A.	West Point, N. Y.	Non-Sec.	71	464
Manhattan	Man'h'n Boro, N.Y.	R. Cath.	38	561	U. S. Naval Acad.	Annapolis, Md.	Non-Sec.	69	333
Marietta	Marietta, O.	Non-Sec.	21	300	Vanderbilt Univ.	Nashville, Tenn.	M. Ep. S.	100	754
Mass. Institution Technology	Boston, Mass.	Non-Sec.	139	1,480	Vassar	Poughke'psie, N.Y.	Non-Sec.	72	798
McKendree	Lebanon, Ill.	Me. Epis.	15	206	Walden Univ.	Nashville, Tenn.	Me. Epis.	32	578
Mercer Univ.	Macon, Ga.	Baptist	15	260	Wash. & Jefferson	Washington, Pa.	Presb.	23	360
Miami Univ.	Oxford, O.	Non-Sec.	15	144	Wash. & Lee Univ.	Lexington, Va.	Non-Sec.	22	222
Middlebury	Middlebury, Vt.	Non-Sec.	11	116	Washington Univ.	St. Louis, Mo.	Non-Sec.	190	2,086
Monmouth	Monmouth, Ill.	U. Pres.	18	303	Wellesley	Wellesley, Mass.	Non-Sec.	80	821
Mount Holyoke	S. Hadley, Mass.	Non-Sec.	46	612	West. Reserve U.	Middleto'n, Conn.	Me. Epis.	36	350
Mount St. Mary's	Emmitsburg, Md.	R. Cath.	35	215	West. U. of Penn.	Cleveland, O.	Non-Sec.	175	800
Mount Union	Alliance, O.	Me. Epis.	23	582	West Virginia U.	Pittsburgh, Pa.	Non-Sec.	115	869
Neb. Wesleyan U.	Univer. Pl., Neb.	Me. Epis.	41	600	William & Mary	Morgan't'n, W. Va.	Non-Sec.	57	885
New York Univ.	New York City	Non-Sec.	186	1,824	Wittenberg	Williamsburg, Va.	Non-Sec.	16	184
Northwestern U.	Evanston, Ill.	Me. Epis.	244	2,629	Yale University	Springfield, O.	Luth. ran	20	456
						New Haven, Conn	Non-Sec.	280	2,640



On January 1, 1901, according to the educational report, there were four hundred and eighty colleges and universities in operation in the United States, with a total of 4,834 departments, 103,251 students, and libraries containing an aggregate of 4,431,463 volumes.

Trinity College, Dublin, was founded in 1591, under the auspices of Sir John Perrot, the Irish viceroy. The first departure in Ireland from the exclusive system of education formerly represented by the foundation at Dublin, dates from the creation of the Queen's University, incorporated by royal charter September 3, 1850. By this charter the general legislation of the university, together with its government and administration, was vested in the university senate. In 1864 the charter of 1850 was superseded by a supplementary charter, and the university reconstituted; and finally, in 1880, by virtue of the Act of Parliament known as the University Education (Ireland) Act, 1879, the Queen's University gave place to the Royal University of Ireland, which was practically a reconstitution of the former foundation, the dissolution of the Queen's University being decreed so soon as the newly constituted body should be in a position to confer degrees. The university confers degrees in arts (B.A., M.A., D.Litt.), science, engineering, music, medicine, surgery, obstetrics, and law. The Queen's Colleges at Belfast, Cork, and Galway were founded in December, 1845, under an Act of Parliament. Their professors were at the same time constituted professors in the university, and conducted the examinations.

There is at present no university of Wales. The oldest college, that of St. David's at Lampeter, possesses the right of conferring degrees. It was founded in 1822 for the purpose of educating clergymen in the principles of the Established Church of England and Wales, mainly for the supply of the Welsh dioceses. The number of the professors in 1887 was 8, and the number of the students 120. The next college in order of foundation is Aberystwith. It was founded October 9, 1872, but possesses no charter, and is mainly supported by the Dissenting bodies. The staff of professors numbers 13, and the students number 150. The University College of South Wales and Monmouthshire at Cardiff was founded in 1883. The number of professors in 1887 was 9, lecturers 4, demonstrators 2; number of students 140. The University College of North Wales at Bangor received its charter June 4, 1885, its object being to "provide instruction in all the branches of a liberal education except theology." Its staff consists of a principal, 8 professors or lecturers, and 2 demonstrators; the number of the students is 127. There is also a hall of residence for women students. At each of these three last-named colleges students proceeding to degrees have to go through either a London, Edinburgh, Glasgow, or Dublin course of study, but at Edinburgh, Glasgow, and Dublin a certain proportion of the term of residence ordinarily required is remitted in their favor.

In India, the three older universities all date from 1857—that of Calcutta having been incorporated January 24th, Bombay July 18th, Madras September 5th, in that year. At these three universities the instruction is mainly in English. The Punjab university was incorporated in 1883—the Punjab University College, prior to that date, having conferred titles only and not degrees. The main object of this university is the encouragement of the study of the Oriental languages and literature, and the rendering accessible to native students the results of European scientific teaching through the medium of their own vernacular. The Oriental faculty is here the oldest, and the degree of B.O.L. (bachelor of Oriental literature) is given as the result of its examina-

tions. At the Oriental College the instruction is given wholly in the native languages. In Australia, the university of Sydney was incorporated by an Act of the colonial legislature, which received the royal assent December 9, 1851, and on February 27, 1853, a royal charter was granted conferring on graduates of the university the same rank, style, and precedence as are enjoyed by graduates of universities within the United Kingdom. Sydney is also one of the institutions associated with the university of London, from which certificates of having received a due course of instruction may be received with a view to admission to degrees. There are four faculties, viz., arts, law, medicine, and science. The design of the university is to supply the means of a liberal education to all orders and denominations, without any distinction whatever. An Act for the purpose of facilitating the erection of colleges in connection with different religious bodies was, however, passed by the legislature, during the session of 1884, and since that time colleges representing the Episcopalian, Presbyterian, and Roman Catholic Churches have been founded. In 1885 the total number of students attending lectures in the university was 206. The university of Melbourne, in the colony of Victoria, was incorporated and endowed by royal Act, January 22, 1853. This Act was amended June 7, 1881. Here also no religious tests are imposed on admission to any degree or election to any office. The council is empowered, after due examination, to confer degrees in all the faculties (excepting divinity) which can be conferred in any university within the British dominions.

The university of Adelaide in South Australia (founded mainly by the exertions and munificence of Sir Walter Watson Hughes) was incorporated by an Act of the colonial legislature in 1874, in which year it was further endowed by Sir Thomas Elder. The faculties in the university are those of arts, medicine, law, science, and music. The number of matriculations since the foundation amounted in 1886 to 284, the number of undergraduates in that year being 90. The university of New Zealand, founded in 1870, and reconstituted in 1874 and 1875, is empowered by royal charter to grant the several degrees of bachelor and master of arts, and bachelor and doctor in law, medicine, and music. Women are admitted to degrees. To this the Auckland University College, Nelson College, Canterbury College, and the university of Otago stand in the relation of affiliated institutions. This last-named institution was founded in 1869 by an order of the provincial council; with the power of conferring degrees in arts, medicine, and law, and received as an endowment 100,000 acres of pastoral land. It was opened in 1871 with a staff of three professors, all in the faculty of arts. In 1872 the provincial council further subsidized it by a grant of a second 100,000 acres of land, and the university was now enabled to make considerable additions to the staff of professors and lecturers, to establish a lectureship in law, and to lay the foundations of a medical school.

In Canada the M'Gill College and University at Montreal was founded by royal charter in 1821 (amended in 1852) on the foundation of the Hon. James M'Gill, who died at Montreal December 19, 1813. It includes the faculties of arts, applied sciences, medicine, and law. In 1885 the total number of students, including women, was 526. The university of Toronto was originally established by royal charter in 1827, under the title of King's College, with certain religious restrictions resembling those at that time in force at the English universities, but in 1834 these restrictions were abolished, and in 1849 the designation of the university was changed into that of the University

of Toronto. In 1873 further amendments were made in the constitution of the university. The chancellor was made elective for a period of three years by convocation, which was at the same time reorganized so as to include all graduates in law, medicine, and surgery, all masters of arts, and bachelors of arts of three years' standing, all doctors of science, and bachelors of science of three years' standing. The powers of the senate were also extended to all branches of literature, science, and the arts, to granting certificates of proficiency to women, and to affiliating colleges. The work of instruction is performed by University College, which is maintained out of the endowment of the provincial university, and governed by a council composed of the residents and the professors. Its several chairs include classical literature, logic and rhetoric, mathematics and natural philosophy, chemistry and experimental philosophy, history and English literature, mineralogy and geology, metaphysics and ethics, meteorology and natural history, and lectureships on Oriental literature, German, and French. Other universities and colleges with power to confer degrees are the Victoria University at Cobourg (1836), supported by the Methodist Church of Canada; Queen's University, Kingston (1841), representing the Presbyterian body; and the university of Trinity College, Toronto, founded in 1851 on the suppression of the faculty of divinity in King's College. Lennoxville is a center for university instruction in conformity with Church of England principles.

In Africa, an Act for the incorporation of the university of the Cape of Good Hope received the royal assent June 26, 1873, the council being empowered to grant degrees in arts, law, and medicine.

With one or two possible exceptions there are no countries in the world where the means for obtaining an academic education are more readily accessible than in the United States, no country where the opportunities offered are more generally availed of, and no country in which an education is more universally enjoyed. At the earliest date in the history of the republic a school system was adopted in nearly every county precinct of each of the States, and as the States have grown in wealth and population the system has been improved upon and extended. Colleges come in the natural order of events, and during comparatively recent years, or to be more exact, since the commencement of the last half of the present century, university education here has steadily received great extension, and a higher education has been widely diffused. According to an address delivered by the president of Johns Hopkins University, at Cambridge, Mass., in 1886, the colleges in the United States may be ranged under four different classes: Those which proceed from the original historic colleges, those established in the name of the State, those avowedly ecclesiastical, and those founded by private benefactions. To the first class belong Harvard and Yale colleges, the University of Virginia represents the second class, religious institutions the third class, and the Leland Stanford Junior University the fourth class.

Within the past fifty years considerable modifications have taken place in the course of study, nearly all the colleges having adopted the system of "parallel courses," and the principle of selection between these. In America female education has also received an extension to which it has attained in no other country. Since the civil war a great advance has been made in the direction and management of universities and colleges in the United States. Special attention has been given to physical training and athletic exercises and at some of them excellent gymnasia, constructed on German models, have been erected.

**UNLEAVENED BREAD, USE OF, in the Eucharist**, has long been the subject of controversy between the Latin Church on the one hand and the Greek and other Oriental churches on the other; with the latter of whom the Reformed churches in later times have conformed in their practice of celebrating the Lord's Supper. The early history of the usage is very obscure; but the Western Church has certainly, from a very remote date, employed Azymos or unleavened bread, in the consecration and distribution of the Eucharist; nor was this usage made a subject of controversy with the Latins, by Photius, on occasion of the dispute between the churches which arose during his patriarchate. In the latter controversy, however, under Michael Cerularius, the question of azymos became very prominent, and the diversity of practice still continues a subject of controversy between the Greeks and Latins. The principal argument alleged by the advocates of the use of leavened bread, is founded on the assumption that the Last Supper of our Lord took place on the eve of the Passover, that is, on the thirteenth day of the month Nisan, on which day common bread, and not the azymos, must have been used; and on this and some other grounds, some writers even among the Roman Catholics themselves, and especially the learned Jesuit Sirmond, have maintained that the Last Supper was actually celebrated in leavened bread.

On the other hand, however, it is contended that the Last Supper, being held in the evening of that day, was, in the strictest sense, our Lord's celebration of the Passover, and therefore (Exodus xii. 8-20), that the bread can have been no other than azym or unleavened. It must be added that all Roman Catholic writers and the more learned among the Greeks are agreed that the Eucharist may be validly consecrated whether the bread be leavened or unleavened.

**UNTERWALDEN** is one of the Forest cantons of Switzerland, ranking as sixth in the Confederation. It is composed of two valleys through which run two streams both called the Aa, and which are called Obwald and Nidwald from their positions with regard to the great forest of the Kernwald in which they are situated. The total area of Obwald is 183.3 square miles, 154.2 of which are classed as productive (forest 37.6), while of the remainder 3.8 are covered by glaciers and 4.3 by lakes. The area of Nidwald is 112.1 square miles, 84.1 being productive (forests 27.7); of the rest the cantonal bit of the Lake of Lucerne covers 12.8. The highest point in the canton is the Titlis (10,627 feet) in Obwald. The census of 1880 returned the population of Obwald as 15,356, an increase of 941 on 1870, and that of Nidwald as 11,992, an increase of 291. In both the women have a small majority over the men. The native tongue of practically the whole population is German (15,254 in Obwald, 11,869 in Nidwald), and they are nearly all Roman Catholics (15,078 in Obwald, 11,901 in Nidwald). The capital of Obwald is Sarnen (4,039 inhabitants), Kerns (2,500) being the only other place which is more than a village; that of Nidwald is Stanz (2,210). The population is purely agricultural and pastoral. In Obwald the forests are remarkable, in Nidwald the fiery energy of the inhabitants. In educational matters the standard is not very high, but is being gradually raised. There are no railways, but one is being made from Lucerne through Obwald over the Brünig Pass to Meyringen in Bern. Historically Obwald was part of the Aargau, and Nidwald of the Zürichgau.

**UNYORO**, a kingdom of Central Africa, bounded on the north and east by the Nile, on the west by the Albert Nyanza, and on the southeast by the kingdom of Uganda. Its area is about 1,600 square miles. The



country is very fertile, well-watered, and thickly-wooded; for the most part it is hilly in character, especially on the borders of the Albert Lake and in the neighborhood of Massindi and Kiroto, where the mountains have an altitude of from 5,000 to 6,000 feet. The population is about 1,500,000. The land is cultivated to a considerable extent—bananas, sweet potatoes, and dhurra being grown in large quantities. Coffee and tobacco are cultivated to a small extent. The Wanyoro huts are dome-shaped, small, and extremely filthy and full of vermin, although the people themselves are cleanly. Polygamy is universal, even the poorest man possessing two or three wives. The Wanyoro are moderately skillful workmen, and their iron-work, pottery, and wood-work are both neat and tasteful. The only article they export is salt, which is obtained in considerable quantities at Kibiro on the shores of Lake Albert.

#### UPANISHADS. See BRAHMANISM.

UPAS, a Javanese word meaning poison, and specially applied by the Malays and people of western Java to the poison derived from the gum of the anchor tree (*Antiaris toxicaria*), one of the *Artocarpeae*, which was commonly used in Celebes to envenom the bamboo darts of the natives. The name of the upas tree has become famous from the mendacious account (professedly by one Foersch, who was a surgeon at Samarang in 1773), and popularized by Erasmus Darwin in "Loves of the Plants," (*Botanic Garden*, pt. ii.) The tree was said to destroy all animal life within a radius of fifteen miles or more. The poison was fetched by condemned malefactors, of whom scarcely two out of twenty returned. All this is pure fable, and in good part not even traditional fable, but mere invention.

UPHOLSTERY. That branch of trade which relates to the furnishing of a house with curtains and other kind of hangings. It is also applied more generally, and is made to include bedding, carpeting, and the covering of chairs, couches, etc.

UPOLU, one of the richest and most beautiful of the islands of the Pacific, belongs to the Samoan group, lying about sixty miles west of Tutuila. It is 340 miles in circumference, and has 16,600 inhabitants. The island has been a mission station for many years. Many of the inhabitants are Christians. The chief harbor is Apia, a civilized-looking place, with many edifices on the European model. Many of the natives are turning their attention to the cultivation of cotton, and the cotton seed grows wherever it is cast on the ground; the only trouble experienced in raising cotton being the clearing and keeping down of the weeds. Coffee is also cultivated. The principal article of export, however, is the cocoanut oil. Upolu affords a plentiful supply of fruits and vegetables; with Savaii, Upolu has since 1899 been a German dependency.

UPPER SIND FRONTIER, a district of British India, forming the northernmost portion of the province of Sind, in the Bombay presidency. It comprises an area of 2,139 square miles, and lies between 27° 56' and 28° 27' N. latitude, and between 68° and 69° 44' E. longitude. It is bounded on the north and west by the Derajat districts of the Punjab and the territory of Khehat, on the south by Shikarpur district, and on the east by the Indus. The district contains several thriving timber plantations. The wild animals comprise an occasional tiger and hyenas; wild hogs and jackals abound; foxes are occasionally met with; and antelopes, hog-deer, and a species of *sambhar* deer are found in the dense jungle tracts adjoining the Indus. The climate is remarkable for its dryness and for its extraordinary variations of temperature. The average annual rainfall at Jacobabad is less than five inches. There are numerous

roads of all descriptions, and the Frontier Military railway, from Sukkur *via* Jacobabad to Sibi, crosses the district.

The census of 1901 returned the population as 134,181 (males 75,166, females 59,015)—Hindus numbering 9,894, Mohammedans 109,183, and Christians 230. The chief town is Jacobabad, with a population of 7,365. In 1885-86 the cultivated area was estimated at 361,415 acres, of which 137,149 were cropped, and of these again 8,163 were cropped more than once. The principal crops are wheat, joar, bajra, rice, barley, mustard-seed, and a little cotton and gram. Salt, lacquered work, leathern jars, embroidered shoes, woollen carpets, and saddle-bags are the principal manufactures. The internal trade is principally in grain, the greater part of which is sent to the Punjab, and the transit trade from Central Asia into Sind crosses the district, bringing wool and woollen goods, fruits, carpets, and horses.

UPSALA, a city of Sweden, the seat of its oldest university and residence of the archbishop of Sweden, is situated on the small river Fyris, forty-two miles north of Stockholm. The population which in 1840 was only 5,100, had at the end of 1900 increased to more than 22,850 (with students, scholars, and others, 23,000). The industries of the place are still unimportant, but its trade by sea (navigation being open for six or seven months of the year) and by rail is somewhat livelier. Upsala owes its fame to its university, which was founded in 1477. The professors numbered fifty-eight in 1900, with sixty-one "docents" and assistant teachers, and there were 1,384 students. The last-named are divided into thirteen "nations," almost every one of which possesses a house of its own, with a hall, reading-rooms, and library. The new university house, above the cathedral, on the site of the former archbishop's castle, is in the Renaissance style, and was built in 1879-87. The library, which has a right to a copy of every book printed in Sweden, in 1890 contained 250,000 volumes and 11,000 MSS., among which is the famous *Codex Argenteus* of Ulfilas' translation of the Gospels.

The medical faculty possesses a hospital and anatomical, chemical, and pathologico-physiological institutions; and about a mile from the town there is a magnificent lunatic asylum. The astronomical and meteorological institutions, as well as those of chemistry and physics, have also special buildings, all of recent date. The Royal Society of Sciences, established in 1710 by Eric Benzelius, the younger, occupies a house of its own, and has a valuable library. Of the buildings the cathedral, founded in the latter part of the thirteenth century and completed in 1435, is the most remarkable. The material is brick, but the proportions are uncommonly noble and harmonious; the length is 390 feet, and the height inside 88. It has suffered considerably from repeated fires, but since 1886 an extensive restoration has been going on. The castle, on the summit of a long ridge above the town, was founded in 1548 by Gustavus I., but not finished till a century later, when it was often used as a royal residence. It was destroyed by fire in 1702, and for more than forty years remained a ruin. At present only a small part of it is habitable, and that part is chiefly used by the provincial government, and as a residence of the governor. Apart from the cathedral and a few insignificant houses, there are no remains from the mediæval period, the city formerly having consisted almost entirely of wooden houses.

URAL-ALTAIC LANGUAGES. The Ural-Altaic, Finno-Tartar, or "Turanian" languages constitute one of the primary linguistic families (see PHILOLOGY) of the eastern hemisphere, occupying a vast domain, which

extends with few interruptions from the Balkan Peninsula, Hungary, and Lapland eastward to the Pacific Ocean; and from the Arctic Ocean southward to China proper, Tibet, and the Mediterranean. It thus comprises an area of not less than 10,000,000 square miles and a total population of over 40,000,000.

In its morphology Ural-Altaic belongs to the agglutinating order of speech, differing from other languages of this order chiefly in the exclusive use of suffixes attached to the unmodified root. These suffixes differ also from the case and verbal endings of true inflecting languages. Hence it is that the roots, which in Aryan are generally obscured, blurred, often even changed past the possibility of identification, in Ural-Altaic are always in evidence, unaffected by the addition of any number of formative particles, and controlling the whole formation of the word.

As there are thus only two classes of words—the roots, which always remain roots, and the suffixes, which always remain suffixes, it follows that there can be no true composition or word-building, but only derivation. But, while these salient features are common, or nearly common, to all, it is not to be supposed that the various groups otherwise present any very close uniformity of structure or vocabulary. Excluding the doubtful members, the relationship between the several branches is far less intimate than between the various divisions of the Semitic, and even of the Aryan family, so that, great as is, for instance, the gap between English and Sanskrit, that between Lapp and Manchu is still greater.

After the labors of Castrén, Csink, Gabelentz, Schmidt, Böhtlingk, Zenker, Almqvist, Radloff, Munkacsy-Berat, and especially Winkler, their genetic affinity can no longer be seriously doubted. But the order of their genetic descent from a presumed common organic Ural-Altaic language is a question presenting even greater difficulties than the analogous Aryan problem. The reason is, not only because these groups are spread over a far wider range, but because the dispersion from a common center took place at a time when the organic speech was still in a very low state of development. Hence the various groups, starting with little more than a common first germ, sufficient, however, to give a uniform direction to their subsequent evolution, have largely diverged from each other during their independent development since the remotest prehistoric times. As regards the mutual relations of all the groups, little more can now be said than that they fall naturally into two main divisions—Mongolo-Turkic and Finno-Ugro-Samoyedo-Tungusic—according to the several methods of employing the auxiliary elements. Certainly Turkic lies much closer to Mongolic than it does to Samoyedic and Tungusic, while Finno-Ugric seems to occupy an intermediate position between Turkic and Samoyedic, agreeing chiefly in its roots with the former, and its suffixes with the latter.

This progressive vocalic harmony has been compared to a sort of progressive *umlaut*, in which the suffixed vowels are brought by assimilation into harmony with those of the root. All vowels are broadly divided into two categories, the guttural or hard and the palatal or weak, the principle requiring that, if the root vowel be hard, the suffixed must also be hard, and *vice versa*. But in some of the groups there is an intermediate class of "neutral" vowels, which do not require to be harmonized, being indifferent to either category.

Regarding the Japanese and Korean languages, it may be remarked that Winkler agrees with Boller in unhesitatingly including the former, while doubtfully excluding the latter from this connection. On the other hand, W. G. Aston (*Journ. Roy. Asiat. Soc.*, August, 1879) considers that both are as nearly related

to one another as English and Sanskrit. The probability therefore is that Japanese and Korean are aberrant branches of the Ural-Altaic family, and that they separated at long intervals from the parent stock and at such remote periods that their affinities can no longer be clearly traced.

**URAL MOUNTAINS.** The girdle of mountains which extends from the Arctic Ocean southward nearly to the Caspian Sea, and is now regarded as separating Europe from Asia, was anciently the subject of various myths. Notwithstanding numerous scientific expeditions by which the exploration of various parts of the range began to be undertaken from the earlier portion of the nineteenth century, and notwithstanding partial accurate surveys and levelings and numerous geological researches made within the last thirty years, the real structure of the Urals, both orographical and geological, remains still imperfectly known. Even on maps otherwise good they are still very often represented as an unbroken chain, at least 1,200 miles in length, running north and south from the Arctic Ocean to the sources of the river Ural. The composite nature of the Urals is best seen at the northern and southern extremities of the system, where the upheavals assume the character of distinct chains of mountains. The Pai-hoi Mountains, beginning at the head of Kara Bay, run northwest, and are continued in the island of Vaigatch and the southern island of Nova Zembla; and the Northern Urals join the Pai-hoi chain at the head of Kara Bay, running northeast and southwest as far south as 64° N. latitude. In their middle portion the architecture of the Urals is complicated by the plateaus of middle Russia. The southern parts do not consist, as Humboldt supposed, of ramifications from main meridional chain, but of a series of parallel ranges running distinctly from northeast to southwest, as is plainly seen in the excellent maps recently published by the Russian Geological Committee.

The importance of the Urals as a climatic and geobotanical boundary can no longer be regarded as very great. Most European species of plants freely cross the Urals into Siberia, and several Siberian species travel across them into northern Russia. But, being a zone of hilly tracts extending from north to south in a meridional direction, the Ural Mountains necessarily exercise a powerful influence in driving a colder northern climate, as well as a northern flora and fauna, farther toward the south along their axis.

In the distribution of the races of mankind the Urals have also played an important part. To the present day the Northern Urals are the abodes of Finnish stems (Samoyedes, Zyrians, Voguls, and Perimians), while the steppes on the slopes of the Southern Urals have continued to be inhabited by the Turkish stems of the Bashkirs. The Middle Urals were also in the ninth century the abode of the Ugrians, and their land, Biarmia (now Perm), was well known to the Byzantine historians for its mineral wealth—there being at that time a lively intercourse between the Ugrians and the Greeks. At present the Urals, especially the Middle and the Southern, are being more and more colonized by Great Russian immigrants, while the Finnish stems are rapidly melting away.

The mineral wealth of the Urals was known to the Greeks in the ninth century, and afterward to the Novgorodians, who penetrated there in the eleventh century for trade with the Ugrians. In 1558 the whole of the present government of Perm was given by the rulers of Moscow to the brothers Strogonoff, who began to establish salt-works, and mines for iron and copper. Peter I. gave a new impulse to the mining industry by founding several iron-works, and from 1746, when gold



was first discovered, the Russian colonization of the Urals took a new departure. Until 1861 all work at the mines was done by serfs belonging either to private persons (the Stroganoffs, Demidoffs, and others) or to the crown. In 1860 only a few works, maintained for supplying the army, belonged to the crown.

Gold is found both in veins and in alluvial or diluvial deposits, and is extracted from both; but the former yields only a moderate quantity annually (2,180 to 2,780 pounds in 1882-84). The gold from the Ural mines constitutes nearly one-fifth of the total amount obtained throughout the Russian empire. Platinum is found either in connection with gold dust or separately, the platinum mines of the Urals being the only ones worked in Russia. Osmium, iridium, and nickel are found at several places, but their industrial importance is small. Silver is also met with at several places, but only 2,383 pounds were extracted during the years 1875 to 1884. The copper mines, chiefly in Perm, but partly also in Ufa, are very important, nearly two-thirds of the total amount of the metal mined in Russia being obtained from eight works in the Urals.

Iron is widely diffused and is extracted in the governments of Perm, Ufa, and Orenburg, the chief works being in Perm. Of the 198 blast furnaces in the Russian empire 103 are in the Urals, and they supply nearly two-thirds of all the pig-iron produced in Russia. One-half of the iron and one-sixth of the steel obtained both from home and foreign pig-iron in the empire are prepared in the Urals; and, while the St. Petersburg and Polish steel works, which prepare steel (chiefly for rails) from imported iron, show great fluctuations in their production, the Ural works have a steady increase.

Owing to the immense extent of forest, the coal mining industry is but of recent origin in the Urals. Only six pits were at work in Perm in 1884; and of recent years from 3,000,000 to 4,000,000 hundredweights have been annually extracted (about 5 per cent. of the coal raised in the Russian empire). Finally, salt was raised in Perm, Orenburg, and Uralsk to the amount of 9,422,000 hundredweights in 1884. The precious jamesthy, topaz, emerald, tourmaline, etc.) and ornamental (malachite, carsovirite, etc.) stones of the Urals are familiar in all European museums, and are found in most beautiful varieties. The crown works at Ekaterinburg supply admirable works of art, while a numerous population at Ekaterinburg and in the neighboring villages support themselves by searching for precious and ornamental stones and preparing them for export. Of the 330,750 workmen engaged in 1884 in mining and metallurgical industries throughout the Russian empire 183,914 were employed in the Urals, as well as nearly one-half of the motive power (steam-engines and water-wheels) used at the mining and metallurgical works of Russia, Poland, and Finland. The exports from the Urals are made chiefly by means of the rivers, which are navigable in their upper parts only during the spring. There is not as yet any railway connecting the Urals with Russia. The line of Siberian railway which now connects the iron-works of the eastern slope with the Kama at Perm has certainly increased the exports; but they are still so small in comparison with the expense of the line that the railway is worked at a loss, the deficiency being made good from the imperial budget, and the whole mining and metallurgical industry of the Urals is still maintained by means of high protective duties imposed on foreign metals and metallic wares.

URALSK, a province of southeastern Russia, lying to the north of the Caspian Sea, with an area of 141,174 square miles. It is bounded by Astrakhan on the west, Samara and Orenburg on the north, Turgai and the Sea of Aral on the east, and the Transcasian

region on the south. It is geographically situated mostly within the boundaries of Asia, i.e., to the east of the Ural river, and both its physical features and its inhabitants are, to a very large extent, Asiatic. Administratively, it belongs to the "Kirghiz provinces," or governor-generalship of the steppes. Red sandstones (Permian?) and chalk are met with only in the north, the remainder of the province being covered with Post-Pliocene Caspian deposits, which conceal the underlying rocks.

Uralsk is watered by the Ural, which rises in Orenburg at a height of 2,100 feet above sea-level, but soon descends to the lowlands, where it flows south, west, and south, entering the Caspian after a course of 800 miles. Its chief tributaries, the Sakmara, the Or, and the Ile, are in the north; along its lower course the Great and Little Uzeñs and many small streams on the left bank fail to join the main river, being lost in lakes before reaching it. The Emba, which has its course in the north of the Ust-Urt plateau, reaches the Caspian by a series of shallow lagoons, which were navigable in the eighteenth century. The climate is influenced by the Central Asian steppes. A cold and dry winter is succeeded by a hot and still drier summer, during which the grass, and sometimes all the crops, are destroyed by the burning heat. The character of the vegetation can be easily inferred from the above. The prairies and forest tracts of the north soon disappear, their place being taken by the vegetation of the south Russian steppes. This has, however, to struggle with the much poorer vegetation, Central Asian in character, of the sandy regions to the west of the lower Ural, and the saliniferous vegetation of the clayey deserts of the Emba. The Ust-Urt has herbaceous steppes, where the want of irrigation and rain destroys all vegetation by the end of summer. Wide belts of rushes grow along the banks of the rivers and on the shores of the Caspian.

The population of the province, 644,001 in 1898, is made up of three different elements—Ural Cossacks, who constitute about one-fifth, and numbered nearly 90,000 in 1879, some 15,000 Russian peasants and Kirghiz. Of these 405,000 are still nomads. The Kirghiz are almost entirely dependent on cattle-breeding, and before the outbreak of the murrain of 1879 were reckoned to have 429,500 horses, 221,800 head of cattle, 1,411,000 sheep, and 175,000 camels. The rich fisheries in the Ural and the Caspian are the property of the community as a whole (the *voisko*), and are subdivided according to the needs and working powers of the separate villages. They give employment to about 7,000 Cossacks and 2,000 hired laborers. There are also fisheries in the Emba. Walrus-hunting is also engaged in. Agriculture was first introduced between 1830 and 1840; but now more than 300,000 hundredweights of wheat are exported annually. Nearly 130,000 hundredweights of salt are obtained from the lakes every year. The manufactures of the province, which possesses a few steam flour-mills and a number of tanneries and tallow-melting works, are unimportant. Trade by barter is extensively carried on with the Kirghiz. Fish, corn, cattle, hides, tallow, and the like are exported, while manufactured wares are imported to the value of about \$7,500,000 per annum.

Uralsk is divided into four districts, the chief towns of which are—Uralsk (36,597 inhabitants in 1898), Kalmykoff (1,510), Gurieff at the mouth of the Ural (4,380), and Temirsk, a small port, now the administrative center of the district of Embinsk. Several villages have populations of from 2,000 to 5,000 each.

URALSK, capital of the above province, is situated on the upper Ural, at its confluence with the Tschagan, 1,095 miles southeast from Moscow. The town is well-built, with regular streets; among its prominent build-

ings are the theater, the club, and two gymnasiums; and it is beautified by numerous gardens. The scientific society issues publications of great value. There is a very brisk trade in fish, cattle, hides, tallow, grain (exported), and in manufactured goods (imported). The population in 1898 was 36,597.

URANIUM, the name of a rather rare metallic element, already briefly referred to under CHEMISTRY. The credit of its discovery as an element must be assigned to Klaproth, who in 1789 isolated from pitch-blende a yellow oxide which, while obviously metallic, was foreign to all the known metals. Berzelius about 1823 found that the yellow oxide, when treated with excess of sulphuric acid, united with it into a sulphate, not unlike the ferric salt  $\text{Fe}_2\text{O}_3 \cdot 3\text{SO}_3$  in its character.

The only practically available raw material for the extraction of uranium is pitch-blende (Germ. and Fr. *Uranpecherz*), which occurs associated with lead and silver ores, chiefly in Joachimsthal and at Příbram in Bohemia, at Schneeberg in Saxony, and in Redruth in Cornwall, forming greenish or brownish black masses clustering together like grapes.

In the chemical treatment of the ore, it is expedient to begin by removing at least part of the arsenic and sulphur of the admixtures by roasting, and then to wash away the light oxides with water or dissolve them away with hydrochloric acid. In one of the many processes proposed the purified ore is disintegrated with hot nitric acid, to produce nitrates, which are then converted into sulphates by evaporation of oil of vitriol. The sulphates are treated with water, which dissolves the uranium and other soluble salts, while silica, sulphate of lead, etc., remain; these are removed by filtration. From the solution the arsenic, copper, etc., are precipitated by sulphuretted hydrogen as sulphides which are filtered off. The filtrate contains the uranium as uranous and the iron as ferrous salt. These are oxidized by means of chlorine or some other oxidizing agent, and precipitated conjointly by excess of ammonia. The precipitate, after having been collected and washed, is digested with a warm concentrated solution of carbonate of ammonia, which dissolves the uranium as a yellow solution of uranate of ammonia, while the hydrated oxide of iron, the alumina, etc., remain. These are filtered off hot, and the filtrate is allowed to cool, when crystals of the uranate separate out. This uranate when ignited in a platinum crucible leaves a green oxide of the composition  $\text{U}_3\text{O}_8$ , i.e., artificial pitch-blende, which serves as a starting-point for the preparation of uranium compounds. The green oxide, as a rule, requires to be further purified.

Metallic uranium, as shown by Péligot, can be obtained by the reduction of a mixture of dry chloride of potassium and dry uranous  $\text{UCl}_4$ , with sodium at a red heat (for details see handbooks of chemistry). The oxide (Berzelius' metal) is prepared by heating the green oxide in hydrogen. It dissolves in hot oil of vitriol; the mass, when treated with water, dissolves; from the solution green crystals are obtainable. Uranous salts pass into uranic (uranyl) compounds under the same circumstances under which ferrous salts become ferric, only they do so far more readily. This salt is used in photography, also in analysis as a characteristic precipitant for phosphoric acid. If a solution of a uranyl salt is mixed with one of ammonia, or potash, or soda, the uranium is precipitated in the form of a uranate, of the respective alkali. Uranate of soda, forming yellow crystals, is made industrially, being used for the production of yellow uranium glass in porcelain painting. The Joachimsthal works in 1875 produced seventy hundredweights of this "oxide," representing a value of \$42,500.

URANUS (i.e., Heaven) is in Greek mythology the husband of Gæa (Earth) and father of Cronus (Saturn) and other deities. See MYTHOLOGY and SATURN.

URBAN, ST., first pope of that name, was bishop of Rome from 222 to 230. He had been preceded by Calixtus and was followed by Pontianus. He is mentioned by Eusebius (*H. E.*, vi. 23), and is named in an inscription in the cœmeterium Callisti, but of his life nothing is known. The Roman *Breviary* speaks of his numerous converts, among whom were Valerianus, husband of St. Cecilia, and his brother Tiburtius, and states that he suffered martyrdom, and was buried in the cœmeterium Prætextati.

URBAN II. (Eudes or Odo), pope from 1088 to 1099, was born of knightly rank, at Lagery (near Châtillon-sur-Marne), and was educated for the church. He had already become archdeacon of Rheims when, under the influence of St. Bruno, his teacher, he resigned his preferment and entered the cloister at Cluny, where he rose to be prior. In 1078 Gregory VII. summoned him to Italy, and made him cardinal-bishop of Ostia. He was one of the most prominent and energetic supporters of Hildebrandism, especially as legate in Germany in 1084, and was among the few whom Gregory nominated as possible successors. Desiderius of Monte Casino (Victor III.) was chosen in the first instance to the difficult post, but at the next vacancy Odo was elected by acclamation (March, 1088) at a small meeting of cardinals and other prelates held in Terracina. The most prominent feature in his pontificate, a feature indeed which marks an epoch in the history of Latin Christianity, is his connection with the first crusade (see CRUSADES) which united Christendom under the headship of the pope into one vast warlike confederacy (comp. PODEDOM). Urban II. died July 29, 1099, fourteen days after the fall of Jerusalem, but before the tidings of that great event had reached Italy; his successor was Paschal II.

URBAN III. (Uberto Crivelli), pope from 1185 to 1187, was by birth a Milanese, and was made cardinal and archbishop of Milan by Lucius III., whom he succeeded (November 25, 1185). He vigorously took up his predecessor's quarrels with the emperor Frederick I., including the standing dispute about the succession to the territories of the countess Matilda. While Henry in the south cooperated with the rebel senate of Rome, Frederick in the north blocked the passes of the Alps and cut off all communication between the pope, then living in Verona, and his German adherents. Urban now resolved on excommunicating Frederick, but the Veronese protested against such a proceeding being resorted to within their walls; he accordingly withdrew to Ferrara, but died (October 19th) before he could give effect to his intention. His successor was Gregory VIII.

URBAN IV. (Jacques Pantaléon), pope from 1261 to 1264, was the son of a cobbler in Troyes, studied theology and common law in Paris, became bishop of Verdun, was employed in various missions by Innocent IV., and was made patriarch of Jerusalem by Alexander IV. As pope he endeavored, but without success, to stir up a new crusade on behalf of his former diocese of Jerusalem. In domestic matters the chief problems of his pontificate arose out of the competing claims for the crown of the Two Sicilies. Before the arrival of Charles of Anjou, the candidate whom he favored, Urban died at Perugia, October 2, 1264. His successor was Clement IV. The festival of Corpus Christi was instituted by Urban IV. in 1264.

URBAN V. (Guillaume de Grimoald), pope from 1362 to 1370, was a native of Grisac, in Languedoc. He became a Benedictine and a doctor in canon law, teaching at Montpellier and Avignon. He held the



office of abbot of St. Victor, in Marseilles; and at Avignon, on his way back from Naples, whither he had been sent as papal legate, he was elected pope (October 28, 1362,) in succession to Innocent VI. As pope, he was a severe disciplinarian, discountenanced the pomp and luxury of the cardinals, introduced considerable reforms in the administration of justice, and liberally patronized learning. The great feature of Urban V.'s reign was the effort to restore the papacy to Italy, and to suppress its powerful rivals for the temporal sovereignty there. Continued troubles in Italy caused him to set out for Rome, which he reached October 16, 1367; but, though he was greeted by the clergy and people with joy, and had the satisfaction of being attended by the emperor in St. Peter's, and of placing the crown upon the head of the empress, it soon became clear that, by changing the seat of his government, he had not increased its power. Unable any longer to resist the urgency of the French cardinals, he took ship again at Corneto September 5, 1370, and, arriving at Avignon on the 24th of the same month, died December 19th. He was succeeded by Gregory XI.

URBAN VI. (Bartolommeo Prignano), pope from 1378 to 1389, was a native of Naples, born in 1318. A devout monk and learned casuist, he became archbishop of Bari in 1377, and, on the death of Gregory XI., the Roman populace clamorously demanding an Italian pope, was unanimously chosen (April 8, 1378) by the French cardinals under this pressure to be his successor. The arrogant and imperious temper of the new pope, 'intoxicated by his unexpected fortune, showed itself in ways so intolerable that five months afterward the majority of the cardinals met at Fondi, and, repudiating their previous action, proceeded to elect Robert of Geneva (September 20th), who assumed the title of Clement VII. Thus began the great schism which divided Christendom for nearly forty years (see POPEDOM). The measures of Urban were not without vigor, but at the same time were characterized by such a want of prudence and self-control as has given rise to the not improbable assertion that he actually was, at times at least, a lunatic. Clement VII. was, of course, excommunicated, and designated the Antichrist; twenty-six new cardinals were created in a single day, and, by an arbitrary alienation of the estates and property of the church, funds were raised for open war. The castle of St. Angelo was besieged and taken, and the antipope put to flight, while Charles of Durazzo was invested in the sovereignty of Naples, forfeited by Queen Joanna. In 1384, however, Charles began to resist the papal pretensions, and Urban was shut up in Nocera, from the walls of which he daily fulminated his anathemas against his besiegers; he afterward succeeded in making his escape to Genoa, and, on the death of Charles, set himself at the head of his troops, apparently with the intention of seizing Naples for his nephew if not for himself. To raise funds he proclaimed a jubilee, though only thirty-three years had elapsed since that celebrated under Clement VI., but before the celebration he died at Rome of injuries caused by a fall from his mule, on October 15, 1389. His successor was Boniface IX.

URBAN VII. (Giovanni Battista Castagna) pope for twelve days in September, 1590, was of Genoese origin, and was born in Rome in 1521. He was chosen successor of Sixtus V. on September 15, 1590, but died (September 27th) before consecration. He was succeeded by Gregory XIV.

URBAN VIII. (Maffeo Barberini), pope from 1623 to 1644, belonged to a Florentine family which had been greatly enriched by commerce, and was born in 1568. Through the influence of an uncle, who had be-

come apostolic protonotary, he, while still a young man, received various promotions from Sixtus V. and Gregory XIV. By Clement VIII. he was himself made protonotary and nuncio to the French court; Paul V. also employed him in a similar capacity, afterward raising him to the cardinalate, and giving him the legation of Bologna. On August 6, 1623, he was chosen successor to Gregory XV. The period of his pontificate, covering as it did twenty-one years of the Thirty Years' War, was an eventful one, and the ultimate result of that great struggle was largely determined by Urban's policy, which was aimed less at the restoration of Catholicism in Europe than at such an adjustment of the balance of parties as might best favor his own independence and strength as a temporal power in Italy (see POPEDOM). It was during the pontificate of Urban that Galileo was summoned to Rome to make his great recantation in 1633; on the other hand, the Poussins and Claude Lorraine were patronized by him, and it was he who brought Athanasius Kircher to Rome, and who employed Bernini to build the Palazzo Barberini, the college of the Propaganda, the Fontana del Tritone, and other prominent structures in the city. Urban VIII. was a clever writer of Latin verse, and a collection of Scriptural paraphrases as well as original hymns of his composition has been frequently reprinted. His death (July 29, 1644), is said to have been hastened by chagrin at the result of a war he had undertaken against the duke of Parma. He was succeeded by Innocent X.

URBANA, the county seat of Champaign county, Ohio, lies ninety-five miles nearly due north of Cincinnati, in the midst of a rich agricultural region. It has railroad communication by means of three lines, the New York, Lake Erie and Western, the Pittsburg, Cincinnati and St. Louis, and the Indiana, Bloomington and Western. It has some manufactures, particularly of agricultural tools, machines, and railway rolling stock, and is the site of a Swedenborgian or New Church college. The population in 1900 was 6,808. Urbana was laid out in 1805, when the county was organized.

URBINO, a mediæval walled city of Italy, on the site of the Roman *Urbinum Hortense*, in the Marshes of Ancona, stands in a commanding position on a spur of the Tuscan Apennines, near the valley of the Metaurus, about twenty miles from the Adriatic. It grew up, chiefly in the fourteenth century, around the stronghold of the Montefeltro family. Federigo da Montefeltro, lord of Urbino from 1444 to 1482, was one of the most successful condottieri chiefs of his time, and much strengthened his position by his own marriage with Battista, and secondly by marrying his daughter to Giovanni della Rovere, the favorite nephew of Pope Sixtus IV., who in return conferred upon Federigo the title of duke.

Throughout the whole of the sixteenth century the state of Urbino was one of the chief centers for the production of majolica (see POTTERY), especially the towns of Gubbio and Castel Durante. Most of the finest pieces of Urbino ware were made especially for the dukes, who covered their sideboards with the rich storied *piatti di pompa*, of which fine specimens have recently sold for from \$10,000 to \$15,000.

The modern city of Urbino, with a population of 6,000 in 1900, is the seat of an archbishop, and still possesses a small university, but is not a thriving place.

URE, ANDREW, M.D., a distinguished chemist, was born at Glasgow in 1778, educated at Glasgow University, subsequently prosecuted his medical studies at Edinburgh, and returned to Glasgow, where he received the degree of M.D. in 1801. In 1802 he became Pro-



essor of Chemistry and Natural Philosophy in the Andersonian Institution, took an active part in the establishment (1809) of an observatory at Glasgow, and was appointed its first astronomer. In 1813 he made his appearance in the literary world as the author of a *Systematic Table of the Materia Medica*, which was followed in 1818 by *New Experimental Researches on some of the leading Doctrines of Caloric*, a memoir which, read before the Royal Society, and printed in the Philosophical Transactions, brought Doctor Ure prominently into notice as a natural philosopher. Several papers on chemical subjects, the fruits of his accurate and extensive researches, followed. In 1821 appeared his *Dictionary of Chemistry*, in 1822 a paper on the *Ultimate Analyses of Animal and Vegetable Substances*, one of the earliest contributions to organic analysis, and a translation of Berthollet on Dyeing; and in 1829 a *System of Geology*, in which the hypothesis of a general flood was maintained. In 1830 Ure removed to London, and in 1834 was appointed analytical chemist to the Board of Customs.

The products of his pen from this time assume more of the technological character, as *The Philosophy of Manufactures* (1835). *The Cotton Manufacture of Great Britain*, and *The Dictionary of Arts, Manufactures and Mines* (1839). A seventh edition of this last work was edited by Robert Hunt in three volumes (1875), and a supplementary volume was added in 1878. Ure was chosen a Fellow of the Royal Society in 1822, as well as of the Geological, Astronomical, and other societies. He died in London, January 2, 1857.

UREA is known chiefly as a component of urine. Referring to the article NUTRITION for its physiological relations, we consider it here only as a chemical substance. Urea was discovered by H. M. Rouelle in 1773; Fourcroy and Vauquelin in 1799 published the first exact investigation on it. In 1828 Wöhler showed that it can be obtained by the union in aqueous solutions of cyanic acid with ammonia, and thus for the first time effected what was then considered an impossibility, namely, the artificial preparation of an organic compound from mineral matter. For the extraction of urea from urine the latter is concentrated by evaporation (more or less, according to its original strength), and then, after cooling, mixed with a large excess of pure nitric acid of 1.4 specific gravity. To convert it into urea, it is treated with water and carbonate of baryta, which acts upon the  $\text{HNO}_3$  as if it were present as such, the urea being liberated. The mixed solution of urea and the nitrate is evaporated to a small volume and allowed to stand, when the bulk of the barytic nitrate crystallizes out. The rest is removed by evaporating the mother liquor to dryness over a water-bath and extracting the urea with strong alcohol. To obtain fine crystals, the filtered alcoholic solution is evaporated to dryness, the residual urea dissolved in a very little hot water, and the solution allowed to cool slowly, when part of the urea crystallizes out in long colorless columns, not unlike those of nitrate of potash.

URGA, a city of Mongolia and the administrative center of the Northern and Eastern Khalkha tribes, is situated in  $48^\circ 20'$  N. latitude and  $107^\circ 30'$  E. longitude, on the Tola river. The Chinese and Mongolian towns which make up Hurā, as the Mongols call Urga, stand on the high road from Peking to Kiachta (Kiakhta), about 700 miles from the Chinese capital and 165 from Kiachta, and are separated from each other by an interval of two or three miles. The Chinese town is the great trading quarter, and there the wealth of the district is collected. The houses in this part are more substantially built than in the Mongol town, and the streets have a well-to-do appearance. The popula-

tion is estimated at about 5,000, and the law which prohibits Chinamen from bringing their wives and families into the place tends to check increase. The population of the Mongol quarter is reckoned at about 10,000, though on the occasions of the religious festivals the numbers are much larger. Although trade is not altogether excluded, the *raison d'être* of the town is that it is the residence of the metropolitan of the Khalkha tribes, who ranks third in degree of veneration among the dignitaries of the Lamaist Church. Until quite lately bricks of tea formed the only circulating medium for the retail trade at Urga, but Chinese brass coins are now beginning to pass current in the markets.

URI, one of the Forest Cantons of Switzerland, ranks as fourth in the Confederation. It comprises the upper basin of the Reuss from its source to the Lake of Lucerne, the southern arm of which is also within the canton. Its total area is 415.4 square miles; of these 184.4 are classed as productive, 40.3 are covered with forests, 44.3 consist of glaciers, and 7.7 of the lake. The highest point in the canton is the Galenstock (11,802 feet). The population in 1901 amounted to 19,700 (men having a majority of 3,000 over women), showing an increase of 7,649, 39.4 per cent., since 1870, owing to the St. Gotthard railway. German is the native tongue of 18,024 persons, Italian of 5,313. The canton has always been very strongly Roman Catholic (18,149 in 1900). It was included up to 1814 in the diocese of Constance (except the valley of Urseren, which was in that of Chur), and since then has formed part of no diocese, but is provisionally administered by the bishop of Chur. In Uri the limits of the ecclesiastical parishes are the same as those of the civil communes. The capital is Aldorf (2,901 inhabitants). Goschenen (2,990) and Wassen (2,744) have increased since the opening of the St. Gotthard railway (1880), which runs through the greater part of the canton. The inhabitants are occupied in agricultural and pastoral pursuits, and are very saving and industrious. The main valley is fertile, but the side giens are very wild. Education is still very backward and largely in the hands of the priests; but an improvement was made in 1885. The main characteristics of the people are extreme conservatism and a passionate attachment to their religion.

URIC ACID, as explained fully in the article NUTRITION, is one of the penultimate products of the tissue waste in the human body. While the bulk of the nitrogen of the albuminoids passes off through the bladder as UREA (*q.v.*), a small portion of it stops at the uric acid stage. Human urine contains only a fraction of a per cent of the acid, chiefly as soda salt; abundance of uric acid is met with in the excrement of serpents and birds, with whom it is the principal nitrogenous product of tissue waste. For the preparation of uric acid ( $\text{C}_5\text{H}_4\text{N}_4\text{O}_6$ ), GUANO (*q.v.*) is boiled repeatedly with a solution of borax in 120 parts of water. The filtered solution is acidified with hydrochloric acid, when impure uric acid separates out as a brown precipitate, which is washed with cold water. For its purification it is dissolved in hot dilute caustic potash or soda lye, the solution filtered, and the filtrate saturated with carbonic acid. An almost insoluble acid urate of alkali separates out, which is collected on a filter, washed, and decomposed by adding it in instalments to hot dilute hydrochloric acid. Uric acid separates out as a white precipitate, which is filtered off, washed, and dried, to be repurified by a repetition of the alkali process or otherwise. Pure uric acid forms a snow-white micro-crystalline powder, devoid of smell or taste, soluble in 1,800 parts of boiling and in 14,000 parts of cold water, but insoluble in alcohol and in ether. When heated it suffers complete decomposition.



URIM AND THUMMIM (Heb.), a mysterious contrivance in or on the High-Priest's breast plate, either consisting of the four rows of precious stones upon which the names of the twelve tribes were engraved, or of two images personifying, most probably, "Truth" and "Revelation." Luther's translation, "Light and Truth," has no more foundation than that of the LXX. and the Vulgate, which is "Utterance and Truth." To this translation, the fact of the picture of "Truth" (Aletheia) in sapphire or other precious stones being suspended from the Egyptian high priest's breast, had probably given rise. The etymology of the two words, which, derived from the Arabic roots, would indicate "Brilliant Amulet," "Perfect Light," etc., is in reality no more satisfactory than the manner in which the contrivance was used for oracular purposes, or of the time when, in reality, it ceased to act. It is never mentioned after Solomon's time. Joseph Smith, the founder of Mormonism, pretended that he read the plates of the so-called *Book of Mormon* by means of a Urim and Thummim.

URINARY SEDIMENTS is a general term which includes all those substances which occur in the non-dissolved state in the urine. Most of these sediments are not formed till after the urine has been discharged and has cooled; some, however, are formed in the urinary organs, and under favoring conditions may give rise to urinary concretions. Hence it is a point of importance to ascertain whether a sediment occurring in a specimen of fresh urine has been formed before or after its discharge. The chemical and microscopical characters of these sediments has a double bearing on the detection of disease: (1) "From the investigation of these sediments" says Professor Vogel, "we can draw sure conclusions regarding special changes that are going on in the general nutrition of the body. They show us that an excessive quantity of certain substances (as, for example, uric, hippuric, or oxalic acid) is being discharged with the urine, and has therefore been produced in the body; and we thus often obtain at a glance information of great importance, which could otherwise only be procured by a tedious process; and (2) they point out to us certain local diseases of the urinary system. Thus, from a sediment containing pus, we infer that suppuration is going on in some part of the system; and the presence of cylindrical casts or tubes in the sediment informs us of certain morbid changes in the structure of the kidneys; and if the ordinary symptoms reveal the presence of stone in the bladder we can ascertain its probable nature from the character of the sediment or gravel."

The mode of formation of morbid sediment is well illustrated by the sketch of the changes which healthy urine undergoes after long exposure to the air. In the course of two or three days the acidity of the urine is found to have increased, and this condition of acid fermentation will frequently continue for some weeks, giving rise to the disposition of (1) free uric acid: (2) acid urates (chiefly urate of soda); and (3) oxalate of lime. In a few weeks, or often much sooner, the urea becomes alkaline or *alkaline fermentation* is established, in consequence of the urea being converted into carbonate of ammonia. The urine now becomes paler, while the red or yellow crystals of uric acid are replaced by white amorphous granules and colorless refracting prismatic crystals. In other words, the former precipitate is replaced by (1) phosphate of ammonia and magnesia (commonly known as triple phosphate); (2) phosphate of lime; and (3) urate of ammonia. In certain forms of diseases these changes take place much more rapidly, and the second change—the alkaline fermentation—may occur without a preëxisting acid fermentation, and

even within the bladder. In addition to the above named substances, which arise from the decomposition of healthy urine, others occur in various morbid conditions of the system; and we may divide the urinary sediments generally into the two great groups of (1) the unorganized and (2) the organized deposits. The unorganized sediments include uric acid, the urates (chiefly urate of soda) hippuric acid, oxalate of lime, earthy phosphates (viz., phosphate of lime, and triple phosphate), cystine, xanthine hypoxanthine (formerly known as guanine), and tyrosine; while the organized sediments include mucus and epithelial scales, blood corpuscles, pus corpuscles, cancerous and tubercular matter, fibrinous casts of tubes of the kidney, spermatozoa, fungi and infusoria.

Of the organized sediments, uric acid, the urates (excepting urate of ammonia), hippuric acid, and cystine occur only in acid urine; and urate of ammonia, triple phosphate, and phosphate of lime, in alkaline or neutral urine.

Oxalate of lime and the organized sediments occur both in acid and alkaline urine; but alkaline urine is the more natural habitat for fungi and infusoria. It is comparatively seldom that a sediment consists of a single ingredient.

URINE. See UREA and URIC ACID; also NUTRITION.

URMIA, or URUMIAH, a town of Persia, in the province of Azerbaijan (Adarbaijan), lies 112 miles southwest of Tabriz and 10 from the west side of Lake Urmia, in the midst of an extremely fertile, highly cultivated, and densely peopled plain. Within the inclosures, consisting of a wall and deep ditch that can be flooded, there is a mixed Mohammedan and Christian population of from 25,000 to 35,000, while the surrounding district is studded with over 300 populous villages. The chief industries are weaving, dyeing, and especially tillage, abundant crops of rice, melons, cotton, and excellent tobacco being raised in the neighborhood. Urmia has for many years been the center of an American mission, which has had considerable success, especially among the so-called "Chaldean" or Nestorean Christians. According to an old tradition, Urmia was the birthplace of Zoroaster.

URQUHART, or URCHARD, SIR THOMAS, one of the most original and raciest translators from any foreign language into English, was the son of Sir Thomas Urquhart of Cromarty, the representative of a very ancient family, and of Christian, daughter of the fourth Lord Elphinstone. His birth-year is uncertain, but it is guessed at 1605, and his birthplace was the old mansion-house of Cromarty. In 1645 he produced a tract called *Trissotetrass*, a treatise on logarithms, adjusted to a kind of memoria technica, like that of the scholastic logic. He published in rapid succession during 1652 and 1653 a series of tracts with quaint titles and quaint contents. *Pantochronochanon* (sic) is an almost unbelievable genealogy of the house of Urquhart up to Adam, with the names extemporized for the earlier ages in a kind of gibberish, which seems to be after the pattern of the giants and heathens in the *Amadis*. *Eeskubalauron*, supposed to be a treatise on the virtues of a jewel found in the streets of Worcester, is in reality a rather elaborate treatise on the virtues of the Scottish character, as shown in the Admirable Crichton and others. Finally, *Logopandecteis* handles the subject of a universal language. The *Translation of Rabelais*, which Urquhart produced in 1653, is a very different work from the literary point of view. Next to nothing is known of Urquhart after its date; it is said that he sought a refuge, like other cavaliers, on the Continent, and died (1660) of a fit of laughing, brought on by joy at hearing of the Restoration.

URSINUS, ZACHARIAS, German theologian, and one of the authors of the *Heidelberg Catechism*, was a native of Breslau, and became a disciple of Melancthon at Wittenberg. He afterward studied divinity at Geneva under Calvin and Hebrew at Paris under Mercier. In 1561 he was appointed professor in the Collegium Sapientiae at Heidelberg, where in 1563, at the instance of the elector-palatine, Frederick III., he drew up the *Catechism* in cooperation with Kaspar Olevian. The death of the elector in 1577 led to the removal of Ursinus, who, from 1578 till his death in 1583, occupied a professorial chair at Neustadt-an-der-Haardt.

URSON (*Erythizon Dorsatum*), a quadruped nearly allied to the Porcupine, and often called the Canadian Porcupine. The genus *Erythizon* differs from *Hystrix* (Porcupine) in the flatter head, the shorter and not convex muzzle, the longer tail, and in having the quills short and half hidden in the hair. The Urson is about the size of a small hare. It is found as far south as Virginia and Kentucky, and as far north as latitude 69°. Its quills are dyed by the Indian women, and worked into ornamental articles of various kinds.

URSULA, St., and her companions, virgins, and martyrs, are commemorated by the Roman Church on October 21st. The *Breviary* gives no legend; but in current works, such as Butler's *Lives of the Saints*, it is to the effect that "these holy martyrs seem \* \* \* to have met a glorious death in defense of their virginity from the army of the Huns. \* \* \* They came originally from Britain, and Ursula was the conductor and encourager of the holy troop." The scene of the martyrdom is placed near the lower Rhine.

The date has been assigned by different writers to 238, c. 283, and c. 451. The story, however, is unknown both to Jerome and to Gregory of Tours—and this though the latter gives a somewhat detailed description of the Cologne church dedicated to that Theban legion with which the tradition of the martyred virgins was very early associated.

The full legend first makes its appearance in a festival discourse (*sermo*) for October 21st, written, as internal evidence seems to show, between 731 and 839. This *sermo* does not mention St. Ursula, but makes Pinnosa or Vinnosa the leader of these spiritual "amazons," who, to avoid Maximian's persecution, left their island home of Britain, following their bridegroom Christ toward that East whence their faith had come a hundred years before. The author of the *sermo* pointedly rejects the two theories that connected the holy virgins with the Theban band and brought them as pilgrims from the East to the West; but he adds that even in his days there still existed an inscription in the church, showing how it had been restored from its foundations by a certain "Clematius, vir consularis, ex partibus Orientis." Two or three centuries later the *Passio XI. MM. SS. Virginum*, based apparently on the revelations made to Helentrude, a nun of Heerse near Paderborn, gives a wonderful increase of detail. According to her account, the son of a powerful pagan king demands in marriage Ursula, the beautiful daughter of Deonotus, a king "in partibus Britanniae." Ursula is warned by a dream to demand a respite of three years, during which time her companions are to be 11,000 virgins collected from both kingdoms. After vigorous exercise in all kinds of manly sports to the admiration of the populace, they are carried off by a sudden breeze in eleven triremes to Thiel in Guelderland on the Waal. Thence they sail up the Rhine by way of Cologne to Basel, at which place they make fast their vessels and proceed on foot to Rome. Returning, they reënter their ships at Basel, but are slaughtered by the Huns when they reach Cologne.

The legend of St. Ursula is perhaps the most curious instance of the development of an ecclesiastical myth. We know, however, too little about its earlier stages to justify any serious attempt at estimating what amount of historic truth underlies it, and it is doubtful whether many of the efforts in this direction do not make a larger demand on human credulity than the legend itself. Even in the earliest form known to us this legend is probably the complex growth of centuries, and any claim to the discovery of the first germ can hardly approve itself to the historic sense. These remarks apply especially to that venerable rationalization which evolves the whole legend from a misreading of *Undecimilla* into *undecim millia*. A more modern theory makes St. Ursula the Christianized representative of the old Teutonic goddess Freya, who, in Thuringia, under the name of Hørsel, welcomed the souls of dead maidens. Not a few singular coincidences seem to point in the same direction, especially the two virgins, "Martha and Saula," whom Usuard states to have suffered "cum aliis pluribus" on October 20th, whence they were probably transferred to October 21st.

URSULINES, a religious order founded at Brescia by Angela de Merici in 1537, primarily for the education of girls. It was approved in 1544 by Paul III., and in 1572 Gregory XIII., at the instance of Charles Borromeo, made inclosure obligatory and declared it a religious order under the rule of St. Augustine. In the following century it was powerfully encouraged and supported by St. Francis de Sales; and toward the beginning of the eighteenth century, the period of its greatest prosperity, the order embraced some twenty congregations, with 350 convents and from 15,000 to 20,000 nuns. It still has some importance and possesses about thirty-six convents in Germany and Austria alone.

URTICACEAE, an order of exogenous plants, consisting of trees, shrubs and herbs, natives of almost all parts of the world. According to many botanists, the order includes about 600 known species, but by others it is recorded as containing only half that number. The common nettle may be regarded as a type of the entire order. The fiber of the bark of some species is valuable. Some of the species are covered with stinging hairs, as for example, the common stinging nettle.

URUGUAY. The republic of Uruguay, officially known as the ORIENTAL REPUBLIC OF THE URUGUAY, and long locally called the BANDA ORIENTAL (meaning the land on the eastern side of the large river from which the country takes its modern name), is the smallest independent state in South America. It runs continuous with the southern border of the empire of Brazil and lies between 30° and 35° S. latitude and 53° 25' and 57° 42' W. longitude; its area is 73,185 square miles. The country is in some sense a peninsula, having a seaboard on the Atlantic Ocean of 120 miles, a shore line to the south on the river Plate of 235 miles, and another of 270 miles along the Uruguay on the west. The boundaries separating it from Rio Grande do Sul, a province of Brazil, are Lake Mirim, the rivers Chuy, Yaguaron, and Cuareim, and a *cuchilla* or low range of hills called Santa Ana. The extent of the northern frontier from the Cuareim to the bar of the Chuy on the coast of the Atlantic is 450 miles. The hilly districts in the north and east contain minerals of many kinds, including gold, lead, copper, agate, amethyst, alabaster, and marble. The limestone, granite, and marble quarries have some commercial value; but so far little progress has been made in the working of metallic veins.

The seat of government is the city of MONTEVIDEO (q.v.) at the entrance of the river Plate. The harbor and roadstead of that port form the only good natural



refuge for shipping for hundreds of miles south of Rio de Janeiro.

Uruguay has a healthy climate. Endemic diseases are unknown and epidemics are rare. In the interior, away from the sea and the shores of the great rivers, the temperature frequently rises in summer as high as 86° Fahr. and in winter falls as low as 35.6° Fahr. In the districts bordering on the coast the thermometer seldom falls below 37°; and only for a few moments and at long intervals has it been known to rise as high as 105°. The annual rainfall is stated to be more than twice that of Paris.

The pastoral wealth of Uruguay as of the neighboring Argentine Republic is due to the fertilizing constituents of "pampa mud," geologically associated with gigantic antediluvian animals, whose fossil remains are found abundantly in those regions. The country is rich in hard woods, suitable for cabinet work and certain building purposes. The principal trees are the alder, aloe, palm, poplar, acacia, willow, and eucalyptus (recently introduced). The "montes," by which are understood plantations as well as native thickets, produce, among other woods, the algarrobo, a poor imitation of oak; the guayabo, a substitute for boxwood; the quebracho, of which the red kind is compared to sandalwood; and the urunday, black and white, not unlike rosewood. Indigenous palms grow in the valleys of the Sierra José Ignacio, also to some extent in the departments of Minas, Maldonado, and Paysandú. The myrtle, rosemary, mimosa, and the scarlet-flowered ceibo are among the plants commonly seen. The valleys within the hill ranges are fragrant with aromatic shrubs. In the plains below, the swards are gay with the scarlet and white verberna and other wild flowers of brilliant hues. The country abounds in medicinal plants. The sarsaparilla even colors the water of the Rio Negro and gives to it its name—the "black river."

Among the wild animals the tiger or ounce—called in the Guaraní language the "ja-guá" or "big dog"—and the puma are found on the frontier of Brazil and on the wooded islets and banks of the larger rivers. The tapir, fox, deer, wildcat, wild dog, carpincho or water hog, and a few small rodents nearly complete the list of quadrupeds. A little armadillo, the mulita, must be mentioned as the living representative of the antediluvian giants, the mylodon, mastodon, megatherium, etc. The ostrich—*Rhea americana*—roams everywhere in the plains; and there are a few specimens of the vulture tribe, a native crow (lean, tall, and ruffed), partridges, and quails. Parakeets are plentiful in the "montes," and the lagoons swarm with waterfowl of all descriptions. The most esteemed is the "pato real," a large duck. Of the birds of bright plumage the humming bird and the cardinal—the scarlet, the yellow, and the white—are the most attractive. The fish of the lagoons and streams are coarse, and some of them primitive in type, but two or three kinds, found generally in the large rivers, are much prized. The varieties of fish on the sea coast are many and excellent; 130 species are known. More than 2,000 species of insects have been classified. The scorpion is rarely seen; but large and venomous spiders are common. The principal reptiles are a lizard, a tortoise, the "vivora de la cruz," a dangerous viper, so called from marks like a cross on its head, and the rattlesnake, this last in Maldonado and the stony lands of Las Minas.

At the commencement of the nineteenth century the population of Montevideo and the surrounding territory was estimated by Azara at 30,000, one-half of these being given to the city of Montevideo. This total seems not to have included what remained of the indigenous inhabitants in the north and west, though the

Indian population of the Jesuit missions before these were destroyed, about the year 1767, was known to be very numerous. But the aborigines have now completely disappeared. Recent estimates (1900) place the population of the department of Montevideo at 268,334; and of the republic of Uruguay at 930,680.

The country is divided into eighteen departments, of which that of Montevideo is the smallest, although it contains one-fourth of the total population. Adjoining this is Canelones; and in a northerly direction are those of Florida, Durazno, Tacuarembó, and Rivera, the last-named bordering on Brazil. To the eastward on the Atlantic are Maldonado and Rocha, and north and west of these Minas, Treinta y Tres, and Cerro Largo. To the west, along the Plate and Uruguay, are San José, Colonia, Soriano, Rio Negro, and Paysandú; and farther north toward the Brazilian frontier are Salto and Artigas. The principal inland town is San José. The chief ports, besides Montevideo, are Salto, Paysandú, Fray Bentos, Mercedes, Colonia, and Maldonado.

More than two centuries ago the Banda Oriental was looked upon by the Spanish colonies on the opposite banks of the Plate and Uruguay as a station for the breeding of live stock and the cutting of timber and firewood. And at this day, in spite of the thriving foreign trade of Montevideo, it still partakes largely of this character. The country being in general pastoral, sheep and cattle grazing is the main occupation of the people; the sheep flourish best in the southern and western departments, while the principal cattle districts are toward the north and east. Ninety-six per cent. of the exports of the country consists of live stock and their produce—wool, hides, horns, hair, sheepskins, tallow, grease, bones, bone-ash, and jerked beef. More than half the fixed property and commercial capital is in the hands of foreigners. At Fray Bentos, in the department of Rio Negro, is the Liebig factory of extract of meat; at Colonia there is a branch of the River Plate Frozen Meat Company. But, apart from these, and some breweries, flour-mills, tanneries, establishments in Montevideo for the making of boots and shoes and clothing, and a few local industries, unnaturally fostered by high import duties, there are no manufactures to speak of. Agriculture is still in a promising infancy. Latterly it has made great strides; yet the export of agricultural produce appears to be relatively insignificant. At intervals during the last twenty years agricultural settlements (colonies) have been established with great success in different departments, but principally in Colonia, where the settlers are mostly Italians and Swiss. These prosperous colonies have already in Colonia outgrown the space originally allotted; but owing to the irregular and illegal appropriation of the public lands there is no more land to bestow on settlers, native or foreign, except at the exorbitant rates demanded by private owners and speculators.

At Cuaipirú in Tacuarembó gold was accidentally discovered in 1842. The mines have been worked at intervals since 1867, but, partly owing to difficulties of communication, with indifferent success. But gold-mining seems to have lately assumed a more hopeful aspect, owing to the employment of improved and economical machinery introduced by a French company. The metals of Uruguay are found in two quite distinct systems of hills. The Cuaipirú mines are in the Santa Ana range, the auriferous quartz being found in thin layers embedded in rocks of red porphyry. The formation of the system in general resembles that of the gold-producing regions in Brazil, California, and Australia. The Pan de Azúcar (Sugar-Loaf Mountain), near the south coast of Maldonado, forms the extremity of a second system, which has its origin as far north as

Pernambuco in Brazil; as developed in Uruguay it is Huronian, limestone and slate being superposed on the gneiss and granite. The metals of this system are principally silver, lead, copper, and an argentiferous lead, which in earlier times the Spaniards mistook for silver. Two copper mines at the foot of the Pan de Azucar are now in active operation.

Since the beginning of the nineteenth century the value of the exports and imports has increased twenty-fold, and with some relapses has more than doubled in the last twenty years.

Telegraph lines, with a total length of 661 miles, exist in most of the departments. Submarine cables communicate with Buenos Ayres and the ports of Brazil, and thence with Europe. The railways are comprehended in three main systems, the central, north-western, and eastern; their combined length barely reaches 300 miles. There are no public roads in the country; but communication in the more inhabited parts is easily effected over the nearly level grassy plains.

The system of national education is gratuitous and compulsory. The number of school children is over 30,000, about 5.4 per cent. of the total population. The teaching at the national schools is irrespective of religious creed or denomination. In higher education much has yet to be accomplished. There is a school of arts and trades in the capital. The university of Montevideo, founded in 1838, numbers about 1,300 students. The state religion is Roman Catholic; but all sects enjoy complete toleration, unless a decided non-toleration of the Jesuits be regarded as an exception to the rule.

The legislative power of the state rests with the general assembly, consisting of two chambers, one of senators (eighteen) and one of representatives (fifty-one). The deputies of the lower house are elected annually and directly by the people, one deputy for every 3,000 of the population, or any fraction not less than 2,000. One senator is named for each department. The executive power is exercised by the president of the republic, who is elected by the general assembly. The judicial power is vested in a superior court, composed of two courts of appeal, which temporarily supply the place of a supreme court of justice, not yet created.

The permanent army on a peace footing consists of 3,260 men. The national guard numbers about 20,000. On an emergency the government could put in the field 30,000 men. The regular troops are well armed, and accoutered after the European fashion. The navy consists of a few small steamers and gunboats.

The history of Uruguay dates from 1512, when Juan Diaz de Solis entered the Paraná-guazú or "sealike" estuary of the Plate and landed about seventy miles east of the present city of Montevideo. Uruguay at that time was inhabited by Indians, of whom the dominant tribe was called Charrúas, a people described as physically strong and well-formed, and endowed with a natural nobility of character.

Solis, on his second visit, 1515-16, was slain by the Charrúas in Colonia. Eleven years later Ramon, the lieutenant of Sebastian Cabot, was defeated by the same tribe. In 1603 they destroyed in a pitched battle a veteran force of Spaniards under Saavedra. During the next fifty years three unsuccessful attempts were made by the Spaniards to subdue this courageous people. The real conquest of Uruguay was commenced under Philip III. by the Jesuit missions. It was gradually consummated by the military and commercial settlements of the Portuguese, and subsequently by the Spaniards, who established themselves formally in Montevideo under general Zavala in 1720, and finally demolished the rival Portuguese settlement in Colonia in 1777.

From 1750 Montevideo enjoyed a provincial government independent of that of Buenos Ayres. The American rebellion, the French Revolution, and the British invasions of Montevideo and Buenos Ayres (1806-7) under Generals Auchmuty and Whitelock all contributed to the final extinction of the Spanish power on the river Plate. During the war of independence Montevideo was taken in 1814 by the Buenos-Ayrean general Alvear. A long struggle for dominion in Uruguay between Brazil and the revolutionary government of Buenos Ayres was concluded in 1828, through the mediation of Great Britain, Uruguay being declared a free and independent state. The republic was formally constituted in 1830. Subsequently Juan Manuel Rosas, dictator of Buenos Ayres, interfered in the intestine quarrels of Uruguay; and Montevideo was besieged by his forces, allied with the native partisans of General Oribe, for nine years (1842-51). From the era of its independence to about 1870 the history of Uruguay is a long record of foreign invasions and intrigues, financial ruin, and political folly and crime.

URUMIAH. See URMIA.

URUS, a large animal of the ox kind, now extinct, but formerly inhabiting the forests of central Europe. From Cæsar's description, we gather that it was common in the great Hercynian forest. He describes it as being scarcely less in size than an elephant, but otherwise resembling the ox, having great speed, fierceness, and strength. Its horns were very large, spreading, and extremely sharp. From some of its characteristics it is believed that this ox has a descendant of the same species still in existence in Scotland.

USBEGS. See BOKHARA, KHIVA, MONGOLS, TURKESTAN, and TURKS.

USE AND OCCUPATION is a technical name given in English law to the beneficial acknowledgment of premises by a tenant who occupies the real property of another. In all cases where a person has had the use and occupation of premises with the consent of the owner, an action lies for the value thereon, which value is equivalent to rent under an ordinary lease.

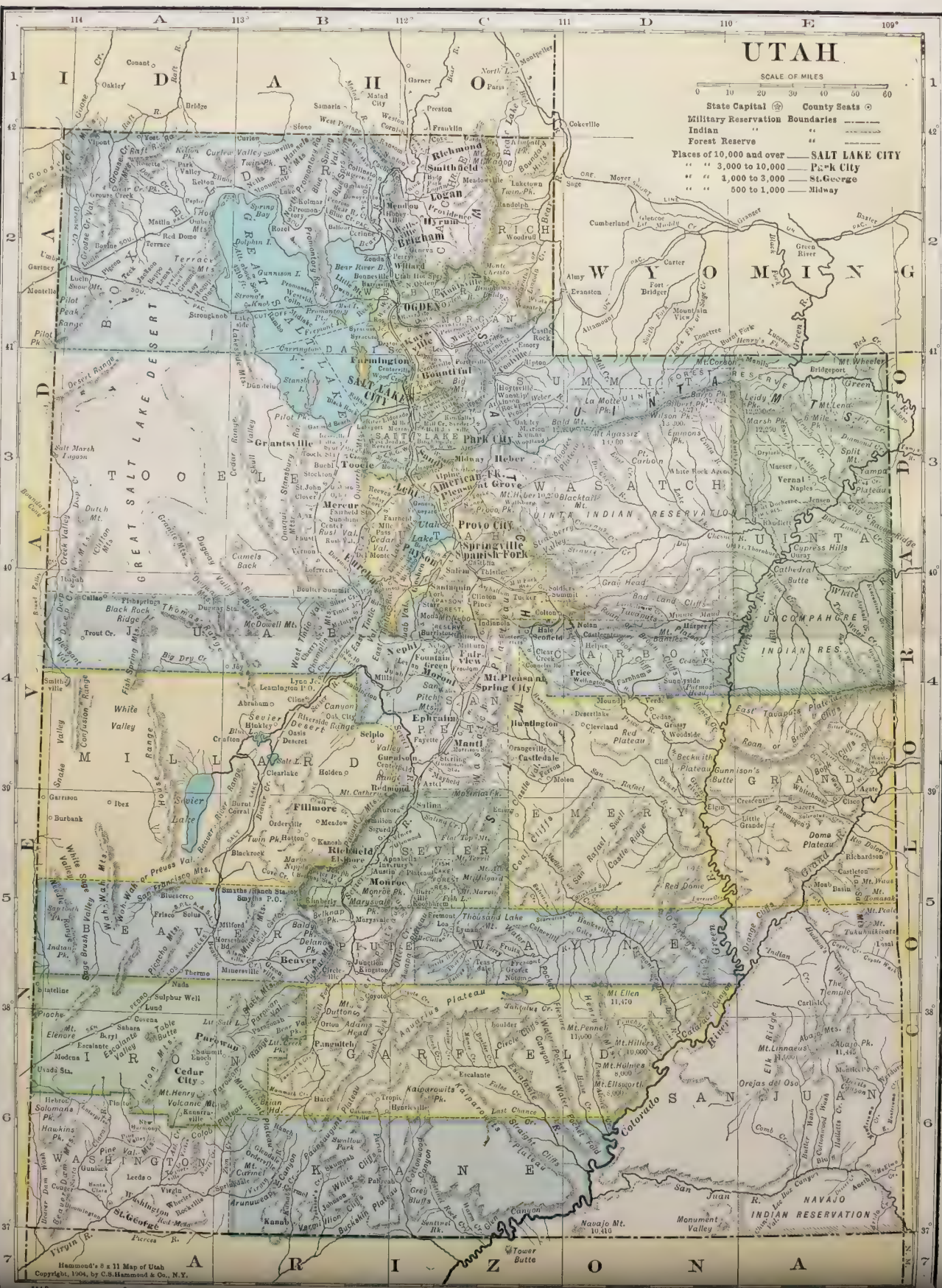
USEDOM, an island belonging to Prussia, which lies at the mouth of the river Oder. It is of very irregular shape, thirty-four miles in extreme length and fifteen miles broad; area, 148 square miles. It contains two towns, both small.

USHANT (Fr. *Ouessant*), the most westerly of the islands off the coast of France, twenty-six miles west-northwest from Brest, belongs administratively to the department of Finistère. It is about four and a half miles in length, and almost entirely granitic, with steep and rugged coasts, accessible only at a few points. The island affords pasturage to a few sheep and horses, and contains some small villages, the chief being St. Michael. The inhabitants are principally pilots and fishermen. The total population in 1900 was 3,000.

USHAS (from the Sanscrit *ush*, to shine), "the dawn," is one of the familiar deities of the Vedic religion of India and among these is invoked specially by the poets of the Rîgveda hymns.

USHER, JAMES, prelate and scholar, was born in the parish of St. Nicholas, Dublin, January 4, 1580. He took his degree of D.D. in 1612, and, in the following year, published his first printed work, though not his first literary composition—*Gravissima Questionis de Christianarum Ecclesiarum, in Occidentis præsertim partibus, ab Apostolicis temporibus ad nostram usque ætatem, continua successione et statu, Historica Explicatio*. In 1615 he took part in an attempt of the Irish clergy to impose a Calvinistic confession, embodying the Lambeth Articles of 1595, upon the Irish





# UTAH

SCALE OF MILES  
0 10 20 30 40 50 60

State Capital (C) County Seats (C)  
Military Reservation Boundaries  
Indian  
Forest Reserves  
Places of 10,000 and over  
SALT LAKE CITY  
" " 3,000 to 10,000 Park City  
" " 1,000 to 3,000 St. George  
" " 500 to 1,000 Midway





Church, and was delated to King James in consequence. But he made a trip to England, and so gained the confidence of the king that he was made bishop of Meath. In 1622 he published a controversial *Discourse of the Religion anciently Professed by the Irish and British*, designed to show that they were in agreement with the Church of England and opposed to the Church of Rome on the points in debate between those churches. In 1623 he was made a privy councilor for Ireland, and in the same year was summoned to England by the king that he might more readily carry on a work he had already begun upon the antiquity of the British churches. While he was detained on this business, the archbishop of Armagh died in January, 1624, and the king at once nominated Usher to the vacant primacy; but severe illness and other causes impeded his return to Ireland until August, 1626.

For many years Archbishop Usher was actively employed both in the government of his diocese and in the publication of several learned works, among which may be specified *Emmanuel* (a treatise upon the Incarnation), published in 1638, and *Britannicarum Ecclesiarum Antiquitates*, in 1639. In 1640 he paid another visit to England on one of his usual scholarly errands, meaning to return when it was accomplished. But the rebellion of 1641 broke out while he was still at Oxford, and he never saw his native country again. He quitted Oxford in 1645 and went into Wales, where he remained till 1646, when he returned to London, and was in 1647 elected preacher to the society of Lincoln's Inn, an office he continued to hold till a little before his death. During his residence in Wales a hyper-Calvinistic work entitled *A Body of Divinity; or the Sum and Substance of the Christian Religion*, was published under his name by Downham; though he repudiated the authorship in a letter to the editor. In 1650-54 he published the work which at the time and for more than a century afterward was accounted his most important production, the *Annales Veteris et Novi Testamenti*, in which he propounded a scheme of Biblical chronology which held its ground until disproved by very recent advances in scholarship.

In 1655 Usher published his last work, *De Græca LXX. Interpretum Versione Syntagma*. He died on March 20, 1656, in Lady Peterborough's house at Reigate in Surrey. His body was buried in Westminster abbey, in the chapel of St. Erasmus.

**USHER OF THE BLACK ROD**, one of the officers of the order of the Garter. The rod from which this title is derived is of ebony mounted with gold, three and one-half feet in length, having at the top a lion holding in his paws a shield. It is the vocation of this officer to desire the attendance of the Commons in the House of Lords, whenever the royal assent is to be given to bills by the sovereign or his representative. He also executes orders for commitment for breach of privilege and contempt and assists at the introduction of peers and other ceremonies in the House of Lords.

**USHER OF THE GREEN ROD**, one of the officers of the order of the Thistle, whose duties consist in attendance on the sovereigns and knights when assembling in chapter and at other solemnities of the order. The rod from which the title is taken is of green enamel three feet in length, ornamented with gold and having on top a unicorn of silver.

**USKUP, USKUB, or SKOPLJE**, a town of European Turkey, capital of the sanjak of the same name and of the vilayet of Kossova, on the upper Vardar river, about 160 miles northwest of Saloniki. Uskup has some flourishing industries, such as leather and metal-work, weaving and dyeing, and is the center of a rich agricultural district growing large quantities of fruits

and cereals. It is the residence of the provincial governor, the seat of a Greek archbishop, and one of the chief stations on the main line of railway which runs from Saloniki up the Vardar valley to Bosnia. Population, 28,000.

**USNEA**, a genus of lichens, having a much branched thallus with an elastic thread in the center. They grow on trees and are generally pendulous. They contain the vegetable principle called Usnine and they are sometimes used in dyeing.

**USURY**. Until quite recent times the term "usury" covered a number of essentially different social phenomena. At the present day, "usury," if used in the old sense of the term, would embrace a multitude of modes of receiving interest upon capital to which not the slightest moral taint is attached. The change in the moral attitude toward usury is perhaps best expressed by saying that in ancient times so much of the lending at interest was associated with cruelty and hardship that all lending was branded as immoral (or all interest was usury in the moral sense), while at present so little lending takes place, comparatively, except on commercial principles, that all lending is regarded as free from an immoral taint. This change in the attitude of common-sense morality in respect to "anything that is lent upon usury" is one of the most peculiar and instructive features in the economic progress of society.

In Athens about the time of Solon's legislation (594 B.C.) usury had given all the power of the state to a small plutocracy. Solon canceled all the debts made on the security of the land or the person of the debtor, at the same time enacted that henceforth no loans could be made on the bodily security of the debtor, and the creditor was confined to a share of the property. Solon left the rate of interest to be determined by free contract, and sometimes the rate was exceedingly high, but none of the evils so generally prevalent in antiquity were experienced.

When we turn to Rome, we find exactly the same difficulties arising, but they were never successfully met. In the course of two or three centuries the small free farmers were utterly destroyed.

The opinion of Aristotle on the barrenness of money became proverbial, and was quoted with approval throughout the Middle Ages. This condemnation by the moralists was enforced by the fathers of the church on the conversion of the empire to Christianity. They held usury up to detestation, and practically made no distinction between interest on equitable moderate terms and what we now term usurious exactions. The consequence of the condemnation of usury by the church was to throw all the dealing in money in England in the early Middle Ages into the hands of the Jews. Ultimately in 1290 the Jews were expelled in a body from the kingdom under circumstances of great barbarity, and were not allowed to return until the time of Cromwell. Before the expulsion of the Jews, however, in spite of canonical opposition, Christians had begun to take interest openly; and one of the most interesting examples of the adaptation of the dogmas of the Church of Rome to social and economic environment is found in the growth of the recognized exceptions to usury.

For information upon the modern legislation affecting the subject, see **INTEREST** and **PLEDGE**.

**UTAH**, a Territory of the United States, bounded on the north by Idaho and Wyoming, on the east by Colorado, on the south by Arizona, and on the west by Nevada. The eastern boundary coincides with 109° and the western with 114° W. longitude. The southern boundary is the thirty-seventh parallel of latitude; the northern is on the forty-second parallel between the meridi-



ans of  $114^{\circ}$  and  $111^{\circ}$ , while east of the latter meridian it follows the forty-first parallel. The area of Utah is 84,970 square miles.

The surface is greatly diversified, containing high mountains, broad arid valleys, and desert plateaus. Near the middle of the northern boundary the Wahsatch Mountains enter the Territory, and they extend southward along its middle line, finally degenerating into plateaus whose elevation diminishes southward. This is the principal mountain range of the Territory, and its position marks the highest land, from which, as a watershed, the streams flow off eastward and westward, the former to the Colorado of the West, the latter to sink in the Great Basin. Eastward from the Wahsatch, along the northern boundary of Utah, stretches a broad, massive range, known as the Uintah. These mountains are exceptional in that their trend is east and west, *i.e.*, nearly at right angles to the other uplifts of the Rocky Mountain system. South of this range and east of the Wahsatch is a region of plateaus, horizontal or but slightly inclined, and receding step by step from the high mountains. In this region all the streams flow in cañons carved in the nearly horizontal sandstones and limestones, to depths ranging from a few hundreds to several thousands of feet. West of the Wahsatch stretches the Great Basin, a region having no outlet to the sea. Its surface presents an alternation of broad desert valleys and narrow abrupt mountain ranges, rising sharply from the valleys. The mean elevation of the Territory is 6,100 feet. The lowest portion is near the southern border, where it is less than 3,000 feet above the sea; but, on the other hand, many mountain summits exceed 13,000 feet in height. Of the principal peaks may be mentioned Mount Nebo (11,680 feet) in the Wahsatch Range, and Gilberts Peak (13,987), La Motte (12,892), and Burro (12,834) in the Uintah Range. The principal stream of eastern Utah is the Colorado of the West. This is formed by the junction of Green river, which rises in the Wind River Mountains of Wyoming, and the Grand, whose sources are in the snow-fields upon Long's Peak in Colorado. The Green and the Colorado receive numerous branches from the Uintah and Wahsatch Ranges, among them the Uintah, Price, Fremont, San Rafael, and Virgin. With the exception of the first-named, all these streams have their courses far below the general surface, in the characteristic cañons of this strange region. In western Utah the climate is very arid, and, consequently, there are few living streams. The Great Basin, of which this region forms a part, consists of a large number of basins, differing greatly in magnitude. In each of these the waters from the surrounding mountains sink or collect in a lake, which, having no outlet, rises or falls with the excess of supply or evaporation. The largest of these basins is that of Great Salt Lake, which stretches along the western base of the Wahsatch Range. The lowest part of this valley is occupied by the lake, into which drain the rivers from the western slope of the mountains, the chief being the Bear, Weber, and Ogden, while the Provo, Spanish Fork, and American Fork contribute to it through Utah Lake and the river Jordan. In former geologic times Great Salt Lake had an extent vastly greater than at present, as is evidenced by the well-marked shore-lines upon the mountains around and within its basin. These shore lines have an altitude nearly 1,000 feet higher than the present level of the lake. This higher stage, which has been named Lake Bonneville, was reduced to its present stage primarily by the formation of an outlet at the northern end of Cache valley, by which its waters flowed off through Snake and Columbia rivers to the Pacific, and secondarily by the excess of evaporation over supply. Since

the settlement of the country, the surface of the lake rose, so that from an area of 1,700 square miles in 1849 it had expanded in 1870 to about 2,360. But in more recent years it has been slowly receding. Together with these general movements, slight oscillations with the changes of season are constantly going on. As Great Salt Lake has no outlet save evaporation, its water contains a large amount of saline matter in solution. The proportion varies inversely with the varying height of the water in the lake, ranging from 14.8 to 22.4 per cent. by weight. The only other bodies of water of considerable magnitude are Bear and Utah Lakes, both fresh and both tributary to Great Salt Lake. Besides the tributaries to Great Salt Lake, the only other stream of importance west of the Wahsatch is the Sevier, which, rising in the plateaus south of the Wahsatch, passes by a circuitous route into the deserts to the west, where it sinks. Formerly it flowed into Sevier Lake, whence its waters were evaporated, but the extensive use of the river for irrigation has caused the lake to disappear.

The animal and vegetable life presents variety corresponding with that of the topography. Upon the mountains and high plateaus are forests of *Conifera*, with groves of aspen skirting them at their lower limit. Here are found bears of different species, the mule deer, and occasionally the elk (*wapiti*) and the antelope. Upon the lower plateaus and in the desert valleys of the Great Basin life is not abundant. Piñon pine and cedar, *Artemisia*, cacti, and yucca characterize the vegetation; while of animals there are few except the coyote, prairie dog, rattlesnake, and scorpion.

The settled portion of Utah lies mainly along the western base of the Wahsatch and in the valleys of that range, particularly in the northern part of the Territory. There are also considerable settlements near the southern boundary, in the valleys of the Virgin river. The population numbered 143,963 in 1880, showing an increase of 65.8 per cent. since 1870. The population by the United States census of 1900 was 276,749. In 1850 the total was only 11,380; in 1860 it had risen to 40,273, and in 1890 to 207,905. Probably four-fifths of the population are adherents of the "Church of Jesus Christ of Latter Day Saints" or Mormons, as they are popularly designated (see MORMONISM). This proportion is steadily diminishing as the mining industries, the manufactures, and transportation increase, thus bringing in a constantly-increasing "Gentile" element. Of the aggregate population males are decidedly in excess of females—in 1880 there were 100 of the former to 93 of the latter, showing that polygamy was not generally practiced. The proportion of foreign-born inhabitants is exceptionally large—in 1880 there were 44 foreign-born to 100 natives, *i.e.*, nearly one-third of the population were immigrants. Of this foreign element there came from England, 19,654; Denmark, 7,791; Sweden, 3,750; Scotland, 3,201; Wales, 2,390; Ireland, 1,321; Norway, 1,214; Switzerland, 1,040; Germany, 885. Thus England supplies nearly one-half and Denmark nearly one-fifth, while Germany and Ireland, which furnish the great bulk of the immigrants to the United States at large, are but feebly represented among the Mormons.

The principal cities are—Salt Lake City, the capital of the Territory; Ogden, in the Salt Lake valley, at the confluence of the Ogden and Weber rivers; Provo, in the valley of Utah Lake; and Logan, in Cache valley. There are numerous other smaller places, making a large aggregate of city and village population. This is a result of the policy of the Mormon Church, which has favored the grouping of the farming population in villages.



Utah is divided into twenty-seven counties, enumerated, with their population in 1900, in the subjoined table:

County.	Pop.	County.	Pop.	County.	Pop.
Beaver.....	3,613	Kane.....	1,811	Sevier.....	8,451
Boxelder.....	10,009	Millard.....	5,678	Summit.....	9,439
Cache.....	18,139	Morgan.....	2,045	Tooele.....	7,361
Davis.....	7,996	Piute.....	1,954	Uinta.....	6,458
Emery.....	4,657	Rich.....	1,946	Utah.....	32,456
Garfield.....	3,400	Salt Lake.....	77,725	Wasatch.....	4,736
Grand.....	1,149	San Juan.....	1,023	Washington.....	4,612
Iron.....	3,546	Sanpete.....	16,313	Weber.....	25,239
Juab.....	10,082	Carbon.....	5,004	Wayne.....	1,907

As everywhere throughout the western United States, with the altitude above the sea there is a gradation of climate with respect to aridity. Upon the higher mountains there is sufficient rainfall for the needs of vegetation. But upon the low country the precipitation is slight, so that irrigation is almost universally practiced by the agriculturist. The annual rainfall at Salt Lake City, which is very favorably situated, being southeast of Great Salt Lake and at the immediate base of the Wahsatch Mountains, is about thirty inches. In all other habitable parts of the Territory it is less, being not greater than ten inches in the southern and western portions. Temperature, also, has a wide range in different parts of the Territory. The mean annual temperature at Salt Lake City, which may serve as an average of the habitable parts of Utah, is about 45°. The range of temperature between summer and winter and between day and night is very great, and the changes of temperature are often starting in their magnitude and abruptness.

The principal industries of Utah are agriculture and mining. At Salt Lake City and Ogden some manufacturing is done, and in the remote parts of the Territory cattle and sheep raising is carried on to a limited extent. Agriculture is confined mainly to the Mormons, while mining enterprise is carried on almost exclusively by Gentiles. The principal mineral products are silver and lead, which are found associated in the same ores. The mines are situated almost entirely in the Wahsatch Range, east and southeast of Salt Lake City.

Utah is well supplied with railroads. The Union and Central Pacific Railroads cross it near the northern boundary, the junction of these two lines being at Ogden. From this place a branch of the Union Pacific runs northward to Montana and another southward to Salt Lake City and thence to the southern part of the Territory. The Denver and Rio Grande Western connects Salt Lake City with Pueblo, in Colorado. In addition to these, there are numerous short branches in the mountains, making a total length of 1,184 miles in operation at the close of 1901.

The executive is administered by a governor and a secretary, appointed by the president of the United States, and by a treasurer, nominated by the governor. There is a legislature, the members of which are chosen by the people. The judiciary consists of a chief justice and two associate justices, together with a United States district attorney and a marshal, all appointed by the president of the United States.

For many years congress has been trying to frame legislation which would destroy polygamy in Utah, but until recently the action of the courts was frustrated and the laws nullified by the power of the Mormon Church. All elective offices were filled by Mormons. Juries were necessarily made up mainly of Mormons, whose obligations to the church were superior to any Gentile oath. The Edmunds Bill, passed in 1882, was the first efficient piece of legislation. This measure de-

clared all elective offices vacant, and constituted a commission to oversee elections and appoint the judges and other officers of election. It disfranchised all polygamists. It annulled the action of the Territorial legislature in extending the ballot to women. It disqualified from service on juries all who accepted the dogmas of the Mormon Church regarding polygamy. Under the operation of this Act the leading polygamists have either been sent to jail or have gone into hiding. A bill of a still more drastic nature was passed by congress in 1887. It annulled all Acts of the Territorial legislature designed in the remotest degree for the protection of polygamy. It provided that in trials for polygamy the wife may be a competent witness, that every marriage ceremony shall be made a matter of public record, and that all illegitimate children shall be disinherited. It annulled all Acts of the legislature incorporating and continuing the charters of the Mormon Church and of the Perpetual Emigration Fund Co., and confiscated their property, with the exception of the church buildings and parsonages, devoting it to the support of common schools in the Territory.

The area of Utah was acquired by the United States from Mexico in 1848, under the provisions of the treaty of Guadalupe Hidalgo. It was organized as a Territory in 1850, and at that time it comprised all the country lying between the eastern boundary of California and the western border of the Great Plains. The subsequent creation of Nevada, Colorado, and Wyoming reduced it to its present limits. In 1847 the Mormons, under the leadership of Brigham Young, had commenced to make settlements in Salt Lake valley, and they rapidly extended themselves over the fertile valleys of the Territory. Prior to the advent of railroads very few Gentiles settled in Utah. In 1895 Utah adopted a constitution prohibiting polygamy. On January 4, 1896, it became a State of the Union. For further details of the history of the Territory, see MORMONS.

UTICA (*Ἰτυνη*), an ancient Phœnician colony in Africa near the mouth of the Bagradas (Majerda), about twenty miles northwest of Carthage. The site, which is still covered with ruins, including those of a vast amphitheater, lies on a hill which is now eight or ten miles from the coast, but in ancient times a bay ran close up to the city; and the remains of quays can still be traced. Founded 1101 B.C., Utica was nearly three centuries older than Carthage. The two cities were generally allies; but Utica, jealous of its neighbor, sometimes acted independently, and in the Third Punic War it made a separate peace with Rome, and reaped the fruits of the destruction of the greater Punic city, becoming the emporium of Roman trade and the capital of the province, till Carthage was rebuilt by Cæsar in 44 B.C. It was here that the younger Cato killed himself. Utica received the Roman *civitas* from Augustus, was made a colony by Hadrian, and received the *jus Italicum* from Septimius Severus. The city was finally destroyed by the Arabs.

UTICA, a city of Oneida county, N. Y., about 180 miles north-northwest from New York city, is situated on the south bank of the Mohawk, about 400 feet above sea-level. The site of the city has a gentle slope toward the river. The surrounding country is thickly settled, the principal industries being the manufacture of cotton, woolen, and iron goods, the production of butter and cheese, and the raising of hops. Utica is the chief market for cheese in the United States. The city is touched by five railroads, the New York Central and Hudson River; New York, Ontario and Western; Rome, Watertown and Ogdensburg; Delaware, Lackawanna and Western; and New York, West Shore and Buffalo; and by the Erie canal. The

city is irregularly built. Of the manufacturing industries, which are varied, the most important is that of clothing, and next to it is that of boots and shoes. One of the State lunatic asylums is in Utica. The population of the city in 1880 was 33,914, an increase in ten years of less than 12 per cent., and in 1900 it was 56,383.

#### UTILITARIANISM. See ETHICS.

**UTRAQUISTS**, a name first given to all those members of the Western church in the fourteenth century, principally followers of John Huss, who contended for the administration of the Eucharist to the laity under both kinds, but in later times restricted to one particular section of the Hussites, although all the members of that sect held the same doctrine. The name may be said to date from 1415, when the followers of John Huss in Prague and elsewhere in Bohemia adopted "the communion of the cup" as their rallying cry, and as the distinguishing badge of their association.

**UTRECHT**, a province of Holland, bounded north by North Holland and the Zuyder Zee, east by Guelderland, south by Guelderland and South Holland, and west by South Holland, has an area of 534 square miles and a population (1901) of 254,867. In the west the province is flat and in many places below sea-level; toward the east, where the Veluwe begins, it is more undulating, and at Zeist reaches a height of 164 feet. The more productive region is in the west; toward the east the soil becomes sandy and heath-clad. Nearly half (46.5 per cent.) of the total area is under grass; the chief agricultural products are grain (buckwheat) and tobacco; bee-keeping is extensively carried on in the east, and there is a bee market at Veenendaal. The province is traversed by railways to Amsterdam, Rotterdam, Leyden, and The Hague, Bois-le-duc, Arnheim, Zutphen, and Zwolle, all converging in Utrecht; it is also amply provided with navigable water-ways.

**UTRECHT**, capital of the above province, twenty-two miles by rail south-southeast from Amsterdam, thirty-eight northeast from Rotterdam, and thirty-five nearly west from Arnheim, is situated at the point where the Kromme Rijn bifurcates into the Vecht and the Oude Rijn. Utrecht has excellent schools and several literary and scientific societies, besides barracks, a large military hospital, and a veterinary school. The most important industrial establishments are cigar-factories, manufactories of chemicals and earthenware, and brass-foundries. There is an active trade in the produce of the manufacturies, and also in corn, cattle, butter, and cheese. To the east of the town is the Mahebaan or Mall, a triple avenue of trees about half a mile in length

The population of Utrecht in 1876 was 66,106, and in 1901 it was 104,194.

**UTRERA**, a town of Spain, in the province of Seville, eighteen miles to the south-southeast of that city, on the railway to Jerez and Cadiz, at the junction for Moron and Osuna, lies about eight miles from the left bank of the Guadalquivir, in a pleasant valley between two gentle undulations of the foot-hills of the southern sierra. The place enjoys considerable prosperity, due mainly to the fertility of the surrounding district, which produces large quantities of grain, and also fruit of various sorts, oil, and wine. An important fair is held at Utrera in September. The population within the municipal limits in 1877 was 15,093.

**UTTERING COUNTERFEIT COIN** is an offense punishable by the laws of all nations with more or less severity, and the punishment is usually increased if, besides uttering, the person is found with other counterfeit coin in his possession. It has become of late years an international offense to forge the money or coin of any country, and most nations surrender criminals for such offenses to be tried in the country against whom the forgery was uttered.

**UXBRIDGE**, an ancient borough and market town of Middlesex, England, is pleasantly situated on the Colne and Frayswater, on the Grand Junction canal, and on a branch of the Great Western railway, fifteen and a half miles west of London. On the banks of the Colne are several flour-mills. The town possesses several breweries and an iron-foundry. By the Grand Junction Canal, near which there are several saw-mills, a considerable trade is carried on in timber, slates, and coal. The town is governed by a local board of eighteen members. The population of the urban sanitary district (area 496 acres) was 7,497 in 1871 and 7,669 in 1881.

**UZ**. The "land of Uz" (ארץ עֵז) is best known as the scene of the story of Job. Job seems to be represented as living in the country east of Palestine and not far from Edom, to which his friend Eliphaz the Temanite belonged. In Lam. iv. 21 the Edomites appear as in possession of the land of Uz, while in Gen. xxxvi. 28 Uz is one of the pre-Edomite inhabitants of Seir. On the other hand, in Gen. x. 23 and xxii. 21, Uz (or Huz) is Aramæan. Finally in Jer. xxv. 20, "the kings of the land of Uz" appear in a clause, absent from the LXX., which seems to be a gloss on the preceding clause, and so to refer to Arabs. Mediæval tradition places the home of Job in the Hauran (see Wetzstein in Delitzsch, *Job*), but it is doubtful whether all the Biblical references can apply to one district.



## V.

**V** is our twenty-second letter; it represents the voiced labio-dental to which F corresponds as the voiceless sound. It has been shown under U that these two symbols were originally one, and that their differentiation took place for convenience of writing only. But it was afterward put to a good use, although not quite the natural one. It would have been better, while retaining *u* for the vowel, to have used *v* for the corresponding labial consonant, which is actually denoted by *w*. The difference of *u* and *w* is simply that of vowel and consonant: for *u* there is a sufficient opening of the lips to allow the voice to pass through without friction; but for *w* the aperture is so much closed, by bringing together either the inner edges of the lips (as in England) or the outer edges (as in some parts of Germany), that there is an audible amount of friction as the voice passes. The organs employed are the lips only in each case, whereas for *v* the upper teeth and the lower lip are the factors of the sound.

The symbol *v* does not occur in the oldest of our texts; it is represented by *f*, as in "heofon," "ofer," "hlaforð" (lord). The *f* generally is voiced when medial, but voiceless when initial. This absence of two symbols for the corresponding pairs of fricative consonants has been noted already in the use of *ǥ* (or *þ*) for both *th* and *dh* (see under T); *s* also did duty, as it often does still, for both *s* and *z*. In Middle English *u* appears commonly for *v*. The introduction of *v* into English writing is due to French scribes; as a matter of fact almost all the words which begin with *v* are of French origin.

It is tolerably certain that in Latin *v* represented the labial and not the labio-dental consonant. The arguments in favor of this view are singly not very important, but they are fairly numerous.

In the Roman system of numerals V stands for five. The reason is uncertain. The old view that it represents half ten (X), as D (500) represents half a thousand (M, originally *ϕ*), has no very high degree of probability. It is perhaps as likely that I., II., III., IIII., denoted the uplifted fingers used in counting, and that V denoted the whole hand with the thumb on one side and the four fingers together on the other.

**VAAL RIVER**, the Dutch name of one of the most important branches of the Orange river, South Africa. It rises in the northwest Natal country, and for about 500 miles forms a boundary between the Orange River Free State and the Transvaal Republic, and then joins the main branch of the Orange river.

**VACATION**, in legal language, means a holiday usually enjoyed by lawyers in consequence of courts being closed, and some steps in court proceedings not being competent during the summer or autumn of each year. There are short vacations during other periods of the year, but the Long Vacation is generally taken during the hot term from August to October.

**VACCINATION** (from Lat. *vacca*, a cow), the name given in France to the Jennerian practice of cowpoxing, shortly after the practice began in England

(1799). To replace smallpox inoculation by cowpox inoculation under certain specified circumstances was Jenner's tentative project. The history of the introduction of cowpoxing, given in the article JENNER, is here supplemented from the point of view of historical criticism.

Jenner's originality in starting vaccination in practice is for the most part misunderstood. When he published his *Inquiry* in June, 1798, he had twice succeeded in raising vaccine vesicles by experiment. A third experiment, in the summer of 1798, failed from the outset; and his fourth and last experiment, in November-December, 1798, led to nothing but extensive phagedenic ulceration in two cases out of six vaccinated.

In this posture of affairs Woodville, of the inoculation hospital, London, succeeded in January, 1799, in starting a succession of arm-to-arm vaccinations from a London cow, which were exceptionally free from the ulcerative termination. From that source Jenner himself was supplied with lymph in February, while more than two hundred practitioners both at home and abroad were supplied some three weeks later.

The so-called calf lymph is as remote from the cow as ordinary humanized lymph; it differs from the latter merely in the circumstance that the calf (on its shaven belly) becomes the vaccinifer, instead of the child, and that the cycle of the disease is very much abbreviated or contracted in the calf: the vesicles are distended with lymph about the fourth or fifth day, instead of the seventh or eighth, and are almost unattended by areolar redness and constitutional disturbance, the animal being able to support fifty to a hundred or more vesicles without the smallest inconvenience. On the child's arm the vesicles after calf-lymph are slower in development than in the calf, and are attended by areola, etc.

The other anomalous source of "vaccine" is human smallpox. Jenner having succeeded in passing off his doctrine that cowpox is smallpox of the cow, it occurred to some persons about forty years after to prove the doctrine by experiment, the proof being to variolate the cow on the udder. This was accomplished in 1838, after much trouble, by Thiele in Kazan (Russia), who inoculated several thousands of persons with the variolous matter "passed through the system of the cow." Within a few months of that experiment, the same thing was attempted by Ceely of Aylesbury, who succeeded, after many failures, in raising a large variolous pock, not on the udder of the cow, but on the mucous membrane of the vulva. But the real practical application of this idea was reserved for Badcock, a dispensing chemist at Brighton.

At Boston, the same kind of lymph was raised and put in use in 1852. But at Attleborough, Mass., the same experiment had in 1836 led to disaster. Smallpox was inoculated on a cow's udder, and the product used to vaccinate about fifty persons. The result was an epidemic of smallpox, a panic, and the suspension of business.

The risks of vaccination may be divided into the risks

inherent in the cowpox infection and the risks contingent to the puncture of the skin. Of the latter nothing special requires to be said; the former will be discussed under the five heads of (1) erysipelas, (2) jaundice, (3) skin eruptions, (4) vaccinal ulcers, and (5) so-called vaccinal syphilis.

(1) A slight degree of erysipelas was recognized by Jenner himself, and even postulated by him, as part of the natural history of cowpox in man; and it is so recognized by the more unbiased writers of recent date. The usual time for it corresponds to the appearance of the areola (eighth or ninth day), that efflorescence round the pock being normally a slight erysipelas. It may start, however, from the puncture or scratch in the skin, after a day or two's interval; but that form of it (the "early erysipelas" of German writers) is much rarer than the erysipelas of the areola, or "late erysipelas."

(2) It is only within the last few years that jaundice has been recognized as a post-vaccinal effect; and at present there is only one accepted instance of it on the large scale. This was the epidemic among re-vaccinated adults in a large shipyard at Bremen from October, 1883, to April, 1884. Circumstantial evidence (agreement and difference) clearly traced the epidemic to the vaccination.

(3) The eruptions that follow vaccination are proper to cowpox infection. The eruption is a kind of exanthem, or "secondary" of the local infection, and does not ordinarily appear before the second week. One of its commonest forms is a patchy rose-rash, or macular roseola, not easily distinguishable from the macular roseola of syphilis. Another form is lichen or dry papules, apt to scale; it may also occur as a vesicular eruption, and in the form of pemphigoid bullæ or blebs.

(4) Ulceration of the vaccine vesicle, or of the site of it, is one of the commoner forms of "bad arm." It is a return to the native or untamed characteristics of cowpox on the cow's teats, or on the milker's hands or face, or in the child's arm after experimental inoculation with primary lymph. It crops out not infrequently in everyday practice, and is probably dependent for the most part on the lateness at which the lymph was taken for vaccination, or on retardation of the process in the vaccinifer, or on emptying the latter's vesicles too much; however, it may result from picking the scab or otherwise dislodging it. Healing is frequently an affair of weeks, and may be aided by mercurial treatment.

(5) It has been proved by many experiments, undesigned or otherwise, in Paris (1831 and 1839), Vienna (1854), and elsewhere, that an infant with congenital syphilis develops correct vaccinal vesicles, provided its skin be clear of eruption and the lymph has been taken at the usual time; also that the lymph taken from the correct vesicles of a syphilitic child produces correct vesicles in its turn, but does not produce syphilis in the vaccinated child. The congenital taint is, in fact, irrelevant to the course of cowpox infection. So far as experiment and casual experience can prove anything, that has been proved.

In the polemical writings of anti-vaccinists, such diseases as scrofula, tubercle, whooping-cough, diarrhea, and other common causes of infantine mortality are alleged to have increased owing to vaccination. There is little or no reason, in theory or in experience, to suspect that tuberculous or scrofulous infection is ever communicated by vaccine lymph.

The value of cowpox as a protection against smallpox may now be judged of apart from the fanciful doctrine of variole vaccine by which it was originally recommended. It has been put to a test extending over eighty years; and in some circumstances it has been possible to apply the logical methods of agreement and

difference with a good deal of cogency. The upsetting fallacy of all vaccination logic is that of *post hoc ergo propter hoc*; and the only way to escape it is to hold intelligent views of the history, the natural history, and the epidemiology of smallpox. The epidemic of 1871-72 was one of the worst in the whole history of European smallpox; and it may be that it was one of the last flickers of a slowly expiring flame. The universal practice of cowpoxing, however, is based upon the assumption that this contagious skin disease imported from the tropics is a thing that Europe must reckon with for an indefinite time. On the other hand, the teaching of epidemiology is that a foreign pestilence never stays unless it finds quarters suited to its existence, and that it may even take its departure capriciously, as in the case of the plague, after it has had a certain career, or on being displaced by some congener such as typhus. Vaccination is considered to have turned smallpox in great part aside from the early years of life and thrown it more than ever upon the later ages, while measles and other maladies proper to childhood have at the same time increased.

Thus far as regards the utility of vaccination to the state; we have now to consider its utility to the individual. Do the vaccinated escape in an epidemic? or, if they do not escape an attack of smallpox, do they escape death from it? In answer to the first question, apart from the familiar negative experience of everyone, we have the statistics of smallpox hospitals, which relate to the poorer class and probably do full justice to the fact of non-vaccination, inasmuch as the unvaccinated residue is mostly to be found in those slums and tenements of the poor where smallpox (now as always) is apt to linger. At the Eastern Metropolitan Hospital (Homerton) from its opening early in 1871 to the end of 1878 there were 6,533 admissions for smallpox, of which 4,283 had vaccination marks, 793 had no marks although vaccinated, and 1,477 were unvaccinated, giving a proportion of 0.29 unvaccinated. In the epidemic hospitals of Liverpool, Glasgow, and Dublin the proportion was 0.25 during the same period. In the army and navy, where vaccination and revaccination are absolutely without exception, the proportion is accordingly 0. It would thus appear that the rather excessive proportion of cases among the small residue of unvaccinated in the civil population must have other associated circumstances besides non-vaccination; and these are not far to seek.

The next question is the death-rate among the vaccinated and unvaccinated respectively. The total death-rate from smallpox in modern times is almost the same as it was in the eighteenth century; large aggregates collected by Jurin and others in pre-vaccination times show a mortality of 18.8 per cent, and corresponding aggregates in English and American hospitals, mostly since 1870, show a mortality of 18.5 per cent.

The returns from special smallpox hospitals make out a very small death-rate (6 per cent) among the vaccinated and a very large death-rate (40 to 60 per cent) among the unvaccinated. The result is doubtful *qua* vaccination, for the reason that in pre-vaccination times the death-rate (18.8 per cent) was almost the same as it is now in the vaccinated and unvaccinated together (18.5).

The practice of revaccination was first recommended in England by G. Gregory, and in Germany for the army by Heim (1829). It has been more or less the law in Prussia since 1835: "revaccination of school pupils at the age of twelve is an integral part of the vaccination law." Notwithstanding the fact that Prussia was the best revaccinated country in Europe, its mortality from smallpox in the epidemic of 1871 was



higher (69,839) than in any other northern state. The efficacy of revaccination is sometimes sought to be proved by the immunity of nurses in smallpox hospitals. The experiment of not revaccinating the nurses was tried at the smallpox hospital of the South Dublin Union in 1871-72; twenty-nine out of the thirty-six attendants had not been revaccinated, and these all escaped smallpox as well as the other seven. But nurses are not rarely chosen from among those who have had smallpox, and cases of smallpox in revaccinated nurses are not unknown. The evidence as to revaccination on a large scale comes from the army. According to a competent statistician (A. Vogt), the death-rate from smallpox in the German army, in which all recruits are revaccinated, was 60 per cent. more than among the civil population of the same age; it was ten times greater among the infantry than among the cavalry, and sixty times more among the Hessians than among the Würtembergers. The Bavarian contingent, which was revaccinated without exception, had five times the death-rate from smallpox in the epidemic of 1870-71 that the Bavarian civil population of the same ages had, although revaccination is not obligatory among the latter.

The susceptibility to cowpox infection diminishes with age; among the pupils of twelve years in Prussian schools it fails in about one-fourth of the attempts, and at later periods of life the proportion of failures is still greater.

It is often alleged that the unvaccinated are so much inflammable material in the midst of the community, and that smallpox begins among them and gathers force so that it sweeps even the vaccinated before it. Inquiry into the facts has shown that at Cologne in 1870 the first unvaccinated person attacked by smallpox was the 174th in order of time, at Bonn the same year the 42d, and at Liegnitz in 1871 the 225th.

Vaccination was made compulsory in Bavaria in 1807, and subsequently in the following countries:—Denmark (1810), Sweden (1814), Würtemberg, Hesse, and other German states (1818), Prussia (1835), Roumania (1874), Hungary (1876), and Servia (1881). It is compulsory by cantonal law in ten out of the twenty-two Swiss cantons; an attempt to pass a federal compulsory law was defeated by a plebiscite in 1881.

In only a few States or cities of the United States is there a vaccination statute; in Lower Canada there is no compulsion. Vaccination was compulsory in Great Britain in 1853, and has been compulsory in South Australia since 1872, in Victoria since 1874, and in Western Australia since 1878. In Tasmania a compulsory Act was passed in 1882. In New South Wales there is no compulsion, but free facilities for vaccination. Compulsion was adopted at Calcutta in 1880 and since then at eighty other towns of Bengal, at Madras in 1884, and at Bombay and elsewhere in the presidency a few years earlier.

In the following countries there is no compulsory law, but governmental facilities and compulsion on various classes more or less directly under Governmental control, such as soldiers, state employés, apprentices, school pupils, etc.:—France, Italy, Spain, Portugal, Belgium, Norway, Austria, Turkey.

Revaccination was made compulsory in Denmark in 1871 and in Roumania in 1874; in Holland it was enacted for all school pupils in 1872. The various laws and administrative orders which had been for many years in force as to vaccination and revaccination in the several German states were consolidated in an imperial statute of 1874.

**VACCINIACEÆ**, a natural order of exogoneous plants differing from the *Ericaceæ* chiefly in having an inferior ovary and succulent fruit. About 200 species

are known, natives of temperate climates in all parts of the world. Whortleberries and cranberries are the most familiar examples of the order.

**VACH** (literally speech), is another name of Saraswati, the female energy of the Hindu god Brahma.

**VACHASPATI** (literally lord of speech), is in Hindu mythology one of the usual names of Vrihaspati, the instructor of the gods.

**VACUUM** literally means empty space, or space wholly devoid of matter. In ordinary language a vacuum is said to be produced, more or less perfect, when ordinary ponderous matter such as air is more or less completely removed from the interior of a glass vessel. Until the commencement of the present century the most perfect vacuum that could be obtained was that called the Torricellian vacuum, that is the space above the mercury in a carefully-filled barometer tube. Such a barometer, however, is almost useless for experimental purposes, and besides it contains mercurial vapor. An air pump removes all but about  $\frac{1}{120}$  part of the atmosphere in the receiver, but if carbonic acid be employed and pumped out several times, so as to get rid as far as possible of the last trace of air, the remaining air will be taken up by means of moistened caustic potash previously placed in the receiver. Concentrated sulphuric acid should also be present to desiccate the potash when it has done its work. Further improvements have been made; the exhaustion being carried so far that the attenuated matter remaining was unable to conduct the discharge of an induction coil.

**VÁCZ** (Germ. *Waitzen*), a market town in Hungary, on the left bank of the Danube, twenty miles north of Buda-Pesth. The majority of the inhabitants are engaged in agriculture and cattle breeding; but exportation of grapes from the neighboring hilly district is also largely carried on. Vác is a station on the Austrian-Hungarian railway system. The population, mostly Magyars by nationality, was 13,199 in 1880, and in 1901 was estimated to number nearly 20,000.

**VAGA**, **PERINO DEL**, a painter of the Roman school, whose true name was **PERINO** (or **PIERO**) **BUONACCORSI**. He was born in Florence on June 28, 1500. Perino was first apprenticed to a druggist, but soon passed into the hands of a mediocre painter, Andrea da Ceri, and, when eleven years of age, of Ridolfo Ghirlandajo. Perino rapidly surpassed his fellow-pupils, applying himself especially to the study of Michelangelo's great cartoon. Another mediocre painter, Vaga from Toscanella, undertook to settle the boy in Rome, but first set him to work in Toscanella. Perino, when he at last reached Rome, was utterly poor, and with no clear prospect beyond journey-work for trading decorators. He, however, studied with great severity and spirit from Michelangelo and the antique, and was eventually intrusted with some of the subordinate work undertaken by Raphael in the Vatican.

After Raphael's death in 1520, a troublous period ensued for Perino, with a plague which ravaged Rome in 1523, and again with the sack of that city in 1527. Then he accepted an invitation to Genoa, where he was employed in decorating the Doria palace, and rapidly founded a quasi-Roman school of art in the Ligurian city. He ornamented the palace in a style similar to that of Giulio Romano in the Mantuan Palazzo del Tè, and frescoed historical and mythological subjects in the apartments, fanciful and graceful arabesque work, sculptural and architectural details—in short, whatever came to hand. Among the principal works are the *War between the Gods and Giants*, *Horatius Cocles Defending the Bridge*, and the *Fortitude of Mutius Scævola*. The most important work of all, the *Shipwreck of Æneas*, is no longer extant. From

Genoa Perino twice visited Pisa, and began some painting in the cathedral. Finally he returned to Rome, where Paul III. allowed him a regular salary till the painter's death. He retouched many of the works of Raphael, and labored hard on his own account, undertaking all sorts of jobs, important or trivial. Working for any price, he made large gains, but fell into mechanical negligence. Perino was engaged in the general decoration of the Sala Reale, begun by Paul III., when his health, undermined by constant work and as constant irregularities, gave way, and he fell down dead on October 19, 1547. He is buried in the Pantheon.

VAGRANTS (or tramps) are those wandering specimens of humanity which of late years have been quite a problem in American social life. In this country they are commonly called tramps, and as they are in some regards the involuntary product of extraneous circumstances, their history is to a degree interesting. In 1873 the United States was financially shaken from center to circumference, and the shrinkage of trade and commerce was unprecedented. Labor was not long in responding to the depressing influences surrounding and militating against it, and scores of workshops and factories were closed. The employes of these factories at once began to move about the country, at first ostensibly in search of work, but by degrees becoming accustomed to a migrating and predatory existence. In less than two years the number of these nomads reached an estimated figure of 2,000,000. The moral influence of this pernicious system was not long in making itself apparent among the idle, the vicious, and the indolent. These classes of society had constantly before them the example of large bodies of individuals living in an almost state of warfare with organized social life, owning no restraint but their own inclinations, and paying no regard to the finer distinctions of the rights of property; what they needed, they took, and this not always accompanied by the previous formality of asking for the article so taken. The contagion spread, and when the necessity which had created vagrancy had been removed before the advancing tide of returning prosperity, the evil which it had produced did not disappear. Many men who had first started out to look for work had become so accustomed to this mode of life that they preferred to retain it rather than to return to their legitimate pursuits. These were joined by the vicious elements referred to above, and from a migration of workmen in search of occupation the tramps became a body of criminals at large—a constant menace to the peace and well-being of the community. For ten or fifteen years these outlaws roamed over the country, and many deeds of violence and bloodshed were attributed to them—sometimes unjustly—but latterly their numbers seemed to decrease, and now (1890) the evil may be spoken of as largely abated, the only specimens remaining being those who hail from the large cities, and would form an integer of the criminal population at any event and under any circumstances. These generally spend their winters in the cities, and in spring-time start out upon their travels, wandering over the country till winter again compels them to seek the shelter of the slums and dens of the lower quarters of our larger cities. They generally manage to secrete themselves about railway trains when they contemplate an excursion of any length, and by thus "stealing a ride" procure transportation from one end of the country to another. At other times they may be seen trudging along the country roads, soliciting food at farm houses, sleeping in barns, or in some way giving evidence of their calling in life. They are usually reprobated and disesteemed by the farming community, and but for the

mistaken kindness of the country folk in responding to their solicitations for alms, the evil would soon be a thing of the past.

VAIR, GUILLAUME DU, one of the fathers of French prose, and at the same time one of the most brilliant ornaments of the great school of French lawyers in the sixteenth and seventeenth centuries, was born at Paris on March 7, 1556. His reputation is that of a lawyer, a statesman, and a man of letters. He was, for a considerable time, a member (councilor) of the *parlement* of Paris, and it was in this capacity that he pronounced his most famous politico-legal discourse, an argument nominally for the Salic Law, but in reality directed against the alienation of the crown of France to the Spanish infanta, which was advocated by the extreme Leaguers. It was also during his tenure of the same post that he published (in 1595) a *Traité de l'Éloquence Française*, which both advocates and exhibits a great improvement on the ordinary prose style of the day. In 1599 he became first president of the *parlement* of Provence (Aix), and in order not to give up this position he refused the see of Marseilles. In 1616 he received the highest promotion open to a French lawyer and became keeper of the seals. His death took place at Tonnois (Lot-et-Garonne) on August 3, 1621.

VAISHNAVIS, is the name of one of the three great divisions of the Hindu sects. The word, derived from Vishnu, designates worshippers of this deity and comprises a great variety of sects, but this sect itself differs according to the different periods of the mediæval history of India, old divisions becoming extinct and new ones taking their places. The common link of all the sects comprised in the name of Vaishnavas is their belief in the supremacy of Vishnu over all the other gods of the Trimurti. Their difference is in the character which they assign to this supremacy, and to the god Vishnu himself in the religious and other practices founded in the nature of their belief and in their sectarian marks.

VALAIS (Germ., *Wallis*), one of the Swiss cantons, ranking as twentieth in the Confederation. Its name has been explained to mean the "Welsh land," as the Teutons called all non-Teutonic lands; but it is far more probably derived from "vallis," for Valais is simply the "Vallis Pœnina," or valley of the Rhone, from its source to the gorge of St. Maurice, together with some villages south of the Simplon Pass, and Monthey, Val d'Ille, and Bouveret beyond St. Maurice, on the left bank of the river. The total area of the canton is 2,026.3 square miles. Of this 930.4 square miles are classed as productive, forests covering 243.2 and vineyards 9; of the remainder 375.1 square miles consist of snow and ice. The highest point of the canton is Monte Rosa (15,217 feet), and within its borders rises the Dom (14,942 feet), the loftiest peak entirely in Swiss territory. The population in 1900 was 114,438, French being the native tongue of 67,214 and German of 31,962. The bulk of the inhabitants are staunch Roman Catholics. The only town of any size is the capital, Sion or Sitten. The population are mainly engaged in agricultural pursuits. Much wine (e. g., Muscat and Vin du Glacier) and a vast quantity of grapes are exported. Education is compulsory and free, but very backward. A railway runs from Brieg to Bouveret. The mineral waters of Leukerbad and Saxon are well known, and in summer the canton is a favorite haunt of tourists.

VALCENÆR, LUDVIG KASPAR, an eminent philologist, was born in Holland in 1715, studied at Franeker, and in 1741 became the professor of Greek there, but subsequently he was called to Leyden, where he died March 14, 1785. He was one of the most eminent



scholars of his day, and his works are still authority on the subjects whereon they treat.

**VALDEPENAS**, a town of Spain, in the province of Ciudad Real, on the railway line from Madrid to Cordova, is situated in the midst of a district thickly clothed with vineyards at the foot of the northern slope of the Sierra Morena. It is a straggling place and its only industry is that of wine-making (see **WINE**). The population within the municipal boundaries in 1898 was 15,876.

**VALDES**, **JUAN DE**, Spanish religious writer, born about 1500 at Cuenca in Castile, was the younger of twin sons of Fernando de Valdes, hereditary regidor of Cuenca. We first meet him as the anonymous author of a politico-religious *Diálogo de Mercurio y Caron*, apparently written in 1528 and published then or soon after. His place of residence seems to have been often changed, from first one to another of the Italian cities. The first fruit of his cultured leisure at Naples, whither he went in 1530, was a philological treatise, *Diálogo de la Lengua* (written 1533). Valdes died at Naples in May, 1541.

**VALDO**. See **WALDO**.

**VALENCE**, a town of France, sixty-five miles south of Lyons on the railway to Marseilles. The chief industries are the spinning and weaving of silk, oil-pressing, distilling, metal-founding, and the manufacture of macaroni. A considerable trade is carried on in the product of this industry and in wine and agricultural produce. The population in 1901 was 24,453 (commune 26,761).

**VALENCIA**, a province of Spain, one of the three into which the former "kingdom" of Valencia is now divided, has an area of 4,352 square miles, and a population (1898) of 775,995. It is bounded on the north by Teruel and Castellon de la Plana, on the east by the Mediterranean, on the south by Alicante, and on the west by Albacete and Cuenca. The principal rivers are the Guadalaviar or Turia and the Jucar. In the low-lying portions of Valencia rice is the favorite crop; elsewhere wheat, maize, and all kinds of fruit are abundantly grown; the mulberry is cultivated for silk; and wine and oil are produced. The tablelands produce according to their elevation and exposure figs, almonds, olives, and vines. The fishing industry on the coast is considerable. The manufactures include those of silk, glass, pottery, and leather; there are also iron foundries, distilleries, and soap manufactories. There are six "cities"—**VALENCIA** (*q. v.*), Gandia (7,604 inhabitants in 1877), Játiva (14,534), Requena (13,527), Sagunto (6,287), and Alcira (16,146).

**VALENCIA**, capital of the above province, is situated 304 miles by rail east-southeast from Madrid. The streets are for the most part narrow, crooked, and somewhat gloomy, but in the more modern quarters there are some broad and handsome thoroughfares. The principal manufacture is silk, and the town is also celebrated for its colored tiles or "azulejos." Linen and woolen fabrics, hats, leather, paper, cigars, glass, and pottery are also manufactured, and there are foundries and printing-works. Corn, rice, silk, saffron, oranges, raisins, almonds, figs, and other fruits are extensively exported, and iron, hardware, timber, and colonial produce are imported. The population of Valencia in 1898 was about 204,768 (estimated).

**VALENCIA**, a town in the United States of Venezuela, capital of the state of Carabobo, situated amid savannas and tropical plantations, 1,800 feet above sea-level, in the valley between the two chains of the Maritime Andes. The town is well built, with straight streets cutting one another at right angles. There are several manufactories, among them a weaving factory

and one for the making of machinery and agricultural implements. The climate is said to be healthy. The population in 1883 was 36,145.

**VALENCIENNES**, a town of France, is 157 miles north-northeast of Paris on the railway to Brussels. It is the center of a rich coal-field, which has called into existence numerous foundries, forges, rolling-mills, wire-works, and machine-shops. There is also an extensive beetroot cultivation, with attendant sugar-works and distilleries. Cambrics and lawns are manufactured and calico-printing is carried on, though little of the famous lace is now made. The population in 1901 was 31,007 (commune 37,575).

**VALENS**, emperor of the East from 364 to 378, owed his elevation in the thirty-sixth year of his age to his brother Valentinian, who chose him to be his associate in the empire, of which a formal division into East and West was now once for all definitely arranged, (see **VALENTINIAN I.**) In the year 366 Valens at one stroke reduced the taxes of the empire by one-fourth, a very popular measure, though one of questionable policy in the face of the threatening attitude of the Goths on the lower Danube. Before venturing on a campaign against them, Valens received baptism from Eudoxus, the bishop of Constantinople and the leader of the Arian party. After some small successes over the Goths, won by his generals, Valens concluded a peace with them, which lasted six years, on a general understanding that the Danube was to be the boundary between Goths and Romans.

In the years 371 to 377 Valens was in Asia Minor, most of the time at the Syrian Antioch. It seems that Valens crossed the Euphrates in 373, and in Mesopotamia his troops drove back the king of Persia to the farther bank of the Tigris. But the Roman success was by no means decisive, and no definite understanding as to boundaries was come to with Persia. Between 374 and 377 we read of grievous complaints of injustice and extortion perpetrated under legal forms, the result probably of the recent panic, and pointing to an increasing weakness and timidity at headquarters. Although preparations were made for following up the war with Persia and securing the frontier, a truce was patched up, rather to the disadvantage of the empire, Armenia and the adjacent country being half conquered and annexed by Sapor. The armies of Rome, in fact, were wanted in another quarter. The Huns, of whom we now hear for the first time, were beginning in 376 to press the Goths from the north, and the latter asked leave of the emperor to cross the Danube into Roman territory. This they were allowed to do, on the condition that they came unarmed, and their children were transported to Asia as hostages. The conditions, however, were not strictly enforced, and the whole affair was treacherously mismanaged by the imperial generals, who, for their own profit, forced the new settlers to buy food at famine prices. Accordingly the enraged Goths, under their chief Frithigern, streamed across the Balkans into Thrace and the country round Adrianople, plundering, burning, and slaughtering as they went. They were driven back for a time, but returned in the spring of 378 in greater force, with Huns and Alans to fight with them against the empire; and again, after one or two repulses, they penetrated to the neighborhood of Adrianople. Valens, who had now returned to Constantinople, left the capital in May, 378, with a strong and well-officered army. Without awaiting the arrival of his nephew Gratian, emperor of the West, who had just won a great victory over one of the barbarous tribes of Germany in Alsace, Valens attacked the enemy at once, although his troops had to go into action heated and fatigued by a long march on a sultry August

day. The battle was decided mainly by the cavalry of the Alans and Sarmatians, the Roman infantry being outnumbered, outmaneuvered, and finally so hemmed in that the men could scarcely draw their swords. The slaughter went on for hours, till the imperial army was destroyed. Valens either perished on the field or, as some said, in a cottage fired by the enemy. From the battle of Adrianople the Goths permanently established themselves south of the Danube.

VALENTINE, BASIL, celebrated German alchemist, of whom so little is known that it has been disputed whether he flourished in the twelfth or fifteenth centuries. He was a diligent seeker for the philosopher's stone, and wrote a large number of works, chiefly on the process of transmutation.

VALENTINE, or VALENTINUS, the name of a considerable number of saints, three of whom may be particularized. 1. VALENTINUS, presbyter and martyr, according to the authorized Roman legend was arrested and thrown into chains at the instance of the emperor Claudius, and after long imprisonment was beaten with clubs and finally beheaded (February 14th). 2. VALENTINUS of Interamna, bishop and martyr. 3. VALENTINUS, who is spoken of as the apostle of Rætia, and venerated in Passau as its first bishop, flourished during the first half of the fifth century.

VALENTINE'S DAY, a festival celebrated on February 14th, and established in England, Scotland, and France about the fifteenth century, was very popular among the upper classes and at many European courts. On St. Valentine's eve spinsters and bachelors were accustomed to meet in a social way, write upon bits of paper the names of a number of spinsters and bachelors of their acquaintance, throw them into a basket, and then draw them out one at a time, care being exercised that each should draw one of the opposite sex, the person thus drawn being the drawer's valentine. The festival was introduced into America at an early day, but its observance has since undergone material change, and is annually becoming less and less general, at present being limited to friends exchanging anonymous communications with each other, the same being made in verse or verses referring to a variety of topics, the subject being also illustrated by cuts of an amusing or sentimental character.

VALENTINIAN I., emperor of the West from 364 to 375. With a fine robust frame, he possessed great courage and great military capacity. He was chosen emperor in his forty-third year by the officers of the army at Nicæa in Bithynia early in 364, and shortly afterward named his brother VALENS (*q.v.*) colleague with him in the empire. As emperor of the West, Valentinian took Italy, Illyricum, Spain, the Gauls, Britain, and Africa, leaving to Valens the eastern half of the Balkan Peninsula, Greece, Egypt, Syria, and Asia Minor as far as Persia. During the short reign of Valentinian there were wars in Africa, in Germany, and in Britain, and Rome came into collision with barbarian peoples of whom we now hear for the first time, — Burgundians, Saxons, Alemanni. The emperor's chief work was guarding the frontiers and establishing military positions. His general administration seems to have been thoroughly honest and able, in some respects beneficent. If he was hard and exacting in the matter of taxes, he spent them in the defense and improvement of his dominions, not in idle show or luxury. Though himself a plain and almost illiterate soldier, he was a founder of schools, and he also provided medical attendance for the poor of Rome, by appointing a physician for each of the fourteen districts of the city. He was a Christian, an orthodox Catholic, and in his life perfectly pure; but he permitted absolute religious free-

dom to all his subjects. The emperor in April, 375, entered Illyricum with a powerful army, and gave audience to an embassy from the Quadi at Bregeto on the Danube, somewhere near Pressburg. Their defense threw him into a paroxysm of rage, in which he suddenly fell down, apparently in a fit of apoplexy, and died in a few hours.

VALENTINIAN II., an infant of four years of age, and his half-brother Gratian, a lad of about seventeen, became the emperors of the West on the death of their father, Valentinian I., in 375. They made Milan their home; and the empire was nominally divided between them, Gratian taking the trans-Alpine provinces, while Italy, Illyricum in part, and Africa were to be under the rule of Valentinian II., or rather of his mother, Justina. In 387 Maximus, who had commanded a Roman army in Britain, and had in 383 (the year of Gratian's death) made himself master of the northern provinces, crossed the Alps into the valley of the Po and threatened Milan. The emperor and his mother fled to Thessalonica, to Theodosius, the emperor of the East and husband of Galla, Valentinian's sister. At their entreaty he marched into Italy with an army, decisively defeated Maximus, and set Valentinian once more on the throne (388). He also converted the lad to orthodox Catholicism. Four years later Valentinian was dead.

VALENTINIAN III., emperor of the West from 425 to 455, the son of Constantius and Placidia, daughter of the great Theodosius, was declared Cæsar at Thessalonica under the auspices of Theodosius II., and again the following year at Rome, in the seventh year of his age. His reign of thirty years was a period of great and terrible events. In 454 Aetius, between whose son and a daughter of the emperor a marriage had been arranged, was treacherously murdered by Valentinian. Next year, however, the crime was avenged by the assassination of the emperor as he was looking on at some games in the Campus Martius. He was a contemptible creature, cowardly, self-indulgent, without spirit, and without ability. With Valentinian III. the family of Theodosius became extinct.

VALENTINUS was the most important Christian theologian before Origen. Clement and Origen both were his pupils. His success as a teacher was brilliant. Tertullian tells us that among all the Christian "collegia," that of Valentinus was the most crowded, and the numerous branches into which his scholars soon divided are evidence of the wealth of his influence. And his disciples, although they have partly deteriorated his teachings by undisciplined fancies and inappropriate mythologizing, have, every one of them, something particular and valuable to say. Their influence did not cease until, in the catechetical school of Alexandria, the church found teachers of her own who were at once scientific theologians and defenders of the church of orthodoxy.

Of Valentinus himself almost nothing is known. That he was an Egyptian by birth, and received his education in Alexandria, is probable but not certain. He came to Rome under Hyginus about 138, flourished under Pius (140-155), and was still there in the time of Anicetus (*c.* 155-166). This we learn from Irenæus (iii. 4, 3), who lets us see that his main activity was in Rome. He further tells us that Polycarp, during his sojourn in that city, was the means of converting some Valentinians. Tertullian supplements (*De Præscr.*, 30) Irenæus with the information that Valentinus originally attached himself in Rome to the main body of the church, but "ob inquietam semper curiositatem qua fratres quoque vitiabat," after having been twice temporarily suspended from communion, he was ultimately cut off. It seems very doubtful whether



there is any good foundation for Tertullian's further allegation (*Adv. Valent.*, 4), that Valentinus was ambitious of obtaining the episcopate of Rome, and that his failure in this caused him to break with the church. Hippolytus will have it (see Epiphanius and Philaster) that Valentinus afterward went to Cyprus as a declared heretic. We are not in a position to control this statement; but the words of Irenæus would almost lead to the conclusion that he died at Rome. At any rate, there is no reason to suppose that he was alive much later than 160.

Valentinus was the author of several epistles, three fragments of which have been preserved by Clement; one of these was addressed to a certain Agathopus. He also composed homilies (one entitled *On Friends*), of which we possess four fragments. An expression of Tertullian's (*Adv. Valent.*, 2) seems to imply that Valentinus was also the author of a treatise entitled *Sophia*. Perhaps this is the source from which Irenæus' systematic account of the Valentinian doctrine (i. 11, 1) was indirectly taken. Tertullian speaks of *Psalm*s of Valentinus (*De Car.*, xvii. 20); the author of the *Muratorian Fragment* seems also to refer to these; and in the *Philosophumena* of Hippolytus (vi. 37) a considerable fragment from them is given.

VALENTINUS, pope for thirty or forty days in 827, in succession to Eugenius II. (824-827), was a Roman by birth, and, according to the *Liber Pontificalis*, was first made a deacon by Paschal I. (817-824). Nothing further is known of his history. His successor was Gregory IV. (827-844).

VALENZA, a city of Northern Italy, on an elevated plain, on the right bank of the Po, eight miles north of Alessandria. It carries on a trade in wine, and manufactures silk, flax, and hemp fabrics. Population about 10,000.

VALERIAN, a genus of herbaceous perennial plants of the natural order *Valerianaceæ*. The genus comprises about 150 species. In medicine the root of *V. officinalis* is intended when valerian is mentioned. The plant grows throughout Europe from Spain to the Crimea, and from Iceland through northern Europe and Asia to the coasts of Manchuria. Several varieties of the plant are known, those growing in hilly situations being considered the most valuable for medicinal purposes. Valerian is cultivated in England (in several villages near Chesterfield in Derbyshire), but to a much greater extent in Prussian Saxony (in the neighborhood of Cölleda, north of Weimar), in Holland, and in the United States (Vermont, New Hampshire, and New York).

Valerian is employed in medicine as a stimulant and antispasmodic in various forms of hysteria, and in chorea and whooping-cough; it is also stated to possess antelmintic properties. The red valerian of cottage gardens is *Centranthus ruber*, also belonging to the *Valerianaceæ*; but Greek valerian is *Polemonium caruleum*, belonging to the natural order *Polemoniaceæ*. Cats are nearly as fond of the smell of this plant as of the true valerian, and will frequently roll on the plant and injure it.

VALERIANUS, PUBLIUS LICINIUS, Roman emperor from 253 to 260, was a man of ancient family and is first mentioned in the year 238 as *princeps senatus*. The soldiers in Rhætia, proclaimed Valerian emperor; and marching slowly toward Rome he found both his rivals dead. Taking his son Gallienus as colleague, and leaving the wars in Europe to his direction, under which matters went from bad to worse and the whole West fell into disorder, Valerian chose for his own part the war in the East, where Antioch had fallen into the hands of a Persian vassal and Armenia was occupied by

Shapur, while in 258 the Goths ravaged Asia Minor. Valerian recovered Antioch, fought in Mesopotamia with mixed success, and finally was taken captive. His ultimate fate is unknown.

VALERIUS, PUBLIUS, surnamed PUBLICOLA, the colleague of Brutus in the consulship in the first year of the Roman republic. According to the legend represented by Livy and Plutarch (see *ROME*), he was a member of one of the noblest Roman families, being son of Volusus, a descendant of a Sabine of that name who had settled in Rome along with King Tatius. He was one of those who witnessed the death of Lucretia, and joined in the oath to avenge her wrongs. He took a prominent part in the expulsion of the Tarquins, and though not originally chosen as the colleague of Brutus he soon afterward took the place of Tarquinius Collatinus. For his services the surname of Publicola or Poplicola was conferred on himself and on his descendants forever. He was thrice reelected to the consulship, and during his fourth term of office he received the honor of a triumph for his victory over the Sabines. He died in the following year (503 B.C.), and was buried at the public expense, the matrons mourning him for ten months.

VALERIUS FLACCUS. See FLACCUS.

VALERIUS MAXIMUS, Latin writer, author of a collection of historical anecdotes, published his work in the reign of Tiberius. The family of Valerius was poor and undistinguished, for the great Valerius Maximus, who are conspicuous in the annals of the early Roman republic, cannot be traced lower than the Punic Wars. Valerius himself professes to have owed everything to Sextus Pompeius, who was descended from a paternal uncle of the great Pompey. Although Valerius does not state that his profession was that of a teacher of rhetoric, the fact is betrayed by every page of his writings. In his proemium he plainly intimates that he is putting forth a kind of commonplace book of historical anecdotes for use in the schools of rhetoric, where the pupils were severely trained in the art of embellishing speeches by references to history. The title for the work in the MSS. is "Books of Memorable Deeds and Utterances." Most of the tales are from Roman history, but each section has an appendix consisting of extracts from the annals of other peoples, principally the Greeks. The exposition exhibits strongly the two currents of feeling which are intermingled by almost every Roman writer or the empire—the feeling that the Romans of the writer's own day are degenerate creatures when confronted with their own republican predecessors, and the feeling that, however degenerate, the latter-day Romans still tower above the other peoples of the world, and in particular may take much comfort to themselves from their moral superiority to the Greeks.

VALETTA, or VALLETTA. See MALTA. The population was 24,854 in 1881, and was estimated at 35,700 in 1901.

VALETTE, JOHN PARISOT DE LA, a Grand Master of the Knights of St. John, celebrated for his defense against the Turks. He was born in 1494, and died in 1568. There is another La Valette, a father of the Jesuit Society, who engaged as trader in the products of the large estates held by the Jesuits in the Philippine Islands. Having caused a suit in the French Courts against the French province of the Society, he was the principal factor which caused the expulsion of the Society of Jesuits from France, and its eventual suppression by Clement XIV. (See *JESUITS*.)

VALGUARNERA, a town of Sicily, in the province of Caltanissetta, forty-eight miles northeast of Girgenti. Population about 10,000.

**VALGUS** is a term employed in surgery to designate a variety of Club-foot.

**VALLA**, **LORENZO**, one of the most salient personalities of the earlier Italian Renaissance, was born at Rome, of parents derived from Piacenza, possibly in the year 1406-07, or perhaps somewhat earlier. Like all the scholars of that time, Valla wandered from university to university, accepting short engagements and airing his talents as a lecturer in many cities. It appears that he professed the New Learning in Milan and Genoa as well as Pavia. Somewhere, and at some uncertain date during this period, he came into relations with Alphonso of Aragon, who conquered the kingdom of Naples. Valla did not, however, follow this prince's fortunes in the early days of their acquaintance. We find him once more in Rome in 1443 during the pontificate of Eugenius IV. At this period of his career Valla won the highest reputation by his dialogue *De Voluptate* and his treatise on the *Elegances of the Latin Language*. But there was a third essay composed by Valla during the pontificate of Eugenius which displayed the same originality and a like critical acumen. This bore the title of a *Treatise on the Donation of Constantine*; and in it Valla proved that the claims founded by the Roman see upon that supposed grant reposed on forged documents and legendary fables. It was not published until 1440, when Valla had been already three years resident at Alphonso's court in Naples.

All the biographical notices of Valla are loaded with long accounts of his literary quarrels. Valla won a regrettable celebrity by the number and the virulence of his enmities. Bartolomeo, Fazio, Georgios Trapezuntios and Poggio felt the stabbing sharpness of his pen. It must, however, be admitted that these antagonists gave back quite as good as they got. It is almost impossible to form a just estimate of Valla's private life and character through the dust-clouds of abuse and dirt which these controversies stirred up around his memory. He died at Naples in the year 1457.

**VALLADOLID**, a province of Spain, one of the eight into which Old Castile is now divided, is bounded on the north by Leon and Palencia, on the east by Burgos, on the south by Segovia, Avila, and Salamanca, and on the west by Zamora. The area is 3,043 square miles and the population in 1898 was 276,366. For the excellence and abundance of its grain crops Valladolid shares with La Mancha the title of granary of the peninsula. Besides the ordinary cereals and pulses, the province produces hemp, flax, various fruits, red and white wine, oil, and madder. The Montes de Torozos are well clad with oak and other timber. The pastures are extensive and large numbers of horses, mules, and sheep, as well as some cattle, are reared, while honey, wax, and silk are also produced. The woolen fabrics of Valladolid were once highly esteemed, but this industry has now greatly declined. Some trade is carried on.

**VALLADOLID**, capital of the above province, on the left bank of the Pisuega, at its confluence with the Esgueva, which traverses the town by two channels, is situated (about 2,250 feet above sea-level) 150 miles by rail to the northwest of Madrid. The principal industries are the manufacture of linen, silk, and woolen fabrics, pottery, gold and silver work, leather, and paper. There is a considerable trade in the abundant agricultural produce of the vicinity. The population in 1898 was 68,746.

**VALLADOLID**, a city of the state of Michoacan de Ocampo, in Mexico. See **MORELIA**.

**VALLADOLID**, a town in the state of Yucatan, Mexico lying toward the center of the northern plateau, on the river Bolina, about ninety miles south-

east of Merida, with which it is about to be connected by a railway. Valladolid, which with the suburban district has a population (1895) of 18,470, mostly Indians and half-castes, is situated in the healthiest and best cultivated part of Yucatan, and is accordingly much frequented by invalids.

**VALLARY CROWN**, a crown bestowed by the ancient Romans as an honorary reward on the soldier who first surmounted the out-works, and broke into the enemy's camp. It is in the form of a circle of gold with palisades attached.

**VALLE**, **PIETRO DELLA**, to whom we owe one of the best books of Eastern travel, came of a noble Roman family which had produced two cardinals, and was born on April 11, 1586, in the family palace built by Cardinal Andrea. His early life was divided between the pursuits of literature and arms. On September 25, 1615, he sailed for Alexandria with a suite of nine persons, for he traveled always as a nobleman of distinction, and with every advantage due to his rank. From Alexandria he went on to Cairo, and after an excursion to Mount Sinai, left Cairo for the Holy Land on March 8, 1616, in time to assist at the Easter celebrations at Jerusalem. For the next ten years he wandered all over the East, and then turned his face homeward. Touching at Cyprus and doing quarantine at Malta, he reached Rome on March 28, 1626, and he was received with much honor, not only by literary circles, but by Pope Urban VIII., who appointed him a gentleman of his bedchamber. The rest of his life was uneventful. He married as second wife a Georgian orphan of noble family, Mariuccia (Tinatin de Ziba), whom his first wife had adopted as a child, and who had accompanied him in all his journeys. By her he had fourteen sons. He died at Rome on April 21, 1652. He wrote several works, of which the principal is his *Travels*.

**VALLEJO**, a picturesque city of Solano county, California, is situated on the shore of San Pablo Bay, near the western end of the Straits of Carquinez. It has an excellent harbor, and railroad communication by a branch of the Central Pacific Railroad. The city contains large flour-mills; the population in 1900 was 7,965. Vallejo, which takes its name from the Mexican general M. G. Vallejo, who took the country from the Indians in 1835, was in 1854 the capital of the State of California.

**VALLEYFIELD**, a pleasant and prosperous village in the county of Beauharnois, province of Quebec, Canada, is situated at the foot of Lake St. Francis near the source of Beauharnois canal, and twelve miles from Beauharnois, the county seat. It is an attractive summer resort, and the trading point for a highly cultivated agricultural region, as also the location of a number of extensive manufacturing plants, and of a valuable water power. It has two banks, one weekly paper, one foundry, one grist mill, in addition to a paper and woolen mill, three sash, door, and blind factories, three churches, three hotels, good school accommodations and a number of stores. Electric lights are also employed, and the population in 1901 was estimated at 11,955.

**VALLISNERIA**, a genus of small, stemless, aquatic plants, with grass-like leaves, belonging to the natural order *Hydrocharitaceae*, and found in the warm parts of both hemispheres. They generally grow in running waters.

**VALLOMBROSA**, a celebrated abbey of Tuscany, situated among the Apennines, in a valley surrounded with forests of fir, beech, and chestnut trees. Here an order of monks, according to the rule of St. Benedict, was founded about the middle of the eleventh century,



who were called Vallombrosians. They were the first to admit lay brethren. They existed until 1863, when the monastery was suppressed, and the buildings made use of for a royal academy of forestry.

VALLOMBROSA, ORDER OF. See MONACHISM.

VALLS, a town of Spain, in the province of Tarragona, eleven miles to the north of that town, on a height near the Francoli. The usual Catalan industries of wool and cotton spinning and weaving, as well as dyeing, distilling, paper-making, and tanning are carried on with considerable activity. The population within the municipal boundaries in 1897 was 15,250.

VALMY, a French village in the department of Marne, twenty miles northeast from Chalons. Kellermann here defeated the Prussians under the Duke of Brunswick, and in reward for his services Napoleon I. created him Duc de Valmy.

VALOIS, HOUSE OF, a branch of the Capetian dynasty which possessed the throne of France from 1327 to 1589, originated in the person of Charles, second son of King Philippe III., becoming extinct with Henry III. in 1589. (See FRANCE *ante*.)

VALONIA, an article very extensively used by tanners on account of the quantity of tannic acid which it contains. It is the acorn cup of a species of oak, indigenous to Asiatic Turkey. It is largely exported from Smyrna and the Greek Isles to foreign countries, 25 such as 35,000 tons being shipped in one year.

VALPARAISO, a city of Chili, the chief town of the province of the same name, and one of the principal commercial ports on the west coast of South America, is situated on a fine bay of the South Pacific Ocean, in 33° 0' 2" S. latitude and 71° 41' 15" W. longitude, 70 miles northwest of Santiago, with which there is communication by a circuitous railway of 115 miles. The city lies at the south part of the bay, which is two and one-half miles wide, semicircular in form, and well sheltered, except toward the north. There is good anchorage in the roadstead. There are two floating docks, capable of accommodating vessels of from 1,400 to 3,000 tons. The city is situated at the base of a range of barren hills, varying from 1,000 to 1,400 feet in height, which have a narrow strip of low land between them and the sea; on this and on sites formed by cutting away the cliffs most of the houses are built. Further space is afforded by the deep dells or watercourses between the hills. These open toward the sea, and are on both sides covered with houses. Much of the foreshore has been raised by earthquakes. The erection of an extensive embankment was begun in 1885. The older portion (Puerto) of the city, in which are the principal public and commercial buildings, is separated from the newer portion, called the Almendral, by a projecting point. The city is defended by a chain of forts, begun in 1866. The commercial enterprise of the city is largely dependent on the foreign merchants, especially Englishmen, Americans, and Germans. It is the commercial capital of Chili, and the principal residence of the foreign consuls. The principal industrial establishments are the government railway shops, a large foundry and machine shops, coach-building and wheelwright works, and a very large sugar refinery, the raw material for which is obtained from Peru. The population (97,737 in 1875) was 135,674 in 1900, of whom about a tenth were foreigners.

VALPARAISO, the capital of Porter county, Indiana, and a progressive and thriving city, located on the main line of the Pittsburgh, Ft. Wayne and Chicago railroad, forty-two miles from Chicago. The Grand Trunk and New York, Chicago and St. Louis roads also include Valparaíso among their important shipping points, and have completed permanent improvements there for the trans-

action of business and the convenience of patrons and the public. Of late years the city has grown rapidly in extent and population, and the industrial and commercial enterprises that have become established add materially to its prominence and advantages. It contains one State and two national banks, one daily and three weekly papers, seven churches, a court house, a high school and graded schools, also the Normal school of Northern Indiana, and St. Paul's academy, an institution conducted under the direction of the Roman Catholic church, an opera house, several large hotels, many stores, brass and iron works, electric light works, manufacturing of tiles, gate-hinges, agricultural implements, cigars, paints and varnishes, and lumber and lumber products. The population of the city in 1900 was stated at 6,280.

VALS, or VALS-LÈS-BAINS, a village of France, in the department of Ardèche, with a population of 2,186 in 1886, is noted chiefly for its alkaline waters, which are similar to those of Vichy.

VALTELLINA, or VALTELLINE, the upper valley of the Adda, in the extreme north of Italy (province of Sondrio), derives its name from Tegglo, the former capital, not far from Tirano (Val di Tegglo, Val Teglina; Germ., Veltlin), and has a length, from Bormio to the Lake of Como, of about sixty-eight miles. The chief town is Sondrio (6,014 inhabitants in 1901), other important places being Tirano (4,119) and Morbegno (4,240). Near Bormio (Germ., Worms) there are some frequented mineral springs (sulphur and lime), known in Pliny's time, and efficacious in diseases of the skin. There are several other baths in the side valleys, such as Santa Caterina (chalybeate), Masino, and Le Prese (sulphur). The valley, particularly in its lower portion, is extremely fertile; and of late years vigorous measures have been taken to prevent the damage caused by the frequent inundations of the Adda. Chestnuts, vines, mulberry trees, and fig trees abound; and there are many picturesquely situated churches, castles and villages. The chief articles exported are wine and honey. The wine is largely consumed in north Italy and Switzerland, the best varieties being Grumello, Sassella, and Montagna. About 20,000 pounds weight of honey is annually sent abroad. Politically the whole valley belongs to the kingdom of Italy, except the side valley of Poschiavo (Puschlav), which belongs to the Swiss canton of the Grisons (Graubünden).

VALUE. As regards the question of definition, Mills starts with the distinction somewhat loosely drawn by Adam Smith between value in use and value in exchange, and proceeds to say that by value we should always understand exchange value. This language seems familiar and definite, but on analysis it is clear that exchange implies two terms at least. If we say that a thing can be exchanged, we imply that it can be exchanged for something else, and when we speak of the exchange value of a thing we must directly or indirectly refer to the value of some other thing or things. In practice in modern societies this other thing is standard money; an Englishman who talks of the Exchange value of anything means the number of pounds sterling (or parts thereof) which it will fetch in the market or be appraised at by a fair arbitrator. On this view, then, the value of a thing is its price; but a very little experience in the theory or history of economics will show that it is often desirable, and sometimes necessary, to contrast value with price. Mills says that any change in the value of one thing compared with things in general may be due either to causes affecting the one thing or the large group of all other things, and that in order to investigate the former it is convenient to assume that all commodities but the one in question remain invari-



able in their relative values. On this assumption any one of them may be taken as representing all the rest, and thus the money value of the thing will represent its general purchasing power.

By this method of abstraction the treatment of the theory of value becomes essentially an examination of the causes which determine the values of particular commodities relatively to a standard which is assumed to be fixed. Now in order that anything may possess value in this sense, that it may exchange for any portion of standard money or its representatives, it is evident on the first analysis that two conditions must be satisfied. First, the thing must have some utility; and secondly, there must be some difficulty in its attainment. Suppose that on a desert island A possesses all the food, so many measures—(say) pecks—of corn, and B all the drinking water, so many measures—(say) pints. Then A, taking into account present and future needs, might ascribe to the possession of each portion of his stock so much utility. In the same way B might make an estimate of the utility of successive measures of the drinking water. The utility of the last portion of corn retained by A (or of water by B) is the *final* utility of the stock retained, and similarly the utility of the last measure obtained in exchange may be called the final utility of the stock purchased.

However useful this theory of final utility may be in throwing light on the fundamental nature of value, and on the advantages of exchange, it is obviously too abstract to be applied to the explanation of the relative values of the endless series of commodities and services which constitute a nation's stock of valuables at any time. For this purpose we must resort to the law of supply and demand. Mill argues, after the brief consideration allotted to the element of utility, that the other preliminary condition necessary for value—difficulty of attainment—is not always the same kind of difficulty, and he arrives at three distinct laws of value, according to three forms or degrees of this difficulty. (1) In the first place the difficulty may consist in an absolute limitation of the supply, and in this case the corresponding law is said to be the law of supply and demand. (2) When the difficulty of attainment consists not in the absolute limitation but simply in the fact that the article requires labor and capital to produce it, the normal or natural value is said to be determined by the cost of production. (3) In the last case taken by Mill it is supposed that an article can be increased in quantity, but only at an increasing cost, and in this case the corresponding law of value is the cost of production of that portion which is obtained under the most unfavorable circumstances.

It may be useful at this point to consider the principles by which monopoly values are regulated. The simplest case is when one individual possesses the whole stock and the cost of production is so small that it may be neglected. He will have to work out a problem in mathematics, and must so adjust his price that the quantity sold multiplied by the price per unit will be a maximum. The same kind of difficulty is found in the case in which the expenses of production, although considerable, are practically fixed or only increased slightly in proportion to the quantity furnished. The minimum price will be given by the expenses of production, while the actual price will tend to be such as to yield the maximum profit. As a rule, however, in modern commercial countries monopolies are an exception. If the producer of any article is obtaining more than the usual rate of profit, he at once provokes competition, and thus even the dread of this possible competition may keep down prices. This is often expressed by saying that the potential supply affects prices almost as much as the

actual supply. It will be observed, however, that cost of production only determines values by operating through the actual or potential supply, and thus that the law of demand and supply is fundamental. Once a thing is made, the actual cost of production has no influence on its value, except as indicating the conditions of future possible supply.

If all commodities were produced directly by the expenditure of labor, and in such a way that capital need not be considered, then the only element to consider in value would be the quantity of labor. And in a society of a more developed character, in which wages are paid, if we consider that the rate of wages is uniform, and that profits may be disregarded in comparison with wages, the quantity of labor is the most important consideration. But as we approach more nearly to the actual constitution of modern industrial societies, we find serious differences in the rates of wages in different employments, the use of fixed capital becomes of greater importance, and in some cases the lapse of time necessary for the completion of the commodity is considerable. Thus interest and profits, as well as the differential rates of wages, have to be taken into account just as much as the quantity of labor, and it is generally convenient to consider also the established differences in various returns to capital under different conditions, (risk, irregularity, etc.) Indirectly, of course, since all capital in the ordinary sense is the result of labor, the quantity of labor is always of primary importance; but, in considering the proximate causes of relative values, it is best to consider capital and labor as independent factors. Two important practical conclusions of a general character may be stated: (1) Relative values are liable to constant disturbances, and accordingly, since relative prices tend to be adjusted to relative values, relative prices must be constantly changing. (2) It is extremely difficult to measure changes in the value of the monetary standard, or movements in the general level of prices, or variations in the purchasing power of money incomes.

These difficulties are further increased by the importance of the group of commodities which can only be increased at an increasing cost, and which are placed by Mill under a third law of value. The most important examples of this law are agricultural and mining produce. In order to make the principles on which this law depends clear and intelligible, it is necessary to proceed at first by the abstract method so well described by Cairnes (*Logical Method of Pol. Econ.*, 2d ed., London, 1885). Assume then that there is an isolated country and that its agricultural produce consists of corn. Then at any given stage of the growth of wealth and population the amount of corn may be increased (the art of agriculture remaining stationary) either by taking into cultivation inferior lands or else by cultivating with greater care and expense the lands already in cultivation. But in either case what is known as the law of diminishing return would come into play, and the additional supply could only be obtained at an additional cost. It may be assumed that at any stage of development the cultivation would be carried to such a point as to give just the ordinary return to capital on the last "dose" of capital expended. Further it cannot be carried, for no farmer will work at a continuous loss; and competition will insure that it is carried so far, for, if this last application of capital yields ordinary profit, the former "doses" must yield more, that is to say, rent as well as profit. It thus becomes manifest that, under the conditions supposed, the extent to which "the margin of cultivation" will extend depends upon the price of the produce, and in the normal case—the price must be equal to the ex-



penses of production of that part which is produced under the most unfavorable circumstances. This then is the third law of value, from which the economic theory of rent is an immediate deduction. For, if the last dose obtains just a sufficient return, the former doses must yield more, and the sum of these extra profits is rent. It thus appears, also, that rent depends upon price and not price upon rent.

The pure theory of rent is arrived at by making certain hypotheses and abstractions, and accordingly it must not be applied to particular practical cases without further consideration. The theory certainly indicates the effect of very important causes, but requires in practice a certain amount of qualification. (1) The essence of the theory is that the return to each dose of capital applied can be separated, and that the application of capital will cease when the last dose yields only ordinary profits. (2) Again, the pure theory takes no account of the size of the portions into which the land is divided, nor of the kind of crops which are grown. But, when most of the land of a country is rented, both of these factors have to be considered, and it may be more convenient to the landowner to let the land with certain restrictions, which again indirectly operate on the price. (3) It has been well observed by Passy that the principal effect of various land laws is to increase or diminish the amount of the gross produce, which in Ricardian phraseology would mean to extend or contract the margin of cultivation. It thus appears that it is not always true to say that the payment of rent makes no real difference to the general public, and that it is simply a necessary method of equalizing farmers' profits.

The hypothetical history implied in Ricardo's theory as to the effects of the progress of society upon the value of agricultural produce also requires some criticism, such as that given by the historian of agriculture and prices, Thorold Rogers. The theory assumes that in the first place population increases, and thus there is a greater demand for food, and that therefore the margin of cultivation extends and the price rises; and rent rises also. But, as Rogers observes, history shows that agricultural improvements of all kinds have, first of all, increased the amount of food, and thus allowed of an increase in population.

The value of mining produce is determined generally in the same way as that of agricultural produce; but similar qualifications must be introduced. The peculiar durability of the precious metals, however, makes them in this respect differ widely from most mining produce. The older economists argued that the precious metals had their value determined by their cost of production under the most unfavorable circumstances, and then argued that in consequence the value of money tended to be governed by the cost of production of bullion. If, however, it is remembered that the annual production does not probably amount to 2 per cent. of the quantity in the hands of man, that cost of production can only operate through actual or potential supply, and that in the case of money the increase must be real to affect prices, it will be readily seen that the value of bullion is determined by the general level of prices (or the value of money), and not that the value of money depends upon the value of the bullion.

There is one other part of the general theory of value which requires some notice. Some articles can only be produced in conjunction with others (*e.g.*, hides and beef, wool and mutton), and some modification of the theory is needed to suit this case. The law, deduced is that the sum of the values must be equal to the joint expenses of production, and the relative values *inter se* are determined by demand and supply. Thus the Australian sheep-farmers will extend their sheep-

farms so long as for wool and mutton together they obtain a fair profit, but the amount contributed by each portion will be determined by the relative demand. It is interesting to observe that in the progress of society the value of the meat has risen as compared with that of the hides and the wool. The same principle determines the kind of produce which will be raised from land, though the application is rather more difficult owing to rotation of crops, etc.

VAMBRACED, in heraldry, a term applied to the arm clothed in armor, a gauntlet holding the sword below the hilt, pointing downward in bent sinister, hilt of silver, pommel of gold.

VAMPIRE, a term, apparently of Serbian origin (*vampir*), originally applied in eastern Europe to blood-sucking ghosts, but in modern usage transferred to one or more species of blood-sucking bats inhabiting South America.

Two species of blood-sucking bats (the only species known)—*Desmodus rufus* and *Diphylla ecaudata*—representing two genera (see MAMMALIA), inhabit the tropical and part of the subtropical regions of the New World, and are restricted to South and Central America. They appear to be confined chiefly to the forest-clad parts, and their attacks on men and other warm-blooded animals were noticed by some of the earliest writers.

Although these bats were known thus early to Europeans, the species to which they belonged were not determined until about fifty years ago, several of the large frugivorous species having been wrongly set down as blood-suckers, and named accordingly. It fell to the lot of Charles Darwin to determine one of the blood-sucking species at least, and the following is his account of the circumstances under which the discovery of the sanguivorous habits of *Desmodus rufus* was made: "The vampire bat is often the cause of much trouble by biting the horses on their withers. The injury is generally not so much owing to the loss of blood as to the inflammation which the pressure of the saddle afterward produces. The whole circumstance has lately been doubted in England; I was therefore fortunate in being present when one was actually caught on a horse's back. We were bivouacking late one evening near Coquimbo, in Chili, when my servant, noticing that one of the horses was very restive, went to see what was the matter, and, fancying he could detect something, suddenly put his hand on the beast's withers, and secured the vampire."

VAN, a species of carriage for merchandise, sometimes covered, for carrying household furniture; in other cases open and of a lighter nature and used for local delivery. Whether large or small, or of two or four wheels, the van is set on springs, and might be called a spring wagon or cart. The term seems to be an abbreviation of caravan, which was the word formerly used for such vehicles.

VAN, a city of Asiatic Turkey, capital of a vilayet, is situated two miles to the east of the lake to which it gives its name, in 38° 30' N. latitude and 43° 18' E. longitude. The population, estimated at from 30,000 to 35,000, are Turks, except about 2,000 Armenians and a few hundred Mohammedan and Nestorian Kurds. Besides trade and agriculture, the inhabitants are engaged in a few industries, such as the making of coarse cotton chintzes, a highly prized goat-hair waterproof moire antique, a thick woolen cloth called *shayak*, and an excellent soap, prepared from the saline efflorescences of Lakes Van and Erçek, which consist in about equal proportions of the carbonate and sulphate of soda.

The vilayet of Van, one of the finest but also one of the least developed regions of Asiatic Turkey, lies on



the Persian frontier between Erzerum (north) and Bagdad (south). It has an area of 15,517 square miles, with a population (1898) of 430,000.

**Lake Van.**—Lake Van, called *Arissia Palus* by the ancients, and also *Thospitis*, from its Armenian name Tosp, is 80 miles long and 30 broad, with a total area of 1,500 square miles. Although of smaller extent than Lake Urmia, it contains a much larger volume of water owing to its much greater depth, which is at least eighty feet near Van and still more along the south side. The lake stands about 5,400 feet above sea-level on the south Armenian plateau, which is encircled by the lofty ranges that bifurcate west and south from Ararat and culminate in the Sipan-Dagh (12,000 feet) on the north side of the lake.

**VANADIUM**, a rare element discovered in 1830 by Sefström, when analyzing a kind of iron obtained from the ores of Taberg in Sweden. Berzelius, in the course of an extensive investigation on vanadium, came to the conclusion that it is analogous to chromium, forming like it an acid trioxide,  $\text{VanO}_3$  in which "Van" signifies 134.4<sup>1</sup> parts of a radical analogous to the  $\text{Cr}=52$  parts of chromium in chromic acid,  $\text{CrO}_3$ . He succeeded in isolating this radical, and, as it exhibited semi-metallic properties, he had no doubt that it was the element vanadium itself. His results were universally adopted as correct until Roscoe (in 1867) found that Berzelius's vanadium is an oxide containing  $\text{O}_2=32$  parts of oxygen per Van, whence it followed that the presumed trioxide,  $\text{VanO}_3$ , is really a pentoxide,  $\text{V}_2\text{O}_5$ , where  $\text{V}_2=2 \times 51.2=2$  atoms of the real element. Our present knowledge of vanadium is based chiefly upon his investigations.

Traces of vanadium are found in certain iron ores and in many other minerals.

Rare and expensive as vanadium is, it has found a practical application in the production of aniline black. The black is produced from aniline by the action of chloric acid, aided by the presence of some oxygen carrier. Sulphide of copper is usually employed; but as Lightfoot found, a mere trace of vanadic acid (or vanadate of ammonia) acts more energetically than any other available agent. According to Witz 1 part of vanadic acid suffices for 67,000 parts of aniline salt.

**VANBRUGH, SIR JOHN**, dramatist and architect, was the son of a wealthy sugar-baker in Cheshire, England, and grandson of a Protestant refugee of Ghent. From a passage in one of his letters to Tonson it might be supposed that he was born in the Bastille, though in what year is uncertain, probably in 1666. His first step toward becoming a power in society was, of course, to enter the army. Perhaps, however, had he begun life in any other way his advance would have been just as rapid. During the martial period of his life, Vanbrugh wrote the first sketches of the *Relapse* and the *Provoked Wife*. These he showed to Sir Thomas Skipworth, one of the shareholders of Drury Lane, and with fortunate results.

In 1695 he was offered—whether through the court interest which he had secured or whether because he really had acquired a knowledge of architecture in France is not known—the post of secretary to the commission for endowing Greenwich Hospital. He accepted the post, and by way of fulfilling his functions as an architect turned his attention to the amours of "Lord Foppington." His *Relapse, or Virtue in Danger*, a sequel to Colley Cibber's *Love's Lost Shift*, was produced at Drury Lane in 1697. The success was so triumphant that Montague, afterward Lord Halifax, asked at once for the *Provoked Wife* for the theater in Lincoln's Inn Fields, and—Skipworth waiving, for the advantage of Vanbrugh, his own claim upon the play—it was produced at that theater in the following year.

And now, having succeeded as a man of fashion, as an architectural commissioner, and as a comic dramatist of the school of Wycherley, Vanbrugh turned his attention to morals. Though *Esop*—produced at Drury Lane in the same year as the *Provoked Wife*—was an adaptation of Boursault's dramatic sermon on the same subject, it was an improvement on the French play. The play ran during a week only. Vanbrugh, accepting the failure with his usual good-temper, seems then to have turned his attention completely to architecture; for the adaptation in 1700 of the *Pilgrim* of Beaumont and Fletcher, and the production in 1702 of *A False Friend*, could hardly have engaged his serious efforts at all, so perfunctory are they and so inferior to all that he had done before.

Castle Howard in Yorkshire, which he had built for the earl of Carlisle, was a great success so far as pleasing his patron went, who as a reward gave him yet another opening in life by presenting him—the most ignorant man perhaps in England of heraldry, judging from the fun he made of the appointment—with the tabard of Clarendieu king-at-arms. But, if the dangerous moment in every man's life is when he has just scored a brilliant success, it is especially so with genial glowing natures like Vanbrugh's. It seems to have been the success of Castle Howard that caused him to entertain the rash project of building a theater, from his own design, for the acting of his own plays.

When at length the time came to test the acoustics of the pile, it was found to be sadly defective. What changes were made to rectify the errors of structure does not appear. The theater was opened to the public with an Italian opera, which was followed by three of Molière's comedies, and these by the *Confederacy*, Vanbrugh's masterpiece on the whole, though perhaps its finest scenes are not equal to the finest scenes in the *Relapse*.

Vanbrugh at last withdrew from the disastrous speculation; Congreve had already withdrawn. But a man to whom fortune had been so kind as she had been to Vanbrugh could hardly be depressed by any of her passing frowns. Queen Anne at once sent him abroad on an important state errand, and afterward he was commissioned to build Blenheim. Blenheim, however, was a source of great sorrow to the kindly dramatist. Though Parliament had voted for the building of it, no provision had been made for the supplies. The queen while she lived paid them, and then Vanbrugh was left to the meanness of the duke of Marlborough and afterward to the insolence of the "wicked woman," who did her best to embitter his life. Besides Castle Howard and Blenheim, he built many other country mansions, such as Grimsthorpe and Duncomb Hall in Yorkshire, Eastbury in Dorsetshire, Seaton-Delaval in Northumberland, King's Weston near Bristol, Oulton Hall in Cheshire, etc.

About the end of 1710 Vanbrugh married Henrietta Maria, daughter of Colonel Yarborough of Haslington, and four years afterward, at the accession of George I., he was knighted. He afterward wrote again for the stage, and the unfinished fragment left at his death, which took place March 26, 1726, at his house in Scotland Yard, London, shows that his powers remained to the last as fine as ever.

**VAN BUREN, MARTIN**, eighth president of the United States, was the son of a small farmer, and was born December 5, 1782, at Kinderhook, Columbia county, N. Y., twenty miles east of Albany. He was educated at the village school, and, entering on the study of law at the age of fourteen, was called to the bar in 1803. Possessing in addition to his other abilities a peculiar power of winning personal trust and influence.



his rise both in his profession and political reputation was rapid. In 1808 he was chosen surrogate of Columbia county, and in 1812 a member of the State legislature. From 1815 to 1819 he was attorney-general of the State, and during this period came to be recognized as the ruling spirit of the new Democratic school known as the Albany regency. In 1821 he was chosen to the United States senate and the same year was elected a member of the convention for revising the State constitution, in which, though advocating an extension of the franchise, he opposed universal suffrage. In 1828 he was appointed governor of New York State. From March, 1829, to April, 1831, he was secretary of state in the administration of President Jackson, of whom he was the chief political adviser. During the recess he was appointed minister to England; but, on the ground that he had previously shown a too submissive attitude toward that country, and also a tendency to be influenced in his foreign predilections by home politics, the senate refused to ratify the appointment. In the following year he was, however, chosen vice-president of the United States, and in 1837 he succeeded Jackson as president. He entered upon office at the time of a severe commercial crisis (see UNITED STATES), and, although the methods he adopted to deal with it were in themselves admirable, the financial strain which existed during his term of office weakened for a time the influence of his party. Besides the establishment of the independent treasury system, Van Buren's name is associated with the preemption law giving settlers on public lands the preference in their purchase. On the expiry of his term of office he was again, in 1840, nominated for the presidency, but lost by a large majority. In 1844 a majority of the delegates to the Democratic convention were pledged to support him, but on account of his opposition to the annexation of Texas they allowed a motion to be introduced making a two-thirds vote necessary for nomination. This he failed to obtain and his name was withdrawn. In 1848 he was nominated by the anti-slavery section of his party, but the split caused the defeat of both Democratic candidates. The remainder of his life was spent chiefly in retirement on his estate at Kinderhook. In 1853-55 he went on a European tour. He died at Kinderhook July 24, 1862. His *Inquiry into the Origin and Course of Political Parties in the United States* was published by his sons in 1867.

VANCOUVER, GEORGE, English navigator, was born about 1758. He entered the navy at the age of thirteen, and accompanied Cook in his second (1772-74) and third (1776-79) voyages of discovery. After serving for several years on the Jamaica station, Vancouver was appointed to command an expedition to the northwest coast of America, the object being to take over from the Spaniards their territory in that region, and to explore the coast from 30° N. latitude round to Cook's Inlet (or river as it was then called), with a view to the discovery of an eastward passage to the great lakes in the British dominions. The special point which he had to ascertain was whether the Strait of Juan de Fuca really was a strait. Vancouver, accompanied by Lieutenant Broughton, left Falmouth on April 1, 1791, and, after spending some weeks at the Cape, made for the coast of Australia, where a very careful survey of the southwest coast was made, especially of King George's Sound, the value of which as a harbor Vancouver pointed out. For the next three years he was engaged in exploring the various lands of the Pacific, and it was not until October, 1794, that he started homeward, entering the mouth of the Shannon on September 13, 1795. He immediately set about the preparation of the narrative of his voyage, but died at Petersham

in Surrey, May 10, 1798, before he had quite completed his task.

VANCOUVER ISLAND, which is included in the territory of British Columbia, lies in a northwest and southeast direction parallel with the coast. From the State of Washington on the south it is separated by Juan de Fuca Strait, which leads into the Gulf of Georgia and Johnstone's Strait on the east of the island, Queen Charlotte Sound entering this last from the northwest. These channels vary from 5 to 10 miles in width. The island extends from 48° 20' to 51° N. latitude and from 123° to 125° 30' W. longitude. Its length is about 250 miles and its breadth varies from 10 to 70. The area is estimated at from 12,000 to 16,000 square miles.

The island is essentially a mountain range composed of metamorphic and trapean rocks, fringed by a belt of Carboniferous limestones and other sedimentary deposits. So far as is known at present the chief mineral resource is coal, which is worked in large quantities at Nanaimo on the east coast, and in quality is reputed the best on the whole Pacific coast. While limited areas in the southeast of the island and in the inland valleys are well adapted to agriculture (about 300,000 acres in all), and while farming is carried on to some extent, the country is too mountainous ever to develop agriculture on any large scale. The mountains are, however, covered with forests, mainly the Douglas pine, yielding splendid supplies of timber. These forests, with its coal and its fisheries, may be regarded as the chief resources of the island. Cereals of all kinds, all fruits of the temperate zone, pulse, and vegetables flourish on the patches suited to agriculture, while cattle and sheep can be easily reared in small numbers. The population of the island in 1881 was 9,991, of whom 5,925 lived in the city of Victoria. In 1901 the population was estimated at 27,123 (21,123 whites and Chinese, and 6,000 Indians).

The capital of the island is VICTORIA, (*q.v.*) Three and a half miles to the west of Victoria is the town of Esquimalt at the head of Parry Bay. There has been a British Admiralty station here for many years, the harbor having an average depth of from six to eight fathoms. There are government offices, two churches, a public school, and various other buildings.

Vancouver Island was discovered by Juan de Fuca in 1592. In 1778 Captain Cook roughly surveyed the coast, this work being extended by Captain Vancouver, who surveyed the Strait of Juan de Fuca and the Gulf of Georgia. The first settlement on the island was made by the Hudson's Bay Company on the site of Victoria in 1843. Six years later Vancouver Island was constituted a colony. Its union with British Columbia was effected in 1866.

VANCOUVER, a city of British Columbia, located on Burrard Inlet, in the district of New Westminster, in the immediate center of an extensive area of agricultural, mining, and lumber territory, and contiguous to salmon fishing grounds of great value. It is ninety miles distant from Victoria, the capital of Vancouver Island, with which tri-weekly communication is maintained by steamer, and nine miles from New Westminster, where connection is made with the Canadian Pacific railway system for points in the United States, Manitoba, Canada and elsewhere in every direction. The city contains five banks, two daily and three weekly papers, religious organizations representing nearly every denomination, and many churches, schools, academies, hotels, places of public resort, and other features of municipal progress, including electric light and street railway systems. In the way of manufactures there are five saw mills, three sash, door and blind factories, foundries and machine shops, a baking powder



factory, fish cannery, etc. In 1891 the population was 13,709; in 1901 it was 26,133.

**VANDA**, a genus of plants of the order *Orchideæ*. They comprise one of the most beautiful genus of the Indian orchids, and are highly prized by florists. They usually bring high prices. They are found in the Khasia Mountains, growing in great profusion upon the oak, banyan and other trees.

**VANDALS**. The Vandals, one of the leading Teutonic nations that overthrew the Roman empire, were of the Low German stock and closely allied to the Goths. We first hear of them in the time of Pliny and Tacitus as occupying a district nearly corresponding to Brandenburg and Pomerania. Thence, in the second century, they pressed southward to the confines of Bohemia, where they gave their name to the mountains now called the Riesengebirge. After a century of hostile and desultory operations against the Roman empire, having been signally defeated by Aurelian (271), they made peace with Rome, one of the conditions being that they should supply 2,000 *fœderati* to the imperial army. Sixty years later they sustained a great defeat from the Goths under their king Geberich, after which they humbly sought and obtained permission from Constantine to settle as Roman subjects within the province of Pannonia. Here they remained seventy years, and during this period they probably made some advances in civilization and became Christians of the Arian type. In 406, when the empire under Honorius was falling into ruin, they crossed the Rhine and entered Gaul. Stilicho, the chief adviser of Honorius, who was a man of Vandal extraction, was accused by his enemies of having invited them into the empire, but this is probably a groundless calumny. In Gaul they fought a great battle with the Franks, in which they were defeated with the loss of 2,000 men, and their king Godigisclus was slain. In 409 his son Gunderic led them across the Pyrenees. They appear to have settled in Spain in two detachments. One, the Asdingian Vandals, occupied Galicia, the other, the Silingian, Andalusia. Twenty years of bloody and purposeless warfare with the armies of the empire and with their fellow-barbarians, the Goths and the Suevi, followed. The Silingian Vandals were well-nigh exterminated, but their Asdingian brethren (with whom were now associated the remains of a Turanian people, the Alans, who had been utterly defeated by the Goths) marched across Spain and took possession of Andalusia.

In 428 or 429 the whole nation set sail for Africa, upon an invitation received by their king from Bonifacius, count of Africa, who had fallen into disgrace with the court of Ravenna. Gunderic was now dead, and supreme power was in the hands of his bastard brother, who is generally known in history as Genseric, though the more correct form of his name is Gaiseric. This man, short of stature and with limping gait, but with a great natural capacity for war and dominion, reckless of human life and unrestrained by conscience or pity, was for fifty years the hero of the Vandal race, and the terror of Constantinople and Rome. Genseric's celebrated expedition against Rome (455), undertaken in response to the call of Eudoxia, widow of Valentinian, was only the greatest of his marauding exploits. He took the city without difficulty, and for fourteen days, in a calm and business-like manner, emptied it of all its movable wealth.

There does not seem to be in the story of the capture of Rome by the Vandals any justification for the charge of willful and objectless destruction of public buildings which is implied in the word "vandalism." It is probable that this charge grew out of the fierce per-

secution which was carried on by Genseric and his son against the Catholic Christians, and which is the darkest stain on their characters.

On the death of Huneric, who succeeded Genseric in 484, he was succeeded by his cousin Gunthamund, Genseric having established seniority among his own descendants as the law of succession to his throne. Gunthamund (484-496) and his brother Thrasamund (496-523), though Arians, abated some of the rigor of the persecution, and maintained the external credit of the monarchy. On the death of Thrasamund, Hilderic (523-531), the son of Huneric and Eudocia, at length succeeded to the throne. Hilderic, elderly, Catholic, and timid, was very unpopular with his subjects, and after a reign of eight years he was thrust into prison by his warlike cousin Gelimer (531-534).

The wrongs of Hilderic, a Catholic, and with the blood of Theodosius in his veins, afforded to Justinian a long-coveted pretext for overthrowing the Vandal dominion, the latent weakness of which was probably known to the statesmen of Constantinople. A great expedition under the command of Belisarius (in whose train was the historian Procopius) sailed from the Bosphorus in June, 533, and after touching at Catania in Sicily, finally reached Africa in the beginning of September. In two campaigns the Vandals were completely overthrown and Gelimer was taken to Constantinople to grace a triumph. The Vandals who were carried captive to Constantinople were enlisted in five squadrons of cavalry and sent to serve against the Parthians under the title "Justinian Vandali." Four hundred escaped to Africa and took part in a mutiny of the imperial troops which was with difficulty quelled by Belisarius (536). After this the Vandals disappear from history.

**VAN DER HELST**. See **HELST**.

**VANDEVELDE, ADRIAN**, animal and landscape painter, a brother of William Vandeveld, the marine painter, was born at Amsterdam in 1639. He was trained in the studio of Jan Wynants, the landscape painter. His favorite subjects are scenes of open pasture land, with sheep, cattle, and goats, which he executed with admirable dexterity, with much precision of touch and truth of draughtsmanship, and with clear silvery coloring. He died at Amsterdam in January, 1672.

**VANDEVELDE, WILLIAM**, the younger, marine painter, a son of William Vandeveld, the elder, also a painter of sea-pieces, was born at Amsterdam in 1633. He was instructed by his father. In 1674 he was engaged by Charles II. at a salary of \$500 to aid his father in "taking and making draughts of sea-fights," his part of the work being to reproduce in color the drawings of the elder Vandeveld. He was also patronized by the duke of York and by various members of the nobility. He died in London on April 6, 1707.

**VAN DIEMEN'S LAND**. See **TASMANIA**.

**VAN DYCK, SIR ANTHONY**, painter, was born in Antwerp on March 22, 1599. Of the boy's early education nothing is known. He was little over ten when he was apprenticed to Henry Van Balen, the painter of many delicate little pictures, also an occasional collaborator of Rubens, and the master of Snyders.

In 1620 we know that Van Dyck was working with Rubens, for on March 20th, in making arrangements with the Antwerp Jesuits for the decoration of their church, the great master is allowed to avail himself of his pupil's assistance, and obtains for him the promise of a picture. This proof of Van Dyck's personal reputation is fully confirmed (July 17th) by a correspondent of the earl of Arundel, who speaks of Van Dyck as a young man of one and twenty whose works are



scarcely less esteemed than those of his master, and adds that, his relations being people of considerable wealth, he could hardly be expected to leave his home. Van Dyck was, however, thus persuaded, for on November 28th Sir Toby Mathew mentions the artist's departure to Sir Dudley Carleton, adding that he is in receipt of an annual pension of £100 from the king. There is evidence of Van Dyck's presence in London till the end of February, 1621. Among his numerous paintings still preserved in English houses one only is admitted as belonging to the period of this first visit, a full-length portrait of James I. in the royal collection. That he was at the time a portrait painter of the rarest merit may easily be seen from his own likenesses of himself when still quite young and beardless, in the National Gallery (London), in the Pinakothek at Munich, and in the private collections of the duke of Grafton and Sir Richard Wallace. In this last admirable specimen the young painter has represented himself in the character of Paris. 'Early paintings by Van Dyck are certainly not scarce in British galleries; and at Dulwich there is his admirable *Samson and Delilah*, wrongly ascribed to Rubens.

No master from beyond the Alps ever attained a higher position than Van Dyck among the most celebrated representatives of Italian art. Study, as a matter of course, had been one of his principal objects in going to that country. No doubt can be entertained as to the great influence exerted by the works of Titian and Paul Veronese in the development of his genius; still the individuality of the painter remains a striking feature of what may be termed his Italian works, especially portraits. As in later years Van Dyck gives us a striking picture of the higher classes in England, so at this stage he makes us acquainted with Italian beauty and style; and at no other period is his talent more advantageously shown than in some of the glorious portraits he painted at Rome, at Florence, and above all at Genoa. At Rome he resided with Cardinal Guido Bentivoglio, who had been papal nuncio in Flanders from 1607 to 1617. For this patron were painted several works of very great importance, the most renowned being the prelate's own portrait, now in the Pitti Palace at Florence. Another work was a Crucifixion, representing Christ dying on the cross with uplifted eyes. Besides these he painted religious subjects and portraits, several of which are reckoned among his finest examples, such as the portrait of Francis Duquesnoy, the famous sculptor, belonging to the king of the Belgians, and those of Sir Robert Shirley and his wife, in Persian attire, now at Petworth.

In the company of Lady Arundel, who tried to persuade him to return to England, he traveled to Turin, and perhaps produced some of the paintings now in the royal gallery there, such as the spirited portrait of Thomas of Savoy on his splendid black charger. But he was eager to reach Genoa, where Rubens had worked with great success some twenty years before, and where his Antwerp friends, Luke and Cornelis de Wael, for many years resident in Italy, now were. Van Dyck remained their guest for several months, and their portraits, now in the Pinacoteca Capitolina at Rome (engraved by W. Hollar from the monochrome at Cassel), may be supposed to have been one of his first Genoese productions. Genoa can still boast of a good number of his most attractive productions.

Van Dyck is said to have sailed from Genoa to Palermo, and there to have painted several persons of rank, including the viceroy, Emmanuel Philibert of Savoy.

Embarking for Marseilles, Van Dyck is said to have stopped at Aix with Peiresc, the famous scholar and

friend of Rubens, and thence to have gone to Paris, where most probably he painted the beautiful portrait of Langlois the print-seller (belonging to Mr. W. Garnett), a work still influenced by Italian reminiscences, and had the opportunity of meeting Callot, Simon Vouet, and Dupuy, the king's librarian—all of whose portraits were engraved from his drawings in Antwerp. There is no recorded proof of Van Dyck's return to Antwerp before March 6, 1628.

Great as may have been the strength of Italian reminiscence, from the moment Van Dyck again trod Flemish soil the influence of Rubens became predominant, and we can scarcely doubt that a competition speedily arose between master and pupil. Among the earliest works after his return to Antwerp we find the Crucifixion, given to the Dominican nuns, in accordance with the wish expressed by the painter's dying father, and now in the Antwerp museum. To Van Dyck's second—more justly speaking third—manner belong some of his best religious works. The Crucifixion in the cathedral at Mechlin is termed by Sir Joshua Reynolds one of the finest pictures in the world. Other Crucifixions are in St. Michael's at Ghent (sketches in Lord Brownlow's collection and the Brussels museum) and in the church at Termonde. Still finer are the two works painted for the Antwerp Jesuits and now at Vienna—the *Blessed Herman Joseph Kneeling before the Virgin* and *St. Rosalia Crowned by the Infant Saviour*. To this period likewise belong the celebrated *Elevation of the Cross* at Courtrai and the *St. Augustine in Ecstasy*, in the church of the Jesuits at Antwerp.

Rapidly rising to honor and wealth, Van Dyck shared with Rubens the official title of court painter, and his numerous portraits of the Infanta in her monastic garb (Paris, Vienna, Turin, Parma, etc.) bear testimony to the great favor in which he stood with her. When Mary de' Medici, after her flight from France, took up her residence in Brussels (1631), she honored Van Dyck, as well as Rubens, with repeated visits, and several times called upon him to paint her likeness, as well as those of Gaston of Orleans and his wife Margaret of Lorraine, and several of the personages of their court. When, toward the end of March, Van Dyck sailed for England, he took all these portraits with him, as we learn from an account of August 8, 1632 (Carpenter's *Pictorial Notices*).

In undertaking this new journey to London, Van Dyck was assured of success, for Gerbier's letters show that the king had personally desired his presence. Van Dyck rapidly achieved popularity among the higher classes, and, as Walpole says, his works are so frequent in England that to most Englishmen it is difficult to avoid thinking of him as their countryman.

During the first year of his presence in England he painted the king and queen a dozen times. The first of these noble portraits is the admirable full length of Charles I., with the queen and their two eldest children, at Windsor Castle. The style he adopted in England is generally termed his third manner; we might better say his fourth, as he already had a very particular style before he set out on his Italian journey.

Nearly the whole of 1634 and 1635 were spent by Van Dyck in the Netherlands. The most important of Van Dyck's works, at any rate as a portrait painter, belong to this period. Among the religious paintings of undisputed excellence belonging to the same period are the *Adoration of the Shepherds* in the church at Termonde, and the *Deposition*, where the body of Christ rests upon the lap of the Virgin, in the Antwerp museum.

After being chosen honorary president of the Antwerp guild of St. Luke, Van Dyck returned to London before the end of 1635. In spite of the vast number of



his later portraits, some of them deserve to be ranked among the most celebrated of his productions.

He now married Lady Mary Ruthven, daughter of Sir Patrick Ruthven and grand-daughter of the earl of Gowrie. There are several portraits of her by her husband, the most important being in the Munich gallery, in which she is represented in white satin, playing on the violoncello.

Van Dyck found few occasions in England to paint anything but portraits. He seems to have been decidedly underrated by the king and queen as an imaginative painter. At the very time of his employment on the beautiful portraits of Henrietta Maria, destined to serve as models for Bernini's bust, Gerbier was secretly negotiating with Jordaens, by order of Charles, for the decoration of the queen's apartments at Greenwich (1639).

When the news of Rubens' death reached London (June, 1640), Van Dyck contemplated a return to his native country, and a letter from Ferdinand of Austria to Philip IV. speaks of his intended journey to Antwerp on St. Luke's Day (October 18th). Rubens had left unfinished a series of paintings commanded by the king of Spain, and, from correspondence published by Professor Justi, we learn that Van Dyck had been thought of to give them the finishing touch. But he absolutely refused to finish them. It was then agreed that he should paint an independent canvas destined to complete the series. Van Dyck was delighted with this order, and Ferdinand tells his brother that he returned to London in great haste "to make preparations for his change of residence; possibly," adds the letter, "he may still change his mind, for he is stark mad." Whether Van Dyck found it possible to work during his short stay in the Netherlands is a matter of doubt. In the museum at The Hague are six medallion portraits of Constantine Huygens and his children, dated 1640. They have till lately been ascribed to Van Dyck, but are now said to be by Adrian Hannemann, a Dutchman, and one of his ablest assistants. In any case they are of small importance. Most authors suppose that Van Dyck's principal object in traveling to the Continent was to be intrusted with the decoration of one of the galleries of the Louvre. There may be some truth in this, for Mariette speaks of a letter he saw, written by Claude Vignon, the French painter, in January, 1641, asking Languis for an introduction to Van Dyck, who was then in Paris. Unfortunately the great painter was thwarted in his aspirations. His health was beginning to fail. After his return to London he was frequently obliged to interrupt his work; and a letter written (August 13th) from Richmond by Lady Anne Roxburgh to Baron W. van Brederode at The Hague states that the portraits of the Princess Mary had been greatly delayed through Van Dyck's illness, and that the prince's (William II. of Orange) would be ready in eight days. "As Van Dyck intends leaving England in the course of ten or twelve days at latest," she adds, "he will take the paintings himself to the princess of Orange." These portraits, now in the museum at Amsterdam, are the last Van Dyck painted in England. They are considered to be inferior; and the last edition of the catalogue terms them copies. But of works dated 1639 the portrait of Lady Pembroke, in the gallery at Darmstadt, is a really fine specimen; and to the same year belongs a full-length portrait of Arthur Goodwin at Chatsworth. The twin portrait of Thomas Carew and Thomas Killigrew, in the royal collection, dated 1638, is certainly most delicate, but very weak in tone and slight in handling. Van Dyck sailed in September, and probably spent some time with his Antwerp friends. In October he reached Paris, and succeeded in obtaining some impor-

tant work, when, on November 16th, he was compelled to resign his commissions on account of the state of his health. Scarcely three weeks later (December 9, 1641) he died at his residence at Blackfriars. Van Dyck was buried in old St. Paul's, where a Latin inscription was placed on his tomb by Charles I.

VANE, SIR HENRY, the younger, was the son of Sir Henry Vane and Frances Darcy. His father, of an ancient family in Durham, was secretary of state and comptroller of the household under Charles I. Henry was born in 1612 at Hadlow in Kent; and after an education at Westminster, where he was noted for his high and reckless spirits, and at Magdalen, Oxford, where he neither matriculated nor took his degree, he was sent to France and Geneva. Here he no doubt acquired the strongly Puritan views for which he had been prepared by a remarkable change of mind when quite a boy. In 1635 he emigrated to Massachusetts, where he was elected governor in 1636, though only twenty-four years of age. After two years of office, during which he showed striking administrative ability, he was defeated by Winthrop, the former governor, chiefly on account of the protection he had given to Mrs. Hutchinson in the religious controversies which she raised.

Vane returned to England in August, 1637. Being elected to the Short Parliament for Kingston-upon-Hull, he speedily became a leader of the Independents and a marked man. In order to secure him for the court he was made joint-treasurer of the navy with Sir W. Russel, and was knighted. In November, 1640, he was again elected for Hull to the Long Parliament. He carried up the impeachment of Laud from the Commons, was a strong supporter, when on the committee of religion, of the "Root and Branch" bill, and in June, 1641, put forward a scheme of church government by which commissioners, half lay and half cleric, were to assume ecclesiastical jurisdiction in each diocese. He was, in fact, foremost in all the doings of the Long Parliament. When war broke out he surrendered his office of treasurer of the navy, but was replaced in it by the Parliament. In 1643 he was the leading man among the commissioners sent to treat for a league with the Scots. Vane succeeded in getting the bond termed the Solemn League and Covenant, and further in substituting the expression "*according to the word of God*" and the example of the best Reformed churches" for the latter phrase alone. In the Westminster Assembly, too, he joined Cromwell in insisting upon full religious liberty, and in opposing the view that the taking of the Covenant should be necessary for ordination. In 1646 Vane was one of the English commissioners for the preservation of peace with Scotland, and in 1648 was appointed with others to negotiate with Charles at the Isle of Wight. He was chairman of the committee appointed to consider the mode of election of future parliaments, and his proposals were brought forward in January, 1650. He acknowledged the Commonwealth only so far as he found it "consonant to the principles which have given rise to the law and the monarchy itself in England," and he recognized in a parliament, conforming in other respects to the ancient laws, the supreme authority of the state, whether there were a king at the head of it or not. His most useful qualities were exhibited, however, when in March, 1653, he became the head of the commission for managing the army and navy. It was by his exertions in organization that Blake was fitted out with the fleet with which Van Tromp was defeated and the supremacy of England at sea assured. It was at this time that Milton's sonnet was addressed to him. On April 20th Cromwell forcibly dissolved the Long Parliament, when Vane especially received from the Protector studied insult. He



was, however, almost at once invited to rejoin the government. "He answered the invitation by a letter extracted from the Apocalypse wherein the reign of the saints is mentioned, which faith he believes will now begin." In his retirement at Raby he now wrote the *Retired Man's Meditations*. In 1656 he proposed in *A Healing Question* a new form of government, insisting as before upon a Puritan parliament supreme over the army. This he sent to Cromwell, and so alarmed was the Protector at the interest it excited that Vane was summoned on August 12th to the council in consequence. Refusing to give security not to disturb the public peace, he was on September 9th sent prisoner to Carisbrooke Castle, and there remained until December 31st. After the death of Cromwell he stood for Kingston and Bristol successively, and was elected, but the court managers gave the certificate of election to the defeated candidates; finally, however, he was chosen for Whitchurch and took his seat on January 27, 1659, at the head of the small body of forty republicans. Upon Richard's abdication he joined the army leaders in reviving the Rump; and, when the breach occurred between it and the army, he adhered to the latter, accepting a commission from them. He was one of the committee of safety and also of the council of state appointed in May; he was, too, chairman of the army and navy commission, and soon afterward of another special commission for the navy. In September he was made president of the council. He had, moreover, in May, been appointed, with Lambert and others, to treat with the Dutch ambassador for freeing the commerce of the Baltic. When Monk arrived in London, Vane was ordered to his seat in Lincolnshire, having been discharged from the parliament for espousing the cause of the army.

At the Restoration Vane was imprisoned in the Tower by the king's order. After several conferences between the Houses of Parliament it was agreed that he should be excepted from the indemnity bill, but that a petition should be sent to Charles asking that his life might be spared. The petition was granted. During the conferences he had been moved from prison to prison, and was finally placed in a castle in the Scilly Isles. In his captivity he wrote the *People's Case Stated*, with many other political and religious works of the highest eloquence and beauty. On March 7, 1662, the Convention Parliament being no longer in existence, he was taken to London, and on June 2d put upon his trial, which was conducted with a shameless absence of equity. Charles was determined that he should die, and, in spite of his answer to the petition mentioned above, wrote himself to Clarendon declaring that Vane was "too dangerous a man to let live, if we can honestly put him out of the way." He was therefore sentenced on June 11th to death. On the 14th he was taken out to execution, and died with the serenity and courage which had marked his life.

VANGS, ropes on either side of the gaff, for steadying and acting as braces to a fore-and-aft-sail.

VANILLA, a flavoring agent largely used in the manufacture of chocolate, in confectionery, and in perfumery. It consists of the fermented and dried pods of several species of orchids belonging to the genus *Vanilla*. The great bulk of the commercial article is the produce of *V. planifolia*, Andrews, a native of eastern Mexico, but now largely cultivated in several tropical countries, especially in Réunion, the Seychelles, and Java. The best varieties of vanilla pods are of a dark chocolate brown or nearly black color, and are covered with a crystalline efflorescence technically known as *givre*, the presence of which is taken as a criterion of quality. The peculiar fragrance of vanilla

is due to vanillin,  $C_8H_8O_3$ , which forms this efflorescence.

The method of cultivation and preparation of vanilla for the market varies somewhat in different countries. In Mexico a clearing is made in the forest, where a few young trees, twelve or fifteen feet apart, are left to serve as a support for the climbing stems of the vanilla plant. Close to each tree two cuttings, three to five feet in length, are inserted in the soil to the depth of about a foot, the upper part being tied to the tree. The cuttings become rooted in about a month, but do not bear fruit until the third year. They continue to bear for about thirty years. In Réunion, Mauritius, and the Seychelles the young plants are supported by a rude trellis made between the trunks of trees. Although the plants are probably fertilized by insects in their native country, in Réunion and elsewhere fertilization has to be promoted by hand. Only the finest flowers of each spike are fertilized, or the plants would die of exhaustion. The pods are cut off separately as they ripen, since, if over-ripe, they are apt to split in drying, and if unripe the product will be of inferior color and fragrance. The pods take a month to arrive at full size and six months longer to ripen. The exact time for collecting is judged by the crackling of the pod when pinched between the fingers. The aroma of the vanilla is developed by fermentation, and is said not to pre-exist in the ripe fruit.

VANINI, LUCILIO, Italian philosopher, was born at Taurisano, near Naples, in 1585. He studied philosophy and theology at Rome, and after his return to Naples applied himself to the physical studies which had come into vogue with the Renaissance. From Naples Vanini proceeded to Padua, where he came under the influence of Pomponatius, whom he styles his divine master. At Padua, where he appears to have remained for several years, Vanini added law to his other acquirements. He was also ordained priest; but on leaving Padua he led a roving life in France, Switzerland, and the Low Countries. He was obliged to flee from Lyons to England in 1614, but was imprisoned in London for some reason for forty-nine days. Being set at liberty, he returned to Italy and made an attempt to teach in Genoa, but the same complaints being made against him drove him once more to France. Here he made a valiant effort to clear himself of suspicion by publishing a book against atheists—*Amphitheatrum Eternæ Providentiæ Divino-Magicum, necnon Astrologo-Catholicum, adversus Veteres Philosophos, Atheos, Epicureos, Peripateticos, et Stoicos* (1615). The title of his only other work (*De Admirandis Naturæ Regiminæ Deaque Mortalium Arcanis*) correctly indicates its general tenor. It was published at Paris in 1616, and was soon afterward reëxamined by the Sorbonne and condemned to the flames. This was the occasion of Vanini's leaving Paris, where he had been staying as chaplain to Marshall de Bassompierre, to whom the book is dedicated. He began to teach in Toulouse, but soon roused the clergy and magistrates against him. He was arrested in November, 1618, and after a prolonged trial was condemned as an atheist, to have his tongue cut out and to be strangled at the stake, his body to be afterward burned to ashes. This savage sentence was executed on February 9, 1619.

VANLOO, CHARLES ANDREW, subject painter, a younger brother of John Baptist Vanloo (see below), was born at Nice February 15, 1705. He received some instruction from his brother, and like him studied in Rome under Luti. Leaving Italy in 1723, he worked in Paris, where he gained the first prize for historical painting. After again visiting Italy in 1727, he was employed by the king of Sardinia, for whom he painted

a series of subjects illustrative of Tasso. In 1734 he settled in Paris, and in 1735 became a member of the French Academy; and he was decorated with the order of St. Michael and appointed principal painter to the king. His *Marriage of the Virgin* is preserved in the Louvre. He died at Paris July 15, 1765.

VANLOO, JOHN BAPTIST, subject and portrait painter, was born at Aix in Provence January 14, 1684. He was instructed in art by his father. Having at an early age executed several pictures for the decoration of the church and public buildings at Aix, he was employed on similar work at Toulon, which he was obliged to leave during the siege of 1707. He was patronized by the prince of Carignan, who sent him to Rome, where he studied under Benedetto Luti. Here he was much employed on church pictures, and in particular executed a greatly praised *Scourging of Christ* for St. Maria in Monticelli. At Turin he painted the duke of Savoy and several members of his court. Then, removing to Paris, where he was elected a member of the French Academy, he executed various altar-pieces and restored the works of Primaticcio at Fontainebleau. In 1737 he came to England, where he attracted attention by his portraits. He did not, however, practice long in England, for, his health failing, he retired to Paris in 1742, and afterward to Aix, where he died December 19, 1745.

VANNES (Breton, *Gwened*), a town of France, is situated on a little stream, ten miles from the Gulf of Morbihan and eighty-four northwest of Nantes on the railway to Brest. In 1882 thirty-five vessels (3,480 tons) entered and seventy-four (7,225 tons) left the port of Vannes, which is accessible to vessels of 150 tons; those of 800 tons can come to within two miles. The population in 1901 was 20,127 (commune 22,036).

VANNUCCI. See PERUGINO.

VAN VEEN, OTHO, an eminent painter, was a native of Leyden and was born somewhere about 1556 or 1557. His chief works are religious pictures in churches, and many specimens may be found in Leyden, Antwerp, Bruges and other cities. He died at Brussels at the age of 78.

VAN WERT, the capital of a county of the same name in the western portion of Ohio, is located on the Pittsburgh, Ft. Wayne and Chicago, and Toledo, St. Louis and Kansas City roads, at their junction with the Cincinnati, Van Wert and Michigan road. The town occupies an elevated plain, and possesses many facilities for the promotion of its future growth and prosperity, particularly in respect to the number and importance of the manufacturing industries, completed and in progress of development. Van Wert county is exceptionally fertile, well watered, and at intervals covered with dense forests of hardwood timber; its agricultural resources are specially abundant, and the town of Van Wert, being the shipping point for the productions of the surrounding country, is made the base of operations for commercial and other transactions steadily increasing in volume and value. The town contains two national banks, one daily and three weekly papers, from eight to ten churches, a union school, a court house completed at the cost of \$125,000, hotels, halls, stores, etc., in number and equipment fully up to the requirements of the service, also four saw-mills, two flour mills, electric light works, foundries and machine shops, manufactories of staves, spokes, stirrups, patent fence, oil-well supplies, carriages and road carts, cigars, tiles, etc. The population in 1900 was 6,422.

VAPOR. See EVAPORATION.

VAR, a department of France, formed in 1790 of part of Provence, but reduced in 1860 by the formation of the department of Alpes-Maritimes, so that the Var no

longer flows through the department to which it gives its name. Situated between 42° 58' and 43° 55' N. latitude and 5° 39' and 6° 57' E. longitude, it is bounded by the Mediterranean on the south, by Alpes-Maritimes on the east, by Basses-Alpes on the north, and by Bouches-du-Rhône on the west. In the northwest it touches the department of Vaucluse. The river Verdon on the north and the Siagne on the northeast are natural boundaries. The surface of the department is one of the most broken in France; the highest point is in the northeast, where a peak of the Alps rises to 5,620 feet and is surrounded by others ranging from 4,500 to 5,000 feet. The climate is remarkably fine and mild on the coast, where there is complete shelter from the north wind, but is more severe in the mountains.

Of the total area of 1,489,488 acres 379,021 are arable, 529,660 under wood, 185,333 under vineyards, 14,857 are meadows and orchards, 49,606 pasture, and 142,466 uncultivated. Mulberries, strawberries, pears, peaches, plums, figs, almonds, oranges, pomegranates, lemons, jujubes, guavas, and Japanese medlars are grown; and the laurel, palm tree, date tree, eucalyptus, cactus, and sugar cane flourish. An export trade is carried on in flowers, and also in truffles, capers, and onions. The forests are planted with white and evergreen oaks, cork trees, maritime pines, and chestnuts. In the dense and almost virgin forest of St. Baume are beeches, maples, limes, oaks, elms, yews, and pines, and the flora of the district is botanically most interesting. Var possesses mines of iron, lead, aluminium, and coal. In 1901 the total population of the department numbered 325,490.

VARANGIANS, a Norman people of the Baltic coast, who greatly damaged by their piracies the commerce of the Republic of Novgorod. They conquered repeatedly the Slavic and Finnish people of Northern and Central Russia. Gradually, however, they became absorbed into the Russian race, and since the ninth century the name of Russian and Varangians has been considered synonymous.

VARANIDÆ, a family of Saurian reptiles. Some of them are aquatic and some of them inhabit dry and sandy places. Some attain a very large size. They feed on animal food of any kind, and have been seen to attack a young deer when swimming across a river. The species are not numerous, and chiefly belong to the old world.

VARASD (Germ. *Warasdin*), a royal free city of Hungary, in the county of Varasd, in Croatia, lies about forty miles north-northeast of Zágráb (Agram), on the river Drave. It has tobacco and liqueur factories, and enjoys a brisk trade in wood and fruits, especially plums. The inhabitants numbered 13,701 in 1899.

VARAZZE, a little town of Northern Italy, on the Gulf, and eighteen miles southwest of the city of Genoa. There is some trade in wood, and extensive construction of fishing boats is carried on here. The population the town is 5,000.

VARENUS, BERNHARDUS, or BERNHARD VAREN, geographer, was born in 1622 at Hitzacker on the Elbe, in the Lüneburg district of Hanover. Varenus studied at the gymnasium of Hanover and at Königsberg and Leyden universities, where he devoted himself to medicine, taking his degree in 1649. He then settled at Amsterdam, intending to practice medicine. But the recent discoveries of Tasman, Schouten, and other Dutch navigators, and his friendship for Blauw and other geographers, roused in Varenus an interest in geography, and it was in this study that the principal achievements of his life were gained. He died in 1670.



**VARESE**, a town in northern Italy in the province of Como, and thirteen miles west of the town of that name. It carries on manufactures of silk, cotton, paper, and hats. The population is about 13,000.

**VARIABLE, COMPLEX.** The solution of a quadratic equation involves the extraction of the square root of a quantity which may be negative. Analysis was, therefore, at a very early stage compelled to contemplate the possibility that symbols of magnitude may represent combinations of dissimilar constituents; but it is only within the nineteenth century, mainly owing to the initiative of Cauchy and of Gauss, that the whole domain of analysis has been explored from this point of view.

As long as a variable is conceived to admit of real values only, the distances from a fixed point, measured along a right line, are sufficient to represent it. These may be taken positively or negatively, and in both directions, through all magnitudes, from a vanishing amount to values large beyond conception, *i.e.*, infinite.

Complex numbers form a system complete in themselves, and any process of calculation on complex numbers always reproduces a complex number. Thus, as any such quantity is represented by a point approached from a given point, the result of calculation also has a point or points to represent it.

In dealing with real numbers any definite range of values is represented by the points of a finite right line; but to realize a definite range of complex numbers we must have recourse in general to a "region" of two dimensions of the plane bounded by some curve. A region of two dimensions is called *connected* when we can pass from any point within it to any other point within it without crossing the boundary curve. A quantity is said to be *unrestrictedly variable* in a region when it can assume all numerical values in this region. It is said to be *continuously variable* when all values which it assumes always belong to a finite connected region. Thus a variable is said to be *unrestrictedly continuous* for a certain value when it can take all the values which belong to a finite region, however small, which includes this value. The variable is *restrictedly continuous* for this value when the values it takes near this one form a region on whose boundary the value itself occurs, or it may be a region of one dimension. It is *discontinuous* for this value when the point is isolated, and does not belong to any region. When we know two definite values of a real variable, we know all the intermediate values which it must assume in passing from one to the other; but in the case of the complex variable there is an essential difference; it can pass continuously from one given value to another by infinitely numerous series of continuously consecutive values.

**VARIATION AND SELECTION.** It is not proposed in the present article to trace the successive steps by which the general doctrine of the origin of species by descent with modification has come to gain acceptance among naturalists (see **EVOLUTION**). The present problem is concerned solely with the determinant factors of evolution, with searching out the mechanism of the evolutionary process, and of discerning if possible such order as may lie under the apparent flux of change.

*Theories of Variation.*—If we pass over the speculations of the earliest evolutionists—De Maillet, Maupertuis, Robinet, Bonnet, etc.—as too vague for rapid summary, and note that Linnæus was not quite a consistent creationist, since he admitted that many species may be simply fertile hybrids, the history of definite speculation as to the factors of variation may be fairly said to begin with Buffon, whose distinct though covert suggestion of the doctrine of descent with modification was supported by emphatic insistence upon the impor-

ance of external conditions. He endeavored to show how "natures, instincts, and most inward qualities" are modified through bodily habits, how new functions seem to arise in response to new conditions, and how changes in climate, food, and other conditions of life bring about direct modifications in organisms exposed to them. Kant, on the other hand, viewed the evolution of species as related essentially to the mechanical laws of the organism itself, although in his latest writings he allowed for the influence of geographical distribution, food, etc., noted the importance of selection in artificial breeding, and even hinted at the notion of struggle for existence, which was soon afterward more clearly emphasized by Herder.

Erasmus Darwin (*Zoonomia*, 1794) believed that the organism has the faculty of improving by its own inherent activity, that it has the power of attaining new parts attended with new propensities. Yet the strongest and most active animals are those which propagate and hand on improvements. Transformations, too, may be produced in part by the exertions of the organism in consequence of its desires for food, security, and reproduction. Changed conditions, such as climate, have an indirect influence in changing desires, and thus actions, and so finally structure; and they may also operate directly. Treviranus (1802–1831) assumed an indefinite variability of the organism, with considerable power of adaptation to surroundings, and even anticipated much recent speculation in his suggestion of a possible factor of modification in the union of sexual elements. The well-known theory of Lamarck (1801–1809) laid special emphasis on function and environment; for, though the sense of need in association with suitable environment calls out a succession of efforts, and so originates incipient structural modifications, it is to increased functioning that the increase of these modifications must be ascribed, while similarly disuse explains degeneration. Changed conditions produce new wants nutritive and reproductive; hence changes in climate, or the like, change the organism by changing its habits. Rapid increase is checked by other organisms: the strongest and best-armed for attack devour the weaker, and the less perfect genera are kept down by the more perfect. The less definite view of Goethe included, besides recognition of the conservative or centripetal force of heredity, that of a progressive or centrifugal tendency to adaptation to environment. Oken (1809) similarly regarded all progress from his primeval "Urschleim" as having been in terms of its interaction with the external conditions of life. In 1813 Wells made his now well-known suggestion of the importance of natural selection in determining the varieties of the human species; and in 1831 Patrick Matthew published his much more developed, yet equally disregarded, statement of the same doctrine in its more general applications. In 1828–30 Geoffroy St-Hilaire, afterward ably succeeded by his son Isidore, denied indefinite variation, regarding function as of secondary importance, and laying special stress on the direct influence of the environment; for instance, it was not so much the effort to fly as the (supposed) diminished proportion of carbonic acid in the atmosphere which determined the evolution of birds from saurians. The veteran geographer Von Buch naturally inclined to emphasize the influence of geographical isolation (locality, climate, soil, food, etc.), and laid stress on the restriction of the area of possible sexual union as bearing upon the origin of varieties. The embryologist Von Baer (1834) dwelt especially upon the organismal nature of variation, on the unfolding, as it were, of new structures; and Schleiden (1838) and other naturalists more or less

distinctly advanced similar opinions. In 1844 appeared the *Vestiges of Creation*, which in its later editions (1853) formulated an hypothesis of progress (1) by rhythmic impulse through grades of organization, (2) by another impulse tending to modify organic structures in accordance with external circumstances. In 1852 Naudin argued for the formation of new species in nature in a similar way to that of varieties under cultivation, further attaching great importance to an assumed "principle of finality," apparently a kind of organismal fate. Herbert Spencer, whose weighty arguments for evolution date from 1852, laid special stress upon the modifying influences of environment, this involving changes of function, and so ultimately of structure. Finally, in 1853 Victor Carus argued for a progressive adaptation to changing external conditions. An undefined hypothesis of internal modifiability appears also to have floated before the mind of Owen. We now reach the greatest name in the catalogue—Charles Darwin.

After mentioning that his first light upon the origin of species was derived from his early distributional studies, Darwin points out that "a naturalist, reflecting on the mutual affinities of organic beings, on their embryological relations, their geographical distribution, geological succession, and such other facts, might come to the conclusion that species had not been independently created, but had descended like varieties from other species. Nevertheless, such a conclusion, even if well founded, would be unsatisfactory until it could be shown how the innumerable species inhabiting this world have been modified so as to acquire that perfection of structure and co-adaptation which justly excites our admiration."

A comparison between individuals of the same variety of cultivated plants or animals shows a greater degree of variation than between individuals of any one species or variety in nature. This higher variability of domestic productions is to be ascribed to the less uniform conditions of their upbringing, perhaps in part also to excess of food. Exposure to new conditions must be continued for generations to set up any great variation; but this, once set up, continues indefinitely. Changed conditions may directly influence the whole organization or certain parts alone, or act indirectly through the reproductive system. The effect on offspring may be definite: e.g., size may depend upon the amount of food, color upon quality of food, thickness of skin and hair upon climate, etc. But indefinite variability is a much commoner result of changed conditions, and has probably played a much more important part in the formation of our domestic races. The reproductive system is peculiarly sensitive to very slight external changes. Many plants and animals will not reproduce in domestication, even though individually vigorous; others, though weak and sickly, breed freely. Hence we need not be surprised at the reproductive system acting irregularly and producing variations.

Changed habits and use and disuse produce an inherited effect; witness the lighter wing and heavier leg-bones of the domestic duck, the enlarged udders of milch-cows, or the drooping (unpricked) ears of domestic mammals. Variations are often definitely correlated; short-beaked pigeons have small feet; hairless dogs have imperfect teeth; and blue-eyed white tom-cats are deaf. Hence selection of any one character will probably modify others indirectly.

How, then, have domestic races been produced? By external conditions or habits alone? One of their most remarkable features is in exhibiting adaptation, not to their own good, but to man's use or fancy. We know that all the breeds were not produced as perfect

as we now see them, and the key is man's power of accumulative selection; nature gives successive variations; man adds them up, making for himself useful breeds. Skillful breeders speak of the organization as plastic and under control, and have effected extensive modifications within our own generation. Unconscious selection, which results from every one trying to possess and breed the best individuals, is even more important. This accumulated change explains why we so often cannot recognize the wild parent stocks of our cultivated plants, while its absence in countries inhabited by uncivilized man explains why these never yield plants worth immediate culture.

Individual differences arise even in the offspring of the same parents, and tend to be inherited; hence they afford material for natural selection to act on and accumulate, precisely as they would for human selection. In determining whether a form should be ranked as species or variety, the opinion of naturalists of sound judgment and wide experience is the only guide, yet this lacks unanimity (see SPECIES).

The term "struggle for existence" is used in a wide sense, including dependence of one being upon another, and embracing (which is more important), not only the life of the individual, but success in leaving progeny. From the high (geometrical) rate of increase of all organic beings (slow breeders only requiring a few more years to people a whole district) struggle inevitably follows, either one individual with another of the same species, or with the individuals of a distinct species, or with the physical conditions of life. It is the doctrine of Malthus applied with manifold force to the entire animal and vegetable kingdoms, for in this case there can be no artificial increase of food and no prudential restraints from marriage. The checks to increase are most obscure. Eggs or young animals generally suffer most, and plants, mostly as seedlings, both from germinating on ground already occupied and from animals. The amount of food, of course, gives the extreme limit of numbers, very frequently, however, the attacks of enemies, as of game by vermin. Climate plays an important part, and periodical seasons of extreme cold have destroyed as many as four-fifths of the birds of an observed area. Epidemics, too, may occur. In many a species a large stock of individuals is often essential to its preservation. Complex and unexpected checks and relations exist between organic beings which have to struggle together; witness the profound alteration of the flora and fauna of a heath when planted with Scotch fir, these again being wholly dependent upon the exclusion of cattle. But in several parts of the world insects determine the existence of cattle. Again, red clover depends for fertilization upon the humble-bees, these upon immunity from the attacks of field-mice, and these indirectly upon the numbers of cats; hence no bees, no clover, and the more cats, the more clover! The struggle will almost invariably be most severe between the individuals of the same species, for they frequent the same districts, require the same food, and are exposed to the same dangers. In the case of varieties of the same species the struggle will generally be almost equally severe, and we sometimes see the contest soon decided (as in the case of varieties of wheat or sweet pea, or of the mountain-sheep or medicinal leech). Similarly, the struggle between species of the same genus will generally be more severe than between the species of distinct genera, e.g., the replacement of the black rat by the brown or of the large cockroach by the small. The structure of every being is related to that of all the others with which it competes, from which it escapes, or on which it preys; witness alike the teeth and talons of the tiger, or the legs and claws of the parasite cling-



ing to his hair. The albumen of a seedling favors its struggle with plants already growing around it.

How will this struggle for existence act in regard to variation? Can the principle of selection, so potent in the hands of man, apply under nature? Most efficiently; for, when we bear in mind the constant occurrence of variation, with the strength of the hereditary tendency, also how infinitely close and complex are the mutual relations of organic beings to each other and to their physical conditions of life, and consequently what infinitely varied diversities of structure might be of use to each being under changing conditions of life, can it be thought improbable, seeing that variations useful to man have undoubtedly occurred, that other variations, useful in some way to each being in the great and complex battle of life, should occur in the course of many generations? And, if such do occur, can we doubt (remembering that many more individuals are born than can possibly survive) that individuals having any advantage, however slight, over others would have the best chance of surviving and procreating their kind? On the other hand, we may feel sure that any variation in the least degree injurious would be inevitably destroyed. This preservation of favorable and this destruction of injurious variations are called natural selection, or, less metaphorically, the survival of the fittest.

The divergence of character brought about by artificial selection in domestic breeds is efficiently paralleled in nature, since the more diversified the offspring of each species, the more they will seize on diverse places in the economy of nature, and so increase in numbers. The greatest amount of life can be supported by great diversification of structure. This divergence of character, with extinction of intermediate forms, explains the difficulties of taxonomy, which are then discussed in detail with the aid of a diagram. This, of course, takes the form of a genealogical tree, and suggests that of "the great tree of life, which fills with its dead and broken branches the crust of the earth and covers the surface with its ever-branching and beautiful ramifications."

The preceding summary of the classical statement of the doctrine of natural selection should be supplemented by reference not only to the original work, to the corroborative labors of its author, and to the able independent treatise (*Natural Selection*) of Wallace, but to the enormous mass of exposition, argument, and illustration accumulated by subsequent writers, commencing with Hooker and Asa Gray, Huxley and Haeckel, but soon becoming too numerous even for mention.

*Laws of Variation.*—Even those who attach most importance to the doctrine of natural selection as affording a rationale of the process of organic evolution will not seriously dispute that, even were this explanation completely extended to all the details of plant and animal life, another and deeper explanation would still be necessary. That is, the theory of natural selection, being from the external standpoint only—that of the adaptation of the organism to survive the pressures of the environment—would all the more urgently stand in need of a complementary internal explanation, which should elucidate the physiological process of change through which the organism has actually been enabled to adapt itself. As a recent writer tersely expresses it, "The survival of variations is a matter secondary to their origin, and it is becoming realized more and more that this is the point to be explained." How, in short, do we get the variations without which natural selection would have nothing on which to operate? Here we can no longer remain satisfied with the merely general conception of variation as essentially indefinite, with which we have become familiar as the postulate of the theory

of natural selection, but must add to it a retrospect of the theories of earlier authors such as has been already outlined—(a) a summary and discussion of the extensive labors of Darwin upon the problems of variation from which this conception of indefiniteness was generalized, followed by (b) an account of subsequent progress. Unfortunately the voluminousness of this literature makes such a task practically impossible; instead of the enormous wealth of concrete details accumulated with respect to the *Variation of Animals and Plants under Domestication*, a reference to the volumes under that title must almost suffice. Some acquaintance with this work is, of course, necessary adequately to appreciate the force of its author's general conclusions; these may, however, be briefly outlined from the chapter of the *Origin of Species* (chap. v.) devoted to the laws of variation, and from those (xxii.–xxvi.) of the larger work which contain an ample yet similar discussion.

"Our ignorance of the laws of variation is profound. Not in one case out of a hundred can we pretend to assign any reason why this or that part has varied." Changed conditions generally induce mere fluctuating variability in individuals, yet sometimes direct and definite effects upon the mass. The facts and considerations for and against the belief that the conditions of existence act in a potent manner in causing definite modifications of structure are confronted in detail. In some few instances a marked effect has been rapidly produced, e.g., on European men in the United States, European dogs in India, horses in the Falkland Islands, oysters in the Mediterranean, etc. But, even granting the utmost weight to conditions, we can rarely see the precise relation between cause and effect. Moreover, many animals and plants of wide range and great diversity of experience yet remain uniform in character. Again, the degree to which domesticated birds, etc., have varied, does not stand in any close relation to the amount of change to which they have been subjected. In fact, we may have similar modifications under different conditions, different modifications under similar change of conditions, or no modifications at all.

Increased use adds to the size of muscles, together with the blood-vessels, nerves, bony crests of origin, and even the whole bones; it also increases glands and strengthens sense-organs. Increased and intermittent pressure thickens the epidermis; change of food modifies the coats of the stomach and alters the length of the intestine. Disuse weakens and diminishes all parts of the organization—lungs and chest, wings and their associated bones, etc. Although in domesticated animals this never goes so far that a mere rudiment is left, it seems often to have occurred in nature, the effects of disuse being aided by economy of growth with intercrossing. Changed habits may lead to use or disuse of organs, and consequently to their modification; yet the effects of habit, use, and disuse have often been largely combined with the natural selection of innate variations and sometimes overmastered by it.

Correlated variation means that the whole organization is so tied together during its growth and development that, when slight variations in any part occur, and are accumulated through natural selection, other parts become modified, apparently irrespective of advantage in the change. Variations of structure in the young often affect those of the mature animal; the influence of hard parts, mechanical pressure, the relative position of parts, and the size of the whole body all have important influences. Homologous tissues may exhibit associated variations, e.g., hoofs, hair, and teeth. In most cases the correlation is, however, quite obscure, and may seem to be of no utility to the species, as with various monstrosities and diseases.



Homologous and multiple parts are peculiarly variable, and often tend to cohere. Rudimentary and lowly organized structures are variable.

Mechanical pressure and relative position of parts seem to be of some importance in determining variations; but such changes are often due to reversion to long-lost characteristics, which may frequently occur. A part extraordinarily developed in any species tends to be highly variable. Specific characteristics are more variable than generic characteristics. Distinct species present analogous variations; but this may arise either from analogous constitution or from reversion. Secondary sexual characteristics are highly variable.

The preceding outline of Darwin's main positions (which are in harmony with his essential doctrine of indefinite variability) prepares us for the discussion of more recent research and opinion. But for our present concrete knowledge of the influence of environment, use and disuse, including all such researches as those of Semper, or the peculiarly brilliant and luminous investigations of Poulton, the recent valuable summary of Arthur Thomson may conveniently be referred to. The corresponding theoretic argument for the definite causation of most variations by these agencies has been recently restated by Spencer, along with his proposed limitation of natural selection. This should be taken along with the testimony of the American Neo-Lamarckian school, among which the learned and suggestive, though too undigested, essays of Cope are especially prominent. The views of Nägeli, Mivart, and other advocates of internal variation here present themselves anew, along with the criticisms and replies to them, as also Weismann's doctrine of variability as being ultimately germinal. But space precludes the survey of this voluminous and unfinished controversy, which, moreover, would not at present yield any general result, since neither the various inductive and deductive arguments, nor the organismal, functional, etc., and environmental explanations which these variously favor, have been as yet exhaustively stated, still less properly confronted, and least of all reconciled, by any author.

**VARIATIONS, CALCULUS OF.** It has been observed (see *MAXIMA AND MINIMA*), that the origin of the calculus of variations may be traced to John Bernoulli's celebrated problem, published in 1696 in the *Acta Eruditorum* of Leipsic. This problem introduced considerations entirely different from those hitherto involved in the discussion of curves, for in its treatment it is necessary to conceive a curve as changing its form in a continuous manner, that is, as undergoing what is styled *deformation*.

The principles and method of the calculus of variations are largely employed in all branches of mathematics, both pure and applied. Want of space prevents our entering into any account of such application. The reader will find the history of this calculus fully detailed in Todhunter's treatise. The most important recent work in English is Mr. Carll's *Calculus of Variations*, New York and London, 1885.

**VARIATION**, in music, a transformation of a melody by melodic, harmonic, contrapuntal and rhythmic changes. The subject chosen is called the theme; it is first simply harmonized with or without an introduction, and then repeated with a variety of different variations, and the variations collectively with the theme constitute the piece. Occasionally the variations are combined by an intermediate passage; but generally each has its separate close, and the whole terminates with an extended and richly developed variation, or a coda.

**VARICOCELE** is the term used in surgery to designate a varicose state of the veins in the spermatic

cord. It is caused by the same conditions which give rise to varicose veins; namely, weakness of structure, combined with obstruction through corpulence or constipation to the return of the venous blood. For the description of its symptoms and treatment refer to any standard work on surgery.

**VARICOSE VEINS.** When a vein becomes dilated at a certain part of its course, for no apparent physiological object, such as relieving the venous circulation elsewhere, it is said to be varicose. As the disease is a very common one we will enter somewhat in detail into the palliative treatment which any one may adopt for himself. The venous circulation of the limb should be as much as possible facilitated by the disuse of garters; by keeping the limb in a horizontal position for a month or six weeks; by prohibiting walking, and allowing only carriage exercise, with the leg elevated to a horizontal position. The limb should also be carefully bandaged from the toes to above the knee, the bandage being replaced daily, and the limb then rubbed well with the hand or flesh brush for ten minutes, from below upward, so as to stimulate circulation. Elastic stockings may be tried during the day, or ordinary bandages with a pad of lint placed on each varicose cluster before the bandage is applied. In cases where only one or two trunks are affected, the disease may be prevented from extending by the application of pieces of wash-leather spread with soap plaster firmly over them. At the same time the general health must be attended to. Among the means of effecting a radical cure, by causing coagulation of the blood in the dilated veins, when they shrink and contract permanently, are caustic potash applied over the course of the vessel; subcutaneous incision of its walls; and compression of the vessel between a steel pin and a twisted suture. We believe that the cases are rare where the pain of the varix is so great as to disqualify a patient from his ordinary work, and these are the only ones in which these operations should be recommended.

Sometimes varicose veins result in obstinate ulcers, called varicose ulcers, and a broken varix may cause hemorrhage, which, if not properly stopped in time, may cause death. When such an accident occurs the patient should be placed in a horizontal position, and the leg raised, in which case the bleeding will probably cease. If it continues, it must be stopped by a bandage pressed around the mouth of the wound.

**VARIETY**, in Natural History, a term employed to designate groups subordinate to *SPECIES*, (*q.v.*) Varieties are regarded as less permanent than species; and those who regard species as perfectly distinct in their origin, look upon varieties as modifications of them due to particular causes. Of course those who adopt Darwin's view of species do not deem the distinction between species and varieties so important, but rather consider varieties as species in process of formation. However this may be, all naturalists acknowledge a difficulty in deciding what are varieties and what are species; and some reckon as varieties what others regard as distinct species.

**VARINAS**, a town of Venezuela, on the San Domingo, ninety miles southeast of the nearest shore of Lake Maracaybo. It stands at the entrance to a valley covered with tobacco-plantations. Varinas carries on a trade in tropical productions and in cattle. Population stated at 5,000.

**VARLEY**, CORNELIUS, water-color painter, a younger brother of John Varley (see below), was born at Hackney, London, on November 21, 1781. About 1800 he joined his brother in a tour through Wales, and began the study of art. From 1803 till 1859 he was an occasional exhibitor in the Royal Academy, and



he also contributed regularly to the displays of the Water Color Society, of which, in 1803, he was one of the founders, and of which he continued a member till 1821. His works, which are not numerous, consist mainly of carefully finished classical subjects, with architecture and figures. He published a series of etchings of "Boats and other Craft on the River Thames," and during his life as an artist he continued deeply interested in scientific pursuits. For his improvements in the camera lucida, the camera obscura, and the microscope he received the Isis gold medal of the Society of Arts; and at the International Exhibition of 1851 he gained a medal for his invention of the graphic telescope. He died at Hampstead on October 2, 1873.

VARLEY, JOHN, water-color painter, was born at Hackney, London, on August 17, 1778. His father, a man of scientific attainments, and tutor in the family of Lord Stanhope, discouraged his leanings toward art, and placed him under a silversmith. But on his parent's death Varley escaped from this uncongenial employment, and, after working with a portrait painter, engaged himself at the age of sixteen to an architectural draughtsman, who took him on a provincial tour to sketch the principal buildings in the towns they visited. In 1798 he exhibited his first work, *A View of Peterborough Cathedral*, in the Royal Academy. In 1804 he became a foundation member of the Water-Color Society, and contributed over forty works to its first exhibition. He had married in the previous year; and, in order to provide for the wants of an increasing family, he was obliged to produce for the dealers much work of a slight and commonplace character. He also taught drawing, and some of his pupils, such as John Linnell and William Hunt, afterward became celebrated. Varley died at London, on November 17, 1842.

VARNA, a fortified town and seaport of Bulgaria, in 43° 12' N. latitude and 27° 56' E. longitude, about midway between the Danube delta and the Bosphorus, lies on the north side of the Bay of Varna, at the opening of the Pravadi valley, five miles wide and skirted by hills on both sides. Among the industrial establishments are soap factories, breweries, distilleries, and tanneries. More than 3,740,000 gallons of wine are made annually within the department of Varna. The population in 1900 was 33,443.

VARNHAGEN VON ENSE, KARL AUGUST, German biographer, was born at Düsseldorf February 21, 1785. He went to Berlin to study medicine, but devoted his attention chiefly to philosophy and literature, which he afterward studied more thoroughly at Hamburg, Halle, and Tübingen. He began his literary career in 1804 as joint-editor with A. von Chamisso of a *Musen Almanach*. In 1809 he joined the Austrian army, and was wounded at the battle of Wagram. Soon afterward he accompanied his superior officer, Prince Bentheim, to Paris, where he carried on his studies. In 1812 he joined the Prussian civil service at Berlin, but in the following year resumed his military career, this time as a captain in the Russian army. He accompanied Tattenborn to Hamburg and Paris, and his experiences were recorded in his *Geschichte der Hamburger Ereignisse* (1813) and his *Geschichte der Kriegszüge Tattenborn's* (1814).

In 1814 he married Rahel Antonie Friederike, originally called Levin, afterward Robert. She was born in 1771 at Berlin, where she died in 1833. Although she never wrote anything for publication, she was a woman of remarkable intellectual qualities, and exercised a powerful influence on many men of high ability. Her husband, who was devotedly attached to her, found in her sympathy and encouragement one of the chief sources of his inspiration as a writer. After her

death he published a selection from her papers, and afterward much of her correspondence was printed. Varnhagen von Ense never fully recovered from the shock caused by her death. He himself died suddenly in Berlin October 10, 1858.

VARNISH. A varnish is a fluid preparation which, when spread out in thin layers, dries either by evaporation or by chemical action into a hard, transparent, and glossy film. Varnishes are used to communicate luster and brilliance to many different kinds of dressed surfaces—metal-work, wood, paint, paper, leather, etc.—and to protect such surfaces from the influence of air and damp.

According to the solvents employed, the ordinary kinds of varnish are divided into three classes,—(1) spirit, (2) turpentine, and (3) oil varnishes. Spirit varnishes dry with great rapidity owing to the volatilization of the solvent spirit, leaving a coating of pure resin of great hardness and brilliance, and are used principally for cabinet-work and turnery, stationery, gilding, and metal-work. Colored spirit varnishes and lacquers are largely employed for metal-work, for imitation gilding and bronzing, for toys, etc. Turpentine is the solvent principally used for making dammar varnish, the solution being effected by powdering the resin and boiling it with a proportion of spirit of turpentine, after which more turpentine is added in the cold state to bring the preparation to a proper consistency. The basis or solvent of oil or fatty varnishes consists principally of linseed oil; but the other drying oils—poppy and walnut, etc.—may also be used.

VARRO, MARCUS TERENTIUS, Roman polymath and man of letters, lived from 116 to 27 B.C. When he was born the Gracchan agitation had only just been laid to rest, and the year of his death saw the final and formal establishment of the empire. Nothing is known of Varro's ancestors but that they were natives of the Sabine country, where Varro himself was born in the town of Reate. Here he imbibed in his earlier years a good measure of the hardy simplicity and strong seriousness which the later Romans attributed to the men of the early republic—characteristics which were supposed to linger in the Sabine land after they had fled from the rest of Italy. The political career of Varro seems to have been late and slow; but he arrived at the prætorship, after having been tribune of the people, quæstor, and curule ædile. In politics and war he followed Pompey's lead; but it is probable that he was discontented with the course on which his leader entered when the first triumvirate was formed, and he may thus have lost his chance of rising to the consulate. He actually ridiculed the coalition in a work entitled the *Three-Headed Monster* (Τριπράκων in the Greek of Apian). Under Pompey, Varro saw much active service: he was attached to Pompey as pro-quæstor, probably during the war against Sertorius in Spain. We next find him, as legate, in command of a fleet which kept the seas between Delos and Sicily, while Pompey was suppressing the pirates, and he even won the "naval crown," a coveted reward of personal prowess. A little later he was legate during the last Mithradatic war. In the conflict between Cæsar and the Pompeian party Varro was more than once actively engaged. In his *Civil War* (ii. 17-20) Cæsar tells how Varro, when legate in Spain along with Afranius and Petreius, lost his two legions without striking a blow, because the whole region where he was quartered joined the enemy. Cæsar curiously intimates that, though Varro did his best for Pompey from a sense of duty, his heart was really with the other leader. Nevertheless he proceeded to Epirus before the battle of Pharsalia, and awaited the result at Dyrrachium in the company of



Cicero and Cato. Like Cicero, Varro received harsh treatment from Mark Antony after the Pompeian defeat. Some of his property was actually plundered, but restored at the bidding of Caesar, to whom Varro in gratitude immediately dedicated one of his most important writings. The formation of the second triumvirate again plunged Varro into danger. Antony took possession anew of the property he had been compelled to surrender, and inserted Varro's name on the list of the proscribed. His friends, however, afforded him protection. He was able to make peace with the triumvirs, but sacrificed his property and much of his beloved library. He was permitted to spend in quiet study and in writing the last fifteen years of his life. He is said to have died (27 B.C.) almost pen in hand.

VARRO, PUBLIUS TERENTIUS, with the cognomen ATACINUS, a Roman poet whose life extended from 82 to about 37 B.C. The name Atacinus, given to distinguish him from the more famous Varro of Reate, is drawn from Atax, the name of a small district or river in Narbonensian Gaul, near to which he was born. He was perhaps the first Roman born beyond the Alps who reached to eminence in literature. He seems to have taken at first Ennius and Lucilius as his models, and wrote an epic, entitled *Bellum Sequanicum*, eulogizing the exploits of Caesar in Gaul and Britain, and also *Satires*, of which Horace speaks slightly. Jerome has preserved a statement that Varro began to study Greek literature with great avidity in his thirty-fifth year. The last ten years of his life were given up to the imitation of Greek poets of the Alexandrian school. His chief poem of the later period was the *Argonautica*, modeled, somewhat closely it would seem, on the epic of Apollonius Rhodius. Later he published erotic poems, probably in the elegiac meter. The other titles which have been preserved are the *Cosmographia*, or *Chorographia*, a poem on geography, imitated from the Greek of Alexander, an Ephesian, and the *Ephemeris*, a poem on weather-signs, in hexameters, after Aratus.

VASA, GUSTAVUS. See GUSTAVUS I.

VÁSÁRHELY. See HÓDMEZŐ-VÁSÁRHELY and MAROS-VÁSÁRHELY.

VASARI, GIORGIO, a painter and architect, whose main distinction rests on his valuable history of Italian art, was born at Arezzo in 1513. At the age of sixteen he went to Florence, where he studied under Michelangelo and Andrea del Sarto, aided by the patronage of the Medici princes. In 1529 he visited Rome and studied the works of Raphael and others of his school. The paintings of Vasari were much admired by the rapidly degenerating taste of the sixteenth century; but they possess the smallest amount of merit, being in the main feeble parodies of the powerful works of Michelangelo. Vasari was largely employed in Florence, Rome, Naples, Arezzo, and other places. Many of his pictures still exist, the most important being the wall and ceiling paintings in the great hall of the Palazzo Vecchio in Florence, and his fresco on the cupola of the cathedral, which, however, were not completed at the time of his death. As an architect he was perhaps more successful; the loggia of the Uffizi by the Arno, and the long passage connecting it with the Pitti Palace, are his chief works. Vasari enjoyed a very high repute during his lifetime and amassed a considerable fortune. He died at Florence on June 27, 1574.

VASCO DA GAMA. See GAMA, VASCO DE.

VASCULAR SYSTEM. The term *vascular system* designates all the arrangements in the body connected with the circulation of the blood. The present article is devoted to a consideration of the mechanism by which the circulation is carried on in the *Mammalia*

and in man, a branch of physiology which has been more successfully investigated than any other department of the science.

The blood is contained during life in a continuous system of more or less elastic and contractile vessels. These are (1) the *arteries*, terminating in (2) the *capillaries*, from which originate (3) the *veins*, while a special contractile organ (4) the *heart*, is placed at the commencement of the arteries and the termination of the veins (see fig. 1). The heart may be regarded as a double organ, each half consisting of an auricle and a ventricle, the right half containing blood which has been returned from the body to be sent to the lungs, and the left half containing blood which has been returned from the lungs to be distributed to the body.

Thus the course of the circulation may be traced (1) from right auricle to right ventricle, through the right auriculo-ventricular opening, guarded by the tricuspid valve; (2) from right ventricle by the pulmonary artery, through the capillaries of the lungs, to the pulmonary veins, which open into the left auricle; (3) from left auricle to left ventricle, through the left auriculo-ventricular opening, guarded by the mitral valve; (4) from the left ventricle through the greater arteries, the medium-sized arteries, and the arterioles into the capillaries of the tissues and organs; and (5) thence by the veins, opening into larger and larger trunks so as ultimately to constitute the superior and inferior venæ cavae, which open into the right auricle, the point from which we started. Remembering that the walls of these tubes are all more or less elastic, imagine them to be distended with blood; there would then be a condition of permanent tension, which would be varied if pressure were applied to any part of the system. Such a variation of pressure would produce a movement of the fluid in the direction of less pressure, and, as the fluid cannot escape, there would be a circulation, which would be carried in the same direction by mechanical arrangements of valves. In the living body the contractions of the heart force blood into the arterial system and increase the pressure in that part of the circulation; the arteries empty part of their contents into the capillaries, which carry the blood to the veins, so as to tend to an equalization of pressure between the venous and arterial systems. If the pressure in both systems became equal, there would be no circulation; but, as the veins pour a portion of the blood back again into the heart, this organ on being refilled again contracts, forcing more blood into the arterial system and again raising the pressure there;



FIG. 1.—General course of circulation and some of principal vessels. H', right ventricle; H, left ventricle; A, A, A, aorta; A', part of left auricle; P, pulmonary artery, going to lungs; P', pulmonary veins; v, ascending or lower vena cava; e, trachea or wind-pipe; b, b', bronchial tubes; a', a, right and left carotid arteries; v, v', veins from root of neck (internal jugular and subclavian), joining to form descending or upper vena cava; i, hepatic artery; l, hepatic vein; I, superior mesenteric artery, going to mesentery and bowels; L, portal vein, going to liver; k', renal artery; k, renal vein; V, inferior vena cava, splitting into the two iliac veins, v, v'. (After Allen Thomson.)



thus the possibility during life of an equalization of arterial and venous pressure is prevented.

**The Action of the Heart.**—The substance of the heart is composed of a special variety of muscular tissue, along with connective tissue, blood-vessels, lymphatics, nerves, and ganglia.

The valves of the heart are as follows: (1) The tricuspid guards the right auriculo-ventricular opening, and consists of three flaps, formed of fibrous tissue (containing many elastic fibers) covered with endocardium. (2) The bicuspid or mitral valve, at the left auriculo-ventricular orifice, consists of two pointed segments or

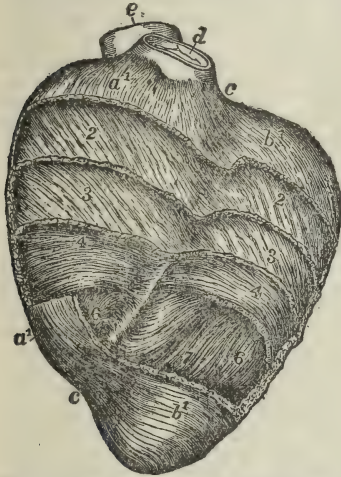


FIG. 2.—View of partial dissection of fibers in anterior wall of ventricles in a sheep's heart, showing different degrees of obliquity of fibers. At the base and apex the superficial fibers are displayed in the intervening space; more and more of the fibers have been removed from above downward, reaching to a greater depth on the left than on the right side. *a1*, *a1*, superficial fibers of right ventricle; *b1*, *b1*, superficial fibers of left ventricle; 2, superficial fibers removed so as to expose those underneath, which have the same direction as the superficial ones over the left ventricle, but a different direction from those over the right ventricle; at 3 some of these have been removed, but the direction is only slightly different; 4, transverse or annular fibers occupying middle of thickness of ventricular walls; 6, 7, internal fibers passing downward toward apex to emerge at the whorl; *c*, *c*, anterior coronary or interventricular groove, over which the superficial fibers cross; in the remaining part of the groove some of the deep fibers turn backward into the septum; *d*, pulmonary artery; *e*, aorta. (Allen Thomson, Quain's *Anatomy*.)

each of which consists of three semicircular flaps, each flap being attached by its convex border to the wall of the artery, while its free border projects into the interior of the vessel. The segments consist of fibrous tissue covered with endocardium. At the middle of the free border there is a fibro-cartilaginous thickening called the nodulus or corpus Arantii. From this nodulus numerous tendinous fibers radiate to the attached border of the valve, but along the margin of the valve the membrane is thin and destitute of such fibers. These thin parts are called the *lunulae*. Opposite each semilunar flap there is a bulging of the wall of the vessel, the *sinuses of Valsalva*. In the aorta these are situated one anteriorly and two posteriorly

(right and left). From the anterior arises the right coronary artery, and from the left posterior the left coronary artery—these vessels being for the supply of blood to the substance of the heart (Quain).

According to Laennec, the size of the heart is about equal to the closed fist of the individual. Its mean weight is about 9 to 10 ounces. John Reid's tables give the average weight in the adult male as 11 ounces and in the female as 9 ounces. The proportion of the weight of the heart to that of the body is from 1 to 150 to 1 to 170 (Quain). W. Müller gives the ratio of heart weight to body weight in the child, and until the body weighs 88 pounds, as .176 ounce to 2.2 pounds; when the body weight is from 110 to 200 pounds the ratio is .141 ounce to 2.2 pounds; and when the weight of the body reaches 220 pounds the ratio is as .123 ounce to 2.2 pounds. The volume of the heart, according to Beneke, is as follows:—new-born infant, 1.34 cubic inches; fifteen years of age, 9.15 to 9.76; at twenty years, 15.25; up to the fiftieth year, 17.08 cubic inches; after that there is a slight diminution.

The movements of the heart consist of a series of contractions which succeed each other with a certain rhythm. The period of contraction is called the *systole*, and that of relaxation the *diastole*. The two auricles contract and relax synchronously, and these movements are followed by a simultaneous contraction and relaxation of the ventricles. Thus there is a systole and diastole of the auricles and a systole and diastole of the ventricles. But in each half of the heart the contractions and relaxations of the auricle and the contractions and relaxations of the ventricle are successive. Finally, there is a very short period in which the heart is entirely in diastole. The whole series of movements, from the commencement of one auricular systole to the commencement of the one immediately following, is known as the *cardiac cycle* or *period of revolution* of the heart.

The heart is directly nourished by the blood flowing through its cavities in some of the lower Vertebrates, as the frog; but in the hearts of larger animals, in which nutritional changes must be actively carried on, there is a special arrangement of vessels or cardiac circulation. The coronary arteries originate at the aortic orifice in the region of the sinus of Valsalva, rather above the upper border of the semilunar valves, so that when the ventricle contracts, the mouths of these arteries are not covered by the segments of the valves. The branches of the coronary arteries, after dividing and again dividing, penetrate the muscular substance and end in a rich plexus of capillaries, which carry arterial blood to the structure of the heart. From these the radicles of the cardiac veins originate, and these veins carry the blood, now rendered venous, into the right auricle by the larger anterior cardiac veins and by numerous small veins constituting the foramina of Thebesius or the *vena minima cordis*. The coronary vein is dilated before entering the auricle, forming the coronary sinus, and at the junction of the vein with the dilated portion there is a valve consisting of one or two segments. Other veins enter the coronary sinus, each having a valve. These valves serve two purposes: (1) they interrupt the flow of blood during the contraction of the right auricle, preventing regurgitation and venous congestion of the wall of the heart, and (2), as the valves open toward the right auricle, they prevent the backward flow of blood during contraction of the ventricles and favor its onward flow, and thus the stream of blood is accelerated, as in the veins of a contracting muscle. The blood is sent through the cardiac circulation by the systole of the ventricle, and not, as was advocated by Brücke, during its diastole. Heart disease in advanced life, when the coronary arteries are



often thickened and their caliber much diminished by sclerosis, may be shown by attacks of palpitation, weakness of the heart, altered rhythm, breathlessness, congestions, pulmonary oedema, hæmorrhage, and faintings—all due to interference with the normal nutrition of the heart.

The blood-vessels consist of the arteries, the capillaries, and the veins. The arterial walls are both muscular and elastic, the muscular coat predominating in the smaller, while the elastic coat is strong in the greater arteries. The chief function of the elasticity of the greater vessels is to transmute the unequal movement of the blood in the large arteries, caused by the intermittent action of the ventricle, into a uniform flow in the capillaries. Thus, when the ventricle contracts, it propels a certain amount of blood into the elastic aorta, which expands in all directions. On the commencement of the diastole of the ventricle the *vis a tergo* is removed; the aorta owing to its elasticity recoils, so as to close, on the one hand, the semilunar valves, and, on the other, to force part of its contents into the vessels farther onward. These, in turn, as they already contain a quantity of blood, expand, recover by an elastic recoil, and transmit the movements with diminished intensity. Thus the blood is driven along the vessels by the action (1) of the ventricular systole, and (2) of the elastic recoil of the walls of the vessels occurring during the intervals between the ventricular systole. By these actions a series of movements, consisting of expansions and contractions, gradually diminishing in amplitude, pass along the arterial system from the greater to the smaller vessels, the latter becoming, as already pointed out, less and less elastic. These expansions and relaxations of the arterial wall, passing along like a wave, constitute the pulse. The pulse, therefore, represents merely the transmission of an undulating movement of the blood, not its progression in the vessels. The undulations of the pulse travel at the rate of  $354\frac{1}{3}$  inches per second, about thirty times faster than the movement of the blood, which in the carotid artery of the horse has been estimated to travel 11.8 inches per second.

The normal pulse-rate in man is about 72 per minute, in woman about 80 per minute; but in some individuals a state of health is consistent with a pulse-rate as rapid as 100 or as slow as 50 beats per minute. The pulse-rate is influenced by the undermentioned factors. (1) *Age*: a newly-born child, 130 to 140 beats per minute; 1 year, 120 to 130; 2 years, 105; 3 years, 100; 4 years, 97; 5 years, 94 to 90; 10 years, about 90; 10 to 15 years, 78; 15 to 50 years, 70; 60 years, 74; 80 years, 79; 80 to 90 years, over 80. (2) *Length of body*: Czarniecki, Volkmann, and Rameaux have shown that as the height increases the pulse slows. (3) *Bodily states*: active muscular exercise, increased blood-pressure, active digestion, pain, nervous excitement, extreme debility quicken the pulse. (4) *Temperature*: increase of temperature quickens the pulse. (5) *Posture*: the pulse is more frequent when one stands than when one sits, and still slower when one lies down. (6) *Sensory impressions*: music is said by Dogiel to quicken the pulse. (7) *Pressure*: increased barometric pressure slows the pulse. (8) *Diurnal rhythm*: 3 to 6 A.M., 61 beats; 8 to 11.30 A.M., 74; toward 2 P.M., a decrease; toward 3 (at dinner-time) another rise, which goes on until 6 to 8 P.M., when it may be 70; toward midnight, 54; a rise again toward 2 A.M., when it soon falls again, and afterward rises, as before, toward 3 A.M. (Landois and Stirling).

A pulse is said to be strong or weak according to the weight it is able to raise. The strength is usually estimated by pressing the finger on the artery until the pulse-beat beyond the point of pressure disappears.

The circulation in the capillaries may be readily studied by placing under the microscope any transparent membrane containing vessels, such as the web of a frog's foot, the mesentery, lung, or tongue of a frog, the tail of a fish or a tadpole, the wing of a bat, the third eyelid of the pigeon or fowl, the liver of a frog or a newt, the mucous membrane of the inner surface of the human lip, or the conjunctiva of the eyeballs and eyelids.

The most important vital property of capillaries is contractility, by which their caliber may be modified. The protoplasm forming their walls contracts when stimulated. Some investigators have supposed the nuclei to be active agents in contraction; but more probably the cell substance is the seat of change. Oxygen causes the nuclei to swell, while carbonic acid has the opposite effect. Elasticity is also a characteristic of the capillary walls. The arrangement of the capillaries in an organ or tissue is adapted to its functional activity. Where there is great functional activity there is a rich plexus of capillaries, and in the converse case the converse is also true. The movement in the capillaries is due to the force of the heart, as modified by the vessels (*vis a tergo*). Some have supposed that it is supplemented by an attractive influence exerted by the tissues (*vis a fronte*); and the statement is supported by the observation that, when there is an increased demand for blood owing to active nutritional changes, there is an increase in the amount of blood flowing to the part, such as occurs, for example, in the mammary gland during lactation, and in the growth of the stag's horn. Such an attractive influence on the part of the tissues is quite conceivable as a force assisting in the inward flow of blood, acting along with capillarity; but its amount is infinitesimally small in comparison with the force exerted by the heart. The force of the heart is sufficient to drive the blood through the capillaries into the veins.

The walls of the veins are thinner, less elastic, and more distensible than the walls of the arteries. They contain both elastic and contractile tissue, though to a smaller extent than the arteries. The circulation in the veins depends (1) on inequality of blood-pressure, the pressure being much less in the veins than in the arteries; (2) on muscular action compressing the veins; (3) on the movements of respiration, and (4) on the suction-like action of the right auricle, and in the case of the lungs that of the left auricle, drawing the blood toward the heart. There is normally no pulse in veins; but sometimes a pulse may be observed in the veins of the neck, isochronous with the auricular systole, when there is an obstruction to the passage of the blood from the right auricle into the right ventricle. Pulse-tracings, taken in these circumstances, are very similar to those of the cardiac impulse. It has been pointed out by Friedreich that a pulse in the jugular vein does not necessarily mean insufficiency of the tricuspid valve, but a weakened condition of the valve in the jugular vein itself, as the pulse will not be propagated into the jugular, even in cases of insufficiency of the tricuspid valve, if the jugular valve be perfect. If there is great obstruction at the mitral orifice, a venous pulse may also be observed, which is associated with engorgement of the right auricle. Sometimes a pulse in the veins occurs when there is such rigidity from atheroma in the walls of the great vessels as to destroy the elastic influence of these parts. Lastly, a pulse may occur when the blood-pressure rises and falls suddenly. Toward the close of life, when the heart is feeble and effusion may be taking place into the pericardium, a venous pulse may be observed.

Various attempts have been made by Volkmann, Vierordt, Ludwig and Dogiel, Hering, and Chauveau and



**Lortet**, to measure the velocity of the circulation, and special instruments have been invented for that purpose. The following general conclusions may be drawn. (1) The velocity of the blood is in inverse ratio to the total caliber of the vessels; rapid in the aorta, it diminishes as we recede from it. (2) Each systole is followed by an increase in the velocity of the blood in the larger vessels. (3) In the smaller arteries, capillaries, and smaller veins the velocity is uniform and constant. (4) The velocity increases in the venous system as we approach the heart. (5) In the large arteries the movements of inspiration retard the velocity, while those of expiration increase it. (6) In the large veins the movement of respiration, and also the suction action of the auricle during diastole, cause a rhythmic increase and diminution of the velocity. The velocity of the blood does not depend on the mean blood-pressure, and as was pointed out by Ludwig and Dogiel, the velocity in any section of a vessel depends on (1) the *vis a tergo* (i.e., action of the heart) and (2) the amount of resistance at the periphery.

The blood is distributed throughout the body in varying proportions, according to the requirement of any set of organs at a particular time. When any tissue or organ is active, there is a determination of blood toward it, the amount being increased from 30 to 50 per cent.; thus, during digestion the mucous membrane of the stomach and intestinal organs is richly supplied with blood. Increased muscular velocity is always accompanied by increased vascularity; but, while this is the rule, there are organs, such as the heart, the muscles of respiration, and nervous centers like those in the medulla oblongata, in which there is a condition of continuous activity, and in which there is a uniform vascularity. Seeing that the activity of certain organs varies at different times, it follows that, while some organs are congested, others are at rest. In the child there appears to be a different distribution of blood from what obtains in the adult. The heart of a child is relatively small up to puberty, while the vessels are relatively large; after puberty the reverse is the case. Arterial pressure is less in the child than in the adult, while the pressure in the pulmonary circulation is larger in the child than in the adult (Beneke). Attempts have been made to estimate the distribution of blood after death. Ranke states that one-fourth of the total blood is in the muscles, one-fourth in the liver, one-fourth in the heart and vessels, and the remaining fourth in the rest of the organs.

**VASE** (Lat. *vas*, Ger. *fass*), a term applied, in its widest signification, to all vessels adapted either for ornament or for use. It is generally used in this sense with reference to ancient art: in connection with modern art, it is restricted to vessels of an ornamental kind. Few remains of antiquity have excited more interest than vases, particularly those of Greece, and of the Greek colonies and conquests. The names given by classical writers to vessels adapted for different purposes, have not always been easily identified with the ancient vases which have been preserved to us; but according to the nomenclature of M. Gerhard, which has generally been adopted, the following are the principal varieties classified according to their uses: 1. Vases for holding wine, oil, or water, known under the names of amphora and diota Stamnos. 2. Vases for carrying water, hydria, calpis. 3. Vases for mixing wine and water, crater, kelebe, oxybaphon. 4. Vases for pouring, oinochoe, olpe, prochois. 5. Drinking cups or goblets, cantharus, kyathus, karchesion, holchion, kyphos, kylix, lepaste, phiale, keras rhyton. 6. Vases for ointment or perfumes, lekythos, alabastron, askos, bomylois, aryballos, kotylicos.

The materials of which vases are formed include metal, stone, glass, and earthenware.

Vases of a precious metal were in use among the ancient Egyptians. Among the Greeks and Greek colonists of Asia Minor, they were very early employed for sacrificial purposes, and those of silver were frequently chased, an art in which considerable progress had been attained at a remote period. In the later period of the Roman Republic, chased silver vases were more than ever in request; but under the Empire, chasing fell into disuse. Bronze, iron and lead were all used as material for vases. Lead vases were chiefly used for unguents or perfumes. The gold and silver vases of the first few centuries of the Christian era were, for the most part, imitations of pagan art. In the twelfth century a style was introduced called damascene work, with patterns of gold and silver wire imbedded in the iron or bronze. Many of the vases of this kind were made by Benvenuto Cellini.

Among the mineral materials which, plain and enriched, have been used both in ancient and modern times for vases, are marble, lapis lazuli, jasper; semi-transparent stones, such as opal, girosol agate, chalcedony, sardonyx, carnelian; as also transparent gems and rock crystal.

Glass has at all times been a favorite material for vases. Small toilet-phials of opaque glass were in use in Egypt as far back as 1450 B.C. In the beginning of the sixteenth century the Venetian glass-makers introduced a class of vases enriched with white and colored filigree work, having the appearance of being incrustated in the glass. They were much sought after all over Europe; and great care was taken to prevent the secret of their manufacture from being discovered. Beautifully enameled vases were also issued from the Venetian manufactories as well as others of grotesque forms, representing imaginary animals and pierced with holes or constructed in the form of a siphon, which are said to have been employed by alchemists, and in pharmacy and distillation.

The most prevalent material for vases of all kinds, including those intended to hold the ashes of the dead, has generally been baked clay. Multitudes of Greek sepulchral vases, have, after a lapse of more than fifteen centuries, been brought to light, at a time when learned men can appreciate them, and gather from them valuable information in history and archaeology.

**VASELINE** is a substance obtained from petroleum or paraffin, which is now of commercial importance. Yellowish, translucent and crystalline in appearance, it is nearly of the consistency of soft soap, and is almost perfectly tasteless and inodorous. It is soluble in ether, and resists the action of most chemicals. Largely used as a salve or liniment it is also made the base of various ointments and pomades; and it may be employed inwardly as a remedy in colds, coughs, and hoarseness. It is an excellent lubricant; is serviceable for protecting polished steel or iron from rust; and has the advantage over animal and vegetable fats, that it does not become rancid.

**VASILKOFF**, a district town of Russia, in the government of Kieff, is situated twenty-two miles by rail to the southwest of that city. Its 16,600 inhabitants support themselves chiefly by agriculture and the transport of merchandise; there is also some manufacture of tobacco and soap.

**VASTO**, a fortified town of Italy, in the province of Chieti, stands high on an olive-clad slope, about a mile from the Adriatic and 131 miles southeast from Ancona. There are manufactures of earthenware, woolen cloth, and silk; but the inhabitants are chiefly employed in the culture of the olive and in fishing. The population in 1901 was 10,761 (commune 13,883).



**VATICAN COUNCIL.** The Vatican Council is the first and only plenary council of the Latin Church held since the close of the Council of Trent in 1563. But it bears very slight resemblance to that assembly in the circumstances of its origin, objects, and proceedings. The Council of Trent was all but forced upon the Papacy by the demands of the principal Catholic states of Europe, and by the religious and political necessities of the time. The Vatican Council, contrariwise, originated with the Papacy alone, and was neither demanded nor desired by Roman-Catholic Christendom. Its object was confined to securing the triumph of the hyper-Ultramontane school within the Roman obedience by establishing papal autocracy as divine and infallible; and it made no attempt whatever beyond a sterile discussion, not published in its Acts, to deal with any of the abuses and scandals which had either survived the Tridentine reforms or had sprung up since.

The first directly public intimation of the approaching council was made in June, 1867, through a circular letter of Cardinal Caterini to the 500 bishops present in Rome at the eighteenth centenary festival of the martyrdom of St. Peter and St. Paul, inviting their reply to a schedule of inquiries. In September, 1868, an invitation to attend was dispatched to the Oriental bishops not in communion with Rome, and also to "Protestants and non-Catholics." But, as it was intended that no Oriental prelate should be admitted to a seat in the council till he had first made profession of the Roman Catholic system in its entirety, and as Protestants were merely to be referred to "experienced men" to convince them of their errors, the insincere invitation met with no acceptance whatever. The bull of convocation was promulgated on June 29, 1869, appointing December 8, 1869, as the day of meeting. A few days before this latter date, November 27th, Pius IX. issued the brief *Multiplices inter*, prescribing the mode of conciliar procedure and effectually fettering the council from the outset, so that it had never even the shadow of freedom which ostensibly was allowed to the Tridentine synod. All the officers of the council were named directly by the pope, and in no case elected by the council itself, which was thus deprived of several conciliar rights held previously to be inherent and indefeasible, and which had been exercised even at Trent.

The assemblage of the council was looked on with little favor by a large part of the Roman Catholic world, and in particular two German documents attested the alarm it aroused. In April, 1869, Prince Hohenlohe, Bavarian foreign minister, sent a circular letter to the European courts, warning them of the political dangers likely to ensue; and most of the German bishops, assembled at Fulda in September of that year, sent an address to the pope, anxiously deprecating the definition of papal infallibility which had been recommended in the *Civiltà Cattolica* of February 6, 1869, to be made by the summary process of acclamation.

The council assembled punctually on the appointed day, December 8, 1869, and owing to the modern facilities of intercommunication it was by far the largest gathering of the kind in history, no fewer than 749 bishops, cardinals, abbots, and generals of orders being present—a number afterward increased to 764—and including nearly three-fourths of the whole Roman Catholic episcopate. Of these it has been estimated that the minority opposed to the infallibility dogma amounted to at least 160, while in the majority were reckoned fifty-three bishops *in partibus*, who, as having no real dioceses, and being thus unable to attest the historical belief of their flocks, had properly no right of suffrage upon dogmatic questions in a council, such attestation being the one function dischargeable by

bishops assembled in synod when considering articles of belief.

To these are to be added about 125 bishops of sees too modern to have any ancient tradition to attest; such as those in North and South America, Australasia, and Oceania, who were thus for conciliar purposes on the same footing of incompetence to speak for any one save themselves. And, besides these two large groups, there was a third, consisting of about ninety missionary bishops entirely under the control of the Propaganda, and thus not free agents, while their sees were in most cases of very recent origin, so that they also could allege only their personal opinion, having no ancient records to attest. By far the larger number in these groups were on the side of the court majority. The Italian bishops, numbering about 170, and the Spanish, 40 in number, were also infallibilists almost to a man, but included scarcely one theologian in their ranks. And no fewer than 300 of this majority were the personal guests of Pius IX., lodged, boarded, and maintained at his cost, and thus openly retained to do his bidding. The minority consisted chiefly of the German and Austrian bishops, a considerable section of Hungarian, French, and North American prelates, and many of those Orientals of the Latin Church who occupied dioceses other than mere titular and paper ones. But this minority, though composed mainly of natives of the most highly educated and intellectual countries, and containing almost every bishop of note for ability and theological learning, was by no means so compact and united as were the bishops of the majority; and there was not even full agreement among its members as to the grounds for opposing the new dogma, many going no further than its inopportune-ness, but not entertaining deeper objections to it. Thus, even apart from its numerical inferiority, the opposition was at a disadvantage in face of the curialists, and lost not a few members to them during the progress of the council. Not only were the efforts to obtain freedom from the fetters of the brief *Multiplices inter* vain, but no member of the opposition could secure a place on any of the commissions or sub-committees, which consisted exclusively of infallibilists.

The matter of most importance in the first congregation, which was held on December 10, 1869, was the publication of a bull, decreeing that, if the pope should die during the council, it should at once be prorogued and take no part in the election of a pontiff, which was to be restricted to the college of cardinals. The session which followed was little more than formal; but two steps toward bringing about the intended result were taken before the next time of assembling. The "theologians" were forbidden to attend any meetings of the bishops, or even to meet among themselves to discuss any conciliar matters, being restricted each to private conference with the particular bishop to whose person he was attached; and various petitions for the definition of the new dogma were drawn up and signed, one being the result of a letter to the bishops of the council, issued by Archbishop Manning and the conductors of the *Civiltà Cattolica*, and signed by some hundreds, another from the Italian prelates, a third from those of the Franciscan order, and a fourth from the Uniat Armenians, besides several of less note. The second session (January 6, 1870) was also formal only, so far as the direct transaction of business was concerned; but by the adoption of a measure causing all the members present to recite the creed of Pius IV., containing a clause professing obedience to the pope (this clause being omitted by the pope himself), and then to renew the episcopal oath of feudal submission to the Papacy, powerful pressure was brought to bear upon the weaker of the opposition, who were thus reminded how far



they had pledged themselves already, and how unreasonable it therefore was to haggle about taking but one step in advance on the self-same road. By the pope's direct command the cardinal-presidents of the congregations issued, on February 20, 1870, rules to check long debates, which drew yet tighter than before the cords that deprived the council of all freedom. Speakers were confined to touching upon such clauses only of any amendment as they had given previous notice of meaning to discuss, and were not allowed to take part otherwise in a debate, while the closure could be applied by the presidents at the demand of any ten members. This latter drastic measure drew out a protest from more than one hundred bishops, who urged that it was destructive of conciliar liberty (already much hampered by the noisy attempts of the infallibilists to stifle free discussion), and that the steps being taken disregarded the note of moral unanimity which should mark the decisions of a general council, thereby exposing the council itself to hostile criticism and even rejection. They pointed out several other serious faults in the new rules, but could obtain no modification of them. The constitution on the faith (usually cited now as *Dei Filius*), however,—a long and far from clearly worded document,—directed chiefly against modern rationalism, and enforced by eighteen canons of anathema, was completed; it passed the congregation without difficulty, was signed by all the 667 members present, and was published in the third session, April 24, 1870, with papal confirmation, or rather in the unprecedented form of a proclamation by the pope singly, "the sacred council approving,"—an innovation which was intended to mark it as solely his act, and to settle in this summary manner the long-standing controversy as to the relative superiority of popes and councils.

The real struggle was yet to come, namely, over the constitution on the church, into which the new dogma was to be introduced. This constitution (now usually cited as *Pastor Æternus*) asserted the following propositions: (1) that a proper primacy of jurisdiction over the whole church was conferred upon St. Peter directly and singly, and not mediately through any delegation to him, as chief minister in the church, of a primacy held by the church corporately; (2) that this Petrine primacy vests by divine institution and right in the line of Roman pontiffs; (3) that the pope's jurisdiction is immediate in all churches—i.e., he is the universal ordinary, the actual bishop of every see (all other bishops being merely his curates and deputies), and is not a remote or merely appellate authority—so that in questions not of faith and morals alone, but of discipline and government also, all the faithful, of whatever rite or dignity, both pastors and laity, are bound, individually and collectively, to submit themselves thereto; (4) that it is unlawful to appeal from the judgments of the Roman pontiffs to an oecumenical council, as though to a higher authority; and (5) that the Roman pontiff, when he speaks *ex cathedra*, and defines a doctrine of faith or morals to be held by the universal church, is infallible, and such definitions are accordingly irreformable of themselves, and not from the consent of the church. This document was voted upon in the congregation of July 13, 1870, consisting of 671 members. Of these 451 voted in the affirmative; 88 voted against it; 62 voted *placet juxta modum*, meaning that they would accept it if it were seriously modified; and 70 did not vote at all. By the canonical theory of councils such a division of opinion as this voided the decision of the majority, and made it null. For, while a bare majority in a council suffices to pass a mere disciplinary canon, being a variable matter, contrariwise, to enact a dogmatic decree requires practical unanimity, since

nothing can be imposed as of faith for which the two attesting notes of universal prevalence and historical continuity cannot be adduced. And as the dissent of any appreciable number of members denotes that they do not know it as the local tradition of their several dioceses, it thereby destroys the claim to these notes.

Immediately after this preliminary voting nearly all the bishops of the minority abruptly quitted Rome, after previously lodging a protest against the proceedings. Their flight was prompted by fears for their personal safety. They were given to understand that each of them would have two papers tendered to him for his signature in the ensuing session, one being a profession of adhesion to the infallibility dogma, the other a resignation of his diocese in case he refused such adhesion. And they had good reason to think that the pope, who had declared that he meant to be proclaimed infallible "without limitation" (*senza condizione*), and had shown open enmity to more than one of their number would employ direct coercion in the event of continued resistance, bringing his temporal power as sovereign of Rome to bear on the rebels within his territory. Accordingly, when the public session was held on July 18, 1870, while 535 bishops voted for the constitution *Pastor Æternus*, only two, those of Ajaccio and of Little Rock, remained to utter their "non-placet." The pope thereupon confirmed the decree, and the proceedings virtually ended. It was formally prorogued by Pius IX. October 20th, and is thus technically still in existence, but the prorogation is a virtual dissolution.

VATTEL, EMER DE, an eminent jurist, was the son of a Protestant minister, and was born at Couvet, in the principality of Neuchâtel, on August 25, 1714. During his early years his favorite pursuit was philosophy; and, having carefully examined the works of Leibnitz and Wolf, he published in 1741 a defense of Leibnitz's system against Crousaz. In 1746 he obtained from the elector, Augustus III., the title of councillor of embassy, accompanied with a pension, and was sent to Bern in the capacity of the elector's minister. His diplomatic functions did not occupy his whole time and much of his leisure was devoted to literature and jurisprudence. Among other works he published *Loisirs Philosophiques* (1747) and *Mélanges de Littérature, de Morale, et de Politique* (1757). But his reputation chiefly rests on his *Droit des Gens, ou Principes de la Loi Naturelle appliqués à la Conduite et aux Affaires des Nations et des Souverains* (Neuchâtel, 1758). He died on December 20, 1767. His last work was entitled *Questions de Droit Naturel, ou Observations sur le Traité du Droit de la Nature, par Wolf* (Bern, 1762).

VAUBAN, SEBASTIEN LE PRESTRE DE, marshal of France, was born in the neighborhood of Saulieu in Burgundy (now in the department of Côte-d'Or) May 15, 1633. At the age of seventeen he joined the Spanish troops under the prince of Condé, but after about a year's campaigning was taken prisoner by the French. In 1653 he first earned repute as an engineer by the share he had in the capture of Sainte-Menèhould, and after further distinction at Stenay and Clermont he was given a lieutenancy and received in 1655 his commission as an "ingénieur du roi." Between that year and the peace of 1659 he took part in numerous successful sieges. The originality and success of his methods were now fully recognized, and in 1660 he drew up, at the instance of Louvois, his first exposition of the theory of fortification (*Mémoire pour Servir d'Instruction dans la Conduite des Sièges*), which was afterward published at Leyden (1740). In 1673 Vauban accompanied Louis XIV. on his Dutch campaign. In the following year his principal achievement was the capture of Maestricht, and in 1677 he had the chief credit for the fall of Val-



enciennes and Cambrai. In the short war of 1683-84 he gained further distinction by the fall of Luxembourg, and during the campaign of 1691-92 the names of Mons and Namur were added to the long list of his successes. In 1686 Vauban had the courage to make a representation to the king in favor of the republication of the Edict of Nantes; and about 1697 he wrote his almost equally bold *Projet d'une Dixme Royale*, which, however, was not published until 1707 (see POLITICAL ECONOMY). In 1693 he was made a grand cross of the order of St. Louis, and in 1703 marshal of France. He died at Paris on March 30, 1707.

VAUCLUSE, a department of France, lies between 43° 39' and 44° 26' N. latitude and 4° 38' and 5° 45' E. longitude, is bounded by Drôme on the north, Basses-Alpes on the east, Bouches-du-Rhône on the south, and Gard and Ardèche on the west. The western third of Vaucluse belongs to the Rhone valley, and consists of the rich and fertile plains of Orange, Carpentras, and Cavaillon. To the east, with a general west-southwest direction and parallel to one another, are the steep barren ranges of Ventoux, Vaucluse, and Lubéron, consisting of limestones and sandstones. The climate is that of the Mediterranean region. The valley of the Rhone suffers from the mistral; but the other valleys are sheltered by the mountains, and produce the oleander, pomegranate, olive, jujube, fig, and other southern trees and shrubs.

Of the total area of 881,610 acres, 679,737 are cultivated—cereals occupying 232,250 acres, market and other gardens 41,085, meadows, pastures, and orchards 89,950, industrial vegetable products 18,993, summer fallows 58,489, vines 24,699, and woods and forests 197,049. The culture of madder and the mulberry is diminishing, while the Chinese grass-cloth plant, beet-root, sorghum, and millet are grown in increasing quantities. The truffle markets of Carpentras and Apt are important. Lignite and coal, iron, and sulphur are mined; rich deposits of plaster, stone, clay, and ocher are worked; and there is a large variety of mineral springs. The chief industrial establishments are manufactories of madder dye, silk-mills, silk-spinning factories, oil-mills, flour-mills, paper-mills, wool-spinning factories, confectionery establishments, manufactories of pottery, earthenware, bricks, mosaics, tinned provisions, chemicals, candles, soap, and hats, breweries, puddling works, iron and copper foundries, cabinet workshops, blast furnaces, saw-mills, edge-tool workshops, and nursery gardens. Coarse cloth, carpets, blankets, and ready-made clothes are also produced. The department had 235,457 inhabitants in 1901.

VAUD (Germ. *Waadt*), a canton of Switzerland, takes its name either from the German *Wald* (a wood), or, more probably, from *Wälsch*, the term applied by Teutonic to non-Teutonic tribes. It is of very irregular shape, as it owes its existence solely to historical causes. It stretches on the southeast as far as St. Maurice and takes in Château d'Oex, while to the northwest the Jura and the Lake of Neuchâtel are its boundaries. The district of Avenches (entirely surrounded by the canton of Freiburg) and a long narrow tongue running up to Payerne are also within its boundaries. The total area is 1,244.3 square miles. Of this total 1,053.6 square miles are classed as productive, forests occupying 282 and vines 24.8 square miles. The population in 1900 amounted to 281,379 (an increase of 33,724 since 1888).

Agriculture is the main occupation of the people; the land is much subdivided and very highly cultivated. The vineyards employ 20,000 persons. There is not much industry, except that of the watchmakers in the Jura; and the commerce is comparatively unimportant.

VAUDEVILLE, originally a popular song with words relating to some story of the day; whence it has come to signify a play in which dialogue is interspersed with songs of this description, incidentally introduced but forming an important part of the drama. The German *Lidertafel* is a somewhat similar composition.

VAUDOIS. See WALDENSES.

VAUGHAN, HENRY, called "the Silurist," poet and mystic, was born into an ancient Welsh family settled at Skethiog-on-Usk, in the parish of Llansaint-fraed, Brecknockshire, in 1621. From 1632 to 1638 he and his twin brother Thomas were privately educated by the rector of Llangattock, and then they proceeded to Jesus College, Oxford. At what time Henry left the university is not known; but it was evidently after he had studied for some time in London and had been introduced into the society of men of letters that he printed his first volume, *Poems, with the Tenth Satire of Juvenal Englished* (1646). Of this publication he was afterward, very needlessly, ashamed. Vaughan presently became a physician and returned to his native country, first for a while practicing in the town of Brecon, and then settling down for the remainder of his life in Skethiog. From this place he sent forth his collection of sacred poems, *Silex Scintillans*, in 1650, of which a second part appeared in 1655, and the secular poems of his *Olor Iscanus*, prepared for the press in 1647, and published without his consent by his brother Thomas in 1651. A mystical treatise in prose, *The Mount of Olives*, followed in 1652, and then two prose translations, *Flores Solitudinis*, 1654, and *Hermetical Physick*, 1655. In 1678 an Oxford friend collected the miscellaneous verses of Vaughan's middle life in a volume entitled *Thalia Rediviva*. Henry Vaughan died at Skethiog on April 23, 1693.

VAUGHAN, THOMAS, "the Rosicrucian," was the twin brother of Henry VAUGHAN (see above). When Thomas left Oxford he went into the church and became rector of his native parish Llansaint-fraed until his ejection, when he settled at Oxford as an alchemist. Under the pseudonym of Eugenius Philalethes, Thomas Vaughan produced eleven volumes defending and describing the tenets of the Rosicrucians. The titles of these—among which are *The Man-Mouse*, 1650; *The Second Wash*, 1651; *The Fame and Confession of the Fraternity of the Rosy Cross*, 1652; *Aula Lucis*, 1652; and *Euphrates*, 1653—are not more extraordinary than their style. He died at Albury on February 27, 1665, poisoned by the fumes of a caldron.

VAULT, an arched roof, usually constructed of stone or brick work. The simplest kind of vault is the plain wagon or tunnel vault, being a simple segmental or semicircular arch, thrown across a longitudinal apartment, and extending from one end to the other. Ordinary bridges show an example of this style of vaulting. Such vaults were commonly used by the Romans, who also built vaults with groins, *i. e.*, vaults or arches which intersected one another. The tunnel arch, of a pointed form, was of very ancient introduction, having been used by the Assyrians for vaulting their large drains.

The Egyptians are also said to have been acquainted with vaulting; but the earliest remains of ancient vaults of any magnitude are Roman works.

The Roman vaults, where groined, are usually constructed with carefully cut stone, so as to prevent the angle from chipping. The mediæval architects had not the costly materials or skill of the Romans at command, so they formed the groins only of dressed stone, and the filling in of the vault with commoner material. This led to the groin becoming a prominent feature in mediæval architecture, being generally ornamented with



moldings and carved work. Domical or hemispherical vaulting was also much used by the Romans. The Pantheon, in Rome, is the finest example remaining, being a circular building with a dome 142 feet in diameter. Roman domes and vaults are frequently ornamented with sunk panels. During the Renaissance period, vaulting in a great measure gave place to wooden roofs; but when employed, the domical or plain groined vaults of Roman architecture are chiefly used. In modern works vaults and arches are gradually becoming superseded by the use of iron construction, both for roofs and for supporting floors, bridges, etc.

VAUQUELIN, LOUIS NICOLAS, French analytical chemist, was born at Saint-André-d'Hébertot in Normandy, on May 16, 1763. At the age of thirteen or fourteen Vauquelin went to Rouen as laboratory boy with an apothecary. He did not remain long there; but his interest in chemistry was fairly aroused, and he began to make experiments and take notes. After getting and losing two situations he became ill, was sent to the public hospital, and when convalescent found himself once more without money or friends. At length, however, he met a humane apothecary, Cheradame, who took him in and treated him with kindness. Vauquelin at once resumed his studies, and devoted every spare minute to learning. Cheradame introduced him to Fourcroy, who had himself worked his way up from poverty, and from this time Vauquelin's fortune was made. Henceforward he devoted his attention to chemical analysis without intermission or variety until his death, which occurred at his birthplace on November 14, 1829. At first his work appeared as that of his friend and patron, then in their joint names; but in 1790 he commenced to publish on his own authority, and wrote perhaps more papers than any other chemist has ever done. Either together or successively Vauquelin held the offices of inspector of mines, professor at the School of Mines and at the Polytechnic School, assayer of gold and silver goods, professor of chemistry in the College of France, member of the Council of Industry and Commerce, commissioner on the pharmacy laws, examiner to the Polytechnic School, and, finally, was successor to Fourcroy himself; at this last step all the other candidates retired in his favor.

VAUQUELIN, JEAN, a French poet, was born in 1535, of a noble family, at the chateau of La Fresnaye, near Falaise. He died at Caen in 1607. His *Œuvres Poétiques* contain many sportive songs and other light pieces, which are yet read with pleasure. He was the first writer of idyls in French verse.

VAUVENARGUES, LUC DE CLAPIERS, MARQUIS DE, a moralist and miscellaneous writer of considerable originality and power, was born at Aix in Provence on August 6, 1715. He entered the army early and served for more than ten years, taking part in the Italian campaign of 1736, and in the disastrous expedition to Bohemia six years later in support of Frederick the Great's designs on Silesia, in which the French were abandoned by their ally. He published in 1746 an *Introduction à la Connaissance de l'Esprit Humain*, with certain *Réflexions* and *Maximes* appended. He died of lung disease at Paris on May 28, 1747.

VECELLIO. See TITIAN.

VEDANTA. The Vedānta is the first and most impressive structure of Indian philosophy, the creed of intellectual Hindus, and the basis of the popular Hindu religions. Its earliest germs lie in the Mantra portion of the Veda. The unreality of the internal and external orders of things, and the sole reality of a supreme spirit, or impersonal self, are set forth in the Upanishads or later portions of the Veda. The teaching of

these Upanishads explicated and systematized, with lit or no addition, constitutes the Vedānta.

The term "vedānta," end of the Veda, is a synonym of "upanishad." Upanishad is said by the Indian scholiasts to denote, in the first place, the knowledge of the impersonal self, the science of absolute being, *paramātmajñāna brahmavidyā*; in the second place, any treatise imparting that knowledge. The doctrines of the Upanishads constitute the *jñānakāṇḍa*, or gnostic portion of the Veda, as distinguished from the *karmakāṇḍa*, or ritual portion, comprised in the Samhitās and Brāhmanas. They constitute, also, the *parāvidyā*, or superior science, dealing with cessation from volition and action, and leading to extrication from metempsychosis, as distinguished from the *aparāvidyā*, or inferior science, of the Samhitās, Brāhmanas, and Vedāṅgas, which deals with action, and prolongs metempsychosis, leading only to higher embodiments in this world or in the paradises of the deities. The Vedānta philosophy is also called Aupanishadī, Mīmāṃsā, Brāhmī Mīmāṃsā, Sarīrakī Mīmāṃsā. The Sūtras, or mnemonic formulas, in which the system is developed, are the Vedāntasūtra, Brahmasūtra and Sārīrakasūtra. They are ascribed to Vyāsa or Bādarāyana. The system is further styled the Uttaramīmāṃsā, as an investigation of the later portion of the Veda, as distinguished from the Pūrvamīmāṃsā of Jaimini, which is an investigation of the earlier portion of the Veda. The purport of the Pūrvamīmāṃsā is *dharmajijnāsā*, inquiry into sacred prescription; the purport of the Uttaramīmāṃsā, or Vedānta, is *brahmajijnāsā*, inquiry into the real nature of the soul.

There is, according to the Vedānta, but one substance or reality, ingenerable, immutable, incorruptible, eternal, and this is the supremespirit, the impersonal self, the spiritual absolute, *ātman*, *paramātmān*, *brahman*.

Indian philosophy, and in particular its earliest form, the philosophy of the Upanishads, or Vedānta, is governed throughout by two needs. First, there is the need to give consistency and coherence to existing imagery, physical and hyperphysical, to work out a conception of the totality of things. Secondly, there is the need to put a stop to the miseries of metempsychosis. The idea of transmigration, foreign to the Indo-Aryans of the Vedic hymns, appears to have been taken up by their successors from the lower races with which they intermingled, while retaining their supremacy among them. The Indo-Aryans of the Vedic hymns found life pleasurable and exciting. They prayed to the gods for their hundred years of it, and for an after-life with the whole body. This view of life was replaced by one of horror and aversion, pervading everything Indian with its gloom—the expectation of care, bereavement, sickness, pain, and death, in body after body, and through æon after æon.

VEDAS. See BRAHMANISM and SANSKRIT LITERATURE.

VEDDAHS, or WEDDAHS, that is, "Hunters," a primitive people of Ceylon, probably representing the Yakkos of Sanskrit writers, who appear to have been the true aborigines and the sole inhabitants of the island prior to the Hindu conquest. They constitute three distinct social groups—the *coast people*, who are settled and partly civilized, freely intermingling with their Singhalese neighbors; the *wild or rock people*, who keep entirely aloof, living exclusively on the produce of the chase; and the *village people*, semi-nomad agriculturists, intermediate in every respect between the other two. The Veddahs are thus in a state of transition from the lowest to a relatively high degree of culture; and their physical appearance gives evidence of their intermediate position between the aboriginal and the

intruding races of Ceylon. The true Veddahs of Bintenne are almost a dwarfish race, averaging about five feet (men, five feet two inches; women, four feet ten inches), with correspondingly low cranial capacity, narrow high skull like the Papuan, mesognathous jaw, slightly prominent cheekbones, straight, but shaggy rather than lank, black hair, and features altogether more Hindu than Negroid, although of somewhat darker complexion than the ordinary olive-brown Singhalese. They wander about in small family groups, which have not reached the tribal state, being absolutely destitute of any political or communal organization whatsoever. Their dwellings are the caves of the rocks or the forest trees; they clothe themselves with foliage; and they devour uncooked vermin, reptiles, and whatever other quarry they are able to capture with their rude weapons. It is stated that they can neither count, mark the succession of time, nor distinguish colors; but what is more certain is that they never laugh, in this respect differing from nearly all other races. They also appear to be the only savage people who speak an Aryan language, for their present speech at least seems to be a degraded form of Singhalese, consisting mainly of Sanskrit intermingled with Dravidian elements.

VEGA CARPIO, LOPE FELIX DE, Spanish dramatist and poet, was born on November 25, 1562, at Madrid, in a house in the Platerias or jewelers' quarter adjoining the Puerta de Guadalajara. Lope began his studies in the imperial college, the principal establishment of the Jesuits in Madrid, where he was instructed in grammar and rhetoric. His precocity was extraordinary and his memory astounding. On leaving college—where he had been guilty of an escapade of some sort along with one of his companions—he was placed by his parents, who were far from wealthy, in the service of Don Gerónimo Manrique, bishop of Avila. In the service of Don Gerónimo, Lope appears to have begun the composition of his earlier dramas. But after awhile he quitted the bishop's service to enter the university of Alcalá, where for four years he devoted himself to what was then honored with the name of philosophy, crammed his brain with names and citations from ancient writers, and acquired the habit of disputing in accordance with the formulæ of the schools. It was then that he accumulated the materials for the pedantic dissertations with which the prefaces to his various works are encumbered, in which he so complacently displays everything that he has remembered of his university days. Leaving Alcalá with the degree of bachelor in arts, Lope became secretary to the duke of Alva. Widowed twice, Lope, like many other men of letters of the period, sought a refuge in the church. After a period of initiation, and after having been for some time affiliated to a tertiary order, he took priest's orders. At this juncture, that is to say, about 1614, he was in the very zenith of his glory. A veritable dictator and pope in the Spanish world of letters, he wielded over all the authors of his nation a sort of magisterial power similar to that which was exercised in France at a later period by Voltaire. Lope's fame, too, had traveled abroad: foreigners of distinction passing through Madrid made a point of visiting him; papal legates brought him the compliments of their master; in 1627 Urban VIII., a Barberini, sent him the diploma of doctor of theology in the Collegium Sapientiæ and the cross of the order of St. John of Jerusalem (whence the poet's titles of *Doctor* and *Frey*). His last years were years of severe penance; Montalban tells us that every Friday the poet scourged himself so severely that the walls of his room were sprinkled with his blood. His death, on August 27, 1635, was followed by national mourning.

VEGA, GARCILASO DE LA. See GARCILASO.

VEGETABLE KINGDOM. There is one peculiar factor which enters into the problem of the classification of plants and materially adds to its complexity. It is the polymorphism of the individual: that is, the life-history is usually complex, the individual assuming different forms in various stages of its life-history. Thus, in the great majority of plants there is a well-marked alternation of generations—an alternation, that is, of a sexual form, the *gametophyte*, with an asexual form, the *sporophyte*. And not only so, but in many cases one or other of these generations presents a number of different forms. Hence the true affinities of any individual cannot be regarded as satisfactorily ascertained unless its life-history is fully known; and, since in most cases the various forms are perfectly separate, and often quite dissimilar, there is difficulty in obtaining all the information necessary for determining the true systematic position of a plant—a difficulty which has not yet been overcome in very many cases.

Comparatively little light is thrown on the affinities of existing plants by the information which has been accumulated with regard to the extinct fossil forms. In no case can the genealogy of an existing plant be traced as in the case of the horse among animals (see ANIMAL KINGDOM).

The vegetable kingdom is usually divided into the four following sub-kingdoms:—I. THALLOPHYTA; II. BRYOPHYTA; III. PTERIDOPHYTA; IV. PHANEROGAMIA (SPERMATOPHYTA).

All of these, except some *Thallophyta*, present a more or less clearly marked alternation of generations. In all cases the more conspicuous form is considered to be "the plant." Thus, in the *Thallophyta* generally the plant is the gametophyte, the sporophyte being comparatively inconspicuous and in many cases merely an appendage on the gametophyte; in the *Bryophyta* likewise the gametophyte is the plant, the sporophyte being an appendage on the gametophyte. In the *Pteridophyta* and in the *Phanerogamia* the plant is the sporophyte, the gametophyte being comparatively inconspicuous. In the *Pteridophyta* the gametophyte is still an independent organism; but in ascending from the lower to the higher forms it becomes more and more reduced. In the *Phanerogamia* the gametophyte is still further reduced and becomes a mere appendage on the sporophyte.

#### SUB-KINGDOM I. THALLOPHYTA.

This sub-kingdom includes the most lowly organized of plants. They are characterized by the total absence, or the imperfection, of that differentiation of the body into root, stem, and leaf which is so marked a feature in the higher plants, and by the simplicity of their internal structure, especially by the absence of woody vascular tissue. In those *Thallophyta* which present an alternation of generations the gametophyte is generally the more conspicuous, constituting the plant. The gametophyte is commonly capable of producing spores, not only sexually, but also asexually.

The sub-kingdom is naturally divided into two main classes, the ALGÆ or SEA-WEEDS and the FUNGI, to which may be added, as a subsidiary group, the LICHENS. It is becoming usual to regard the *Algae* and *Fungi* as distinct sub-kingdoms; but it is preferable, as they have so much in common, to continue to regard them as classes of the sub-kingdom *Thallophyta*.

CLASS I. ALGÆ.—There is so much variety in the form and structure of the *Algae* that no more precise definition of them can be given than that they are *Thallophytes* which contain chlorophyll. Though they characteristically live in water, this is by no means univer-



sally the case, for the natural habitat of many of them is damp soil. All *Algae* contain chlorophyll, but many of them contain other coloring-matters in addition—a feature which forms a convenient basis for classification. On this basis the *Algae* are classified into the four following sub-classes:

- I. **Cyanophyceæ**, containing a bluish coloring-matter, *phycocyanin*, and having a blue-green color.
- II. **Chlorophyceæ**, green *Algae*, containing no coloring-matter, except chlorophyll and its derivatives.
- III. **Phæophyceæ**, containing a yellow or brown coloring-matter, *phycophæin*, and having a brown color.
- IV. **Rhodophyceæ**, containing a red coloring-matter, *phycoerythrin*, and having a red or purple color.

These four sub-classes are by no means co-extensive. The *Cyanophyceæ* include only very simple forms; the *Chlorophyceæ* and the *Phæophyceæ* include a series of forms from the simplest to the most complex; the *Rhodophyceæ* include only forms which, though their vegetative structure is frequently very simple, are comparatively highly developed as regards their reproductive organs.

The *Cyanophyceæ* are divided into a number of orders:

- |                                 |  |
|---------------------------------|--|
| Order 1. <i>Chroococcaceæ</i> . | Order 4. <i>Rivulariaceæ</i> .                 |
| " 2. <i>Nostocaceæ</i> .        | " 5. <i>Scytonemææ</i> .                       |
| " 3. <i>Oscillariaceæ</i> .     | " 6. <i>Sirospionææ</i> ( <i>Stigonemææ</i> ). |

The *Chlorophyceæ* may be classified as follows:—

**Order 1. *Protococcoideæ*.**—Unicellular plants; the body frequently spherical and unattached, but presenting in some forms a distinction of base and apex, and then it is attached by the base. Reproduction by vegetative division, or by zoospores, or by a sexual process, the sexual cells being similar planogametes. This order may be divided into two families—the *Protococcaceæ* and the *Palmellaceæ*, the distinction being that in the latter the cell-walls are swollen and mucilaginous, so that the cells are held together, whereas in the former the cells are free. Vegetative multiplication by division is universal in the *Palmellaceæ*, but is commonly wanting in the *Protococcaceæ*.

**Order 2. *Volvocineæ*.**—Unicellular or multicellular plants; body free-swimming by means of cilia, either spherical or a flat plate.

**a. Isogamous forms:** *Pandorina*, *Stephanosphaera* (spherical), *Gonium* (flattened).

**b. Oogamous forms:** *Volvox*, *Eudorina*, *Chlamydomonas* (unicellular).

**Order 3. *Hydrodictyceæ*.**—Multicellular plants; body unattached, a net (*Hydrodictyon*) or a flat plate (*Pediatrum*), formed by the combination of originally separate cells (a *cænobium*). The sexual process is isogamous.

**Order 4. *Siphonææ*.**—Unseptate multinucleate plants; body vesicular and unbranched, or filamentous and branched, assuming most various forms, presenting distinction of base and apex, attached by base; sometimes (*Caulerpa*) presenting differentiation into root, stem, and leaf. The sexual process is isogamous or oogamous.

**a. Isogamous forms:** *Codieæ*, *Dasycladeæ*, *Caulerpeæ*, *Botrydiææ*.

**b. Oogamous forms:** *Vaucheriaceæ*.

**Order 5. *Conferoideæ*.**—Septate multicellular plants (body unicellular in some *Desmids*); cells uni- or multinucleate; body filamentous, branched or unbranched, sometimes presenting distinction of root and shoot, and

then attached by the root, or a flat plate or hollow tube of cells. The sexual process is isogamous or oogamous.

**a. Isogamous forms**—

**α. Gametes not free-swimming or ciliated;**  
*Conjugatæ* (including *Desmidiææ*, *Mesocarpææ*, *Zygnemææ*).

**β. Gametes free-swimming and ciliated.**  
Body filamentous, unbranched: *Ulothricææ*.

Body filamentous, branched: *Cladophorææ*, *Chetophorææ*.

Body a flat or tubular layer of cells: *Ulvacææ*.

**b. Oogamous forms:** body filamentous—

**α. Sexual organs undifferentiated:** *Sphaeropleææ*.

**β. Sexual organs differentiated.**

*Ecdogoniææ*; body unbranched (except *Bulbochætææ*); oogonium without trichogyne; sporophyte, a single cell (oospore).

*Coleochætææ*; body branched; oogonium with trichogyne; sporophyte multicellular.

**Order 6. *Characeæ*.**—Multicellular plants; body presenting differentiation into leaf, stem, and root. There is no asexual production of spores; the sexual process is oogamous the sexual organs being highly differentiated.

In the *Phæophyceæ* the form of the body is very various; it may consist of a single cell; when multicellular it may be filamentous and branched, or a flattened expansion, or cylindrical or vesicular, hollow or solid. It presents also various degrees of morphological differentiation: in some forms it is quite undifferentiated; in others it presents a differentiation of base and apex, and is then attached by the base; in others it presents indications of differentiation into root, stem, and leaf. Vegetative multiplication is common only in the lowest forms; in the higher it occurs in some cases, and is effected by the abstraction of modified members of the parent, termed *gemmæ*. The existence of a sexual process has been ascertained in several forms; but in many others further investigation is required to determine its presence or absence. In those forms in which it occurs it may be either isogamous or oogamous; the isogamous process may take place between free-swimming gametes, or between gametes which are not free-swimming or ciliated. The life-history of the plants of this group is imperfectly known; but it has been ascertained that in some there is, and in others there is not, an alternation of generations.

The *Phæophyceæ* may be classified as follows:

**Order 1. *Diatomaceæ*.**—Unicellular plants, either free, or connected into filaments or masses by mucilage. Reproduction, vegetative by division or by means of asexually-produced spores (*auxospores*); or sexual isogamous by the fusion of non-ciliated gametes. The cell-wall is impregnated with silica.

**Order 2. *Syngeneticeæ*.**—Body unicellular, the cells being held together by mucilage. Reproduction by division and by asexually-produced spores. The order includes the two forms, *Chromophyton* and *Hydrurus*. The former is distinguished by being unattached and by the motility of its spores, which have a single long cilium. *Hydrurus* grows attached, and the spores are not motile.

**Order 3. *Phæosporææ*.**—Multicellular plants; the body is filamentous and branched or flattened, always presenting differentiation of base and apex, and in some cases more or less well-marked differentiation into root, stem, and leaf, usually attached by the base.

Reproduction, vegetative by gemmæ or by means of asexually-produced zoospores, or by sexual process which is essentially isogamous, the gametes being ciliated, but in the higher forms tending to become oogamous. The principal families of the *Phaeosporeæ* are *Ectocarpeæ*, *Sphaclariæ*, *Mesoglaucæ*, *Desmarestiæ*, *Scytosiphonæ*, *Cutleriæ*, and *Laminariæ*.

**Order 4. Dictyotaceæ.**—Body multicellular, thalloid, flattened, ribbon-like, as in *Dictyota*, *Phycopteris*, *Dictyopteris*, or broader and fan-shaped, as in *Taonia*, *Padina*, *Zonaria* usually attached by the base, but by root-hairs developed on the under surface in *Zonaria*. Asexual reproduction by spores, formed four (*tetraspores*) in each unilocular sporangium; spores not motile. Though a sexual process has not been observed, there are apparently male and female organs—*antheridia* and *oogonia*. The supposed male cells are set free and are not motile; the supposed female cells are not set free. The sporangia and the sexual organs are borne on distinct individuals, and in some genera (e.g., *Dictyota*, *Taonia*) the male and female organs are borne on distinct individuals.

**Order 5. Fucaceæ.**—Body multicellular; generally differentiated into root and shoot; shoot usually thalloid, cylindrical, or flattened, but differentiated into stem and leaves in *Sargassum*. No asexual production of spores. Sexual organs *antheridia* or *oogonia*. Male cells numerous, set free, ciliated; female cells (oospheres) either one (*Pycnophycus*, *Himanthalia*, *Cystocira*, *Sargassum*), two (*Pelvetia*), four (*Ozothallia*), or eight (*Fucus*) in an oogonium, set free, not motile.

The sub-class *Rhodophyceæ* includes the single order *Florideæ*.

**Order Florideæ.**—Multicellular plants; body flattened or filamentous; when filamentous, either monosiphonous or polysiphonous, with or without a cortex: thalloid, or with indications of differentiation into stem and leaf. Asexual reproduction, by means of unciliated naked spores, which are usually tetraspores (wanting in *Lemanea*), produced in unilocular sporangia. Sexual reproduction by means of male and female organs, termed *antheridia* and *procarpia*; the procarpium is generally multicellular, but sometimes unicellular (*Bangiaceæ*, *Nemaliæ*), is always closed, and generally consists of two parts, the *carpogonium* or sporogenous portion and the *trichogyne* or receptive portion. The male cells are non-motile and have a cell-wall (*spermatia*); there is no differentiated female cell in the procarpium. After fertilization the carpogenous cell (or cells) divides to form the mother-cells of spores, and each mother-cell gives rise to a single naked spore (*carpospore*), which is not ciliated and is usually non-motile; in the *Bangiaceæ* the carpospores exhibit amoeboid movements for a time. The group of sporogenous cells formed from the fertilized carpogenous cell (or cells) is termed a *cystocarp*; in many cases these cells become surrounded by an investment developed from the adjacent vegetative tissue. The structure of the cystocarp is very simple in the *Bangiaceæ*, consisting only of eight spore mother-cells. The principal orders of the *Florideæ* are *Bangiaceæ*, *Lemaneæ*, *Nemaliæ*, *Ceramiciæ*, *Corallineæ*, *Rhodomelaceæ*, *Cryptonemiaceæ*, *Rhodymeniaceæ*, *Wrangeliaceæ*, *Squamariaceæ*, *Sphaerococcaceæ*.

With regard to the life history of the *Florideæ*, it is generally considered to present a well marked alternation of generations, the plant being the gametophyte, the fructification being the sporophyte.

**CLASS II. FUNGI.**—In view of the description of these plants given in the article *FUNGUS* (q.v.), it is unnecessary to define them here further than as Thallophytes which are devoid of chlorophyll.

The classification followed here differs in detail from that given in the previous article. It is as follows:—

**Sub-Class I. Myxomycetes.**

“ **II. Schizomycetes.**

“ **III. Phycomycetes.**

a. *Zygomycetes.*

b. *Oomycetes.*

Order 1. *Chytridiaceæ.* Order 1. *Ancylisteæ.*

“ 2. *Mucorini.* “ 2. *Peronosporææ.*

“ 3. *Entomophthorææ.* “ 3. *Saprolegniææ.*

“ 4. *Ustilaginææ.*

**Sub-Class IV. Ascomycetes.**

Order 1. *Gymnoasceæ.* Order 2. *Pyrenomycetes.*

Order 3. *Discomycetes.*

**Sub-Class V. Æcidiumycetes.**

Order 1. *Uredineæ.*

**Sub-Class VI. Basidiomycetes.**

Order 1. *Tremellini.* Order 2. *Hymenomycetes.*

Order 3. *Gasteromycetes.*

**SUBSIDIARY GROUP, LICHENS.**—As pointed out in the article *FUNGUS*, a Lichen is a compound organism consisting of a *Fungus* and an *Alga* living symbiotically. In that article only those Lichens are considered in which the *Fungus* belongs to the *Ascomycetes*; but Lichens are now known in which the *Fungus* belongs to the *Basidiomycetes*.

The Lichens may be classified as follows:—

*Ascolichenes* (Ascomycetous Lichens).

1. *Discolichenes* (Discomycetous Lichens).

2. *Pyrenolichenes* (Pyrenomycetous Lichens).

*Basidiolichenes* (Basidiomycetous Lichens).

1. *Hymenolichenes* (Hymenomycetous Lichens).

2. *Gasterolichenes* (Gasteromycetous Lichens).

**SUB-KINGDOM II. BRYOPHYTA** (*Muscineæ*).

The *Bryophyta* may be characterized as plants which present a definite alternation of generations, the plant being the gametophyte and the fructification or sporogonium the sporophyte. The sporophyte is not independent, but remains permanently attached to the gametophyte. The shoot of the gametophyte is sometimes thalloid; but more frequently it is differentiated into stem and leaf. The shoot of the sporophyte is not differentiated into stem and leaf, though there is in some cases an indication of such differentiation. The gametophyte commonly reproduces its like by means of gemmæ; the female organ is an archegonium. The *Bryophyta* are divided into two classes—the *HEPATICÆ* or *LIVERWORKS*, and the *MUSCI* or *MOSESSES*. (For details see *MUSCINEÆ*.)

*Mutual Affinities of Mosses and Liverworks.*

a. *Gametophyte* (plant).—The higher Liverworks (foliose *Jungermanniæ*) resemble the Mosses in that the shoot is differentiated into stem and leaf; but there is this general difference, that the shoot of these Liverworks has dorsi-ventral symmetry, whereas that of the Mosses has radial symmetry. The connecting form is afforded by *Haplomitrium*, which alone among the foliose Liverworks has radial symmetry.

b. *Sporophyte* (sporogonium).—The main differences between the sporogonium of the Liverworks and that of the Mosses are these: the structure of the sporogonium is simpler in the Liverworks than it is in the Mosses; in the former it usually has no columella and produces elaters, whereas in the latter a columella is always present, and there are no elaters. In the Liverworks the sporogonium remains inclosed in the enlarged venter of the archegonium (calyptra) until the spores are ripe, but in most Mosses the developing sporogonium bursts the calyptra at an early stage. A connecting form is afforded by the sporogonium of *Anthoceros* (Liverwort), which has a columella and bears stomata like the sporogonia of the Mosses, and in



which the elaters are rudimentary. *Sphagnum* and *Archidium* among Mosses resemble the Liverworts in that the sporogonium is inclosed in the calyptra until near maturity.

### SUB-KINGDOM III. PTERIDOPHYTA.

(Vascular Cryptogams).

In these plants the gametophyte is a filamentous or tuberous, or more commonly a membranous, flattened *prothallium*, exhibiting no differentiation into stem and leaf. The sexual organs are antheridia and archegonia as in the *Muscineae*. The sporophyte becomes quite independent of the gametophyte, constituting the plant. The shoot is always differentiated into stem and leaf, and the tissues are highly differentiated.

The sub-kingdom is divided into three classes—*FILICINÆ*, *EQUISETINÆ*, *LYCOPODINÆ*.

Each of these classes includes two series of forms—the *homosporous*, in which all the spores are alike, and the *heterosporous*, in which the spores are of two kinds, namely, large spores (*macrospores*) and small spores (*microspores*).

**CLASS I. FILICINÆ.**—The *Filicinae* are characterized by having relatively large and few leaves. The spore-bearing or fertile leaves (*sporophylls*) are generally similar to the foliage leaves, and are not aggregated on special shoots, so as to form flowers. The embryo sporophyte has no suspensor; but it has generally (except in *Salvinia*) a primary root.

**Series A. Homosporous Filicinae.**—This series consists of the sub-class *Filices*, which includes the Ferns. It seems to be certain that all existing Ferns are homosporous, and apparently all the known fossil forms are homosporous also, though it is not impossible that there may have been heterosporous *Filices*. The orders of existing Ferns are arranged in two categories, according to the mode of development of the sporangia.

*Leptosporangiate Filices*: the sporangium is developed from a single epidermal cell:—

Order 1. <i>Hymenophyllaceae</i> .	Order 4. <i>Gleicheniaceae</i> .
“ 2. <i>Cyatheaceae</i> .	“ 5. <i>Schizaceae</i> .
“ 3. <i>Polypodiaceae</i> .	“ 6. <i>Osmundaceae</i> .

*Eusporangiate Filices*: the sporangium is developed from a group of epidermal cells:—

Order 1. *Ophioglossaceae*. Order 2. *Marattiaceae*.

**Series B. Heterosporous Filicinae.**—As far as is known at present, this series contains the sub-class *Hydropterideae* or *Rhizocarpeae*. In addition to the various peculiarities connected with their heterospory, its members are characterized by the development of an investment round the clusters of sporangia (*sori*), the whole forming a *sporocarp*. They are all *Leptosporangiate*.

The *Hydropterideae* are arranged in two orders, according to the structure of the sporocarp.

Order 1. *Salviniaceae*: wall of sporocarp formed as a superficial outgrowth of the sporophyll; each sporocarp contains a single sorus either of macrosporangia or of microsporangia (*Salvinia*, *Azolla*).

Order 2. *Marsileaceae*: the wall of the sporocarp is formed by a portion of the sporophyll; each sporocarp contains several sori; and each sorus includes both macrosporangia and microsporangia (*Marsilea* *Pilularia*).

It is possible that *Isoetes* represents the heterosporous *eusporangiate Filices* (see *infra*).

**CLASS 2. EQUISETINÆ.**—These plants are characterized by their rudimentary foliage leaves arranged in whorls at the nodes, and by their highly modified sporophylls, which are aggregated together at the ends of shoots, so as to form cone-like flowers. The embryo sporophyte has no suspensor, but a primary root.

**Series A. Homosporous Equisetinæ.**—All the existing forms belong to this series and constitute the order *Equisetaceae*; they all belong to the genus *Equisetum*. The gametophyte is a green flattened prothallium, like that most commonly found in the *Filices*; but it is much branched, and generally dioecious.

**Series B. Heterosporous Equisetinæ.**—There are no existing heterosporous *Equisetinæ*; it is probable that some fossil plants, such as *Annularia* and *Asterophyllites*, represent the extinct heterosporous forms.

**CLASS 3. LYCOPODINÆ.**—The *Lycopodinae* are generally characterized by their small and numerous foliage leaves, which are not arranged in whorls, though they are almost entirely wanting in *Psilotum*. The sporophylls are not highly modified, but they are frequently aggregated at the ends of shoots, so as to form cone-like flowers. So far as the embryology of this class is known at present, the embryo sporophyte has a suspensor, but no primary root.

**Series A. Homosporous Lycopodinæ.**

Order 1. *Lycopodiaceae*: the sporangia are borne on sporophylls (*Lycopodium*, *Phylloglossum*).

Order 2. *Psilotaceae*: the sporangia are borne on the stem (*Psilotum*, *Tmesipteris*).

**Series B. Heterosporous Lycopodinæ.**

Order 1. *Selaginellaceae* (*Selaginella*).

The existing heterosporous *Lycopodinae* are usually considered to consist of a family, termed the *Ligulateae*, which includes the two genera *Selaginella* and *Isoetes*. This arrangement is not accepted here, for the reason that *Selaginella* and *Isoetes* have nothing in common beyond the ligule, and the fact that they are both heterosporous vascular cryptogams.

### SUB-KINGDOM IV. PHANEROGAMIA.

These plants are commonly known as “flowering plants;” but they are more correctly designated “seed-bearing plants,” or *Spermatophyta*, for the production of a seed is the one feature which distinguishes the members of this sub-kingdom from those of the other sub-kingdoms.

There is a definite alternation of generations in the life-history of these plants, but it is obscured by the extreme reduction which the gametophyte has undergone (see REPRODUCTION). The sporophyte is the plant; a suspensor is formed in its embryogeny; and it is heterosporous. The sporophylls are aggregated on special shoots, frequently with other floral leaves (bracteoles, perianth leaves), to form flowers. The two kinds of sporangia are in all cases borne on distinct sporophylls. In the microsporangium there are numerous fertile sporogenous cells, each of which produces four microspores; in the macrosporangium there are generally but few sporogenous cells, of which only one is usually fertile, and this one produces a single macrospore without division. The microspores are set free from the sporangium producing them, whereas the macrospore is not. It is this last peculiarity which determines the formation of the seed.

The *Phanerogamia* are divided into two two classes—the *GYMNOSPERMÆ* and the *ANGIOSPERMÆ*.

**CLASS I. GYMNASPERMÆ.**—The carpels are sometimes absent, and, when present, they do not form an ovary; hence the ovules are naked. There is no stigma, consequently the pollen-grain comes into direct contact with the ovule. The whole of the female prothallium is formed in the embryo sac before fertilization. The female organ is, in most cases, a fully developed archegonium. The embryo is developed from a portion only of the fertilized female cell or oospore (*meroblastic embryogeny*); frequently several embryos

are developed from one oospore (*polyembryony*). The flowers are dioecious or diclinous.

This class consists of the following orders:

**Order 1. Cycadaceæ:** characterized, generally, by the unbranched stem and by the large branched leaves. The order includes nine genera—*Cycas*, *Dioon*, *Ceratozamia*, *Zamia*, *Macrozamia*, *Encephalartos*, *Stangeria*, *Bowenia*, *Microcycas*. The genus *Cycas* is peculiar in that the carpels are not borne on special shoots, so as to form flowers, but on the main shoot, in the same way as the foliage leaves. The stamens of *Cycas*, as also both the stamens and carpels in the other genera, are highly modified sporophylls, which are borne on special shoots forming cone-like flowers.

**Order 2. Conifera:** characterized by the much-branched stem and by the very numerous, small, unbranched leaves. The staminal flowers are generally cone-like. This order includes the Pines, Firs, Larches, Yews, Cypresses, etc., arranged in the following families:

**Series A. Pinoideæ:** the carpellary flowers are cones:

Fam. 1. *Abietineæ*. Fam. 3. *Cupressineæ*.  
“ 2. *Araucarieæ*. “ 4. *Taxodineæ*.

**Series B. Taxoideæ:** the carpellary flowers are not cones:

Fam. 1. *Taxineæ* Fam. 2. *Podocarpeæ*.

**Order 3. Gnetales:** habit various; the flowers are not cones, and have a perianth. This order includes the three genera, *Ephedra*, *Gnetum*, and *Welwitschia*. In *Gnetum* and *Welwitschia* the female organ (archegonium) is reduced to a single cell, the oospere.

**CLASS II. ANGIOSPERMÆ.**—The carpel or carpels form an ovary, in which the ovules are inclosed. A portion of the carpel forms a stigma, which receives the pollen-grains. The pollen-grains germinate on the stigma, and therefore do not come into direct relation with the ovules. A part only of the female prothallium (*primary endosperm*) is formed before fertilization, the remainder (*secondary endosperm*) after fertilization. The female organ is a reduced archegonium, consisting merely of the female cell (oosphere). The general occurrence of both macrosporophylls and microsporophylls in the same flower is a characteristic feature of this group, as is also the whorled arrangement of the floral leaves.

The *Angiosperma* are divided into two sub-classes—the *Monocotyledons* and the *Dicotyledons*, according to the number of the primary leaves or cotyledons of the embryo; hence, in the former sub-class the first leaves are alternate, in the latter opposite. In the *Monocotyledons*, with few exceptions, the growing-point of the embryonic stem is lateral; in the *Dicotyledons* it is always terminal. There are other distinguishing features, such as the parallel venation of the leaves of *Monocotyledons* and the reticulate venation in *Dicotyledons*; but they are not sufficiently constant to be of much taxonomic value.

The *Monocotyledons* may be conveniently arranged in the following series:—

**Series 1. Nudifloræ:** usually diclinous or dioecious; perianth wanting or rudimentary. This series includes the *Spadicifloræ* (Aroids, Palms, *Naiadeæ*) and the *Glumifloræ* (Grasses, Sedges).

**Series 2. Petaloideæ:** usually monoclinal; perianth present, and usually well-developed and colored. This series includes the Lilies, Orchids, Irises, etc.

The *Dicotyledons* are usually classified as follows:—

**Series 1. Monochlamydeæ:** usually diclinous or dioecious; perianth absent or simple.

**Series 2. Polypetaleæ:** usually monoclinal; perianth

usually consists of calyx and colored corolla, the petals being free.

**Series 3. Gamopetaleæ:** usually monoclinal; perianth usually consists of calyx and colored corolla, the petals being coherent.

**VEGETABLE MARROW.** A species of Squash, much used in England.

**VEGETARIANISM,** the doctrine that vegetable substances are the solids intended by nature for the sustenance of man, and that it is wrong—against nature and against good morals—for men to make use of an animal diet. There have never been wanting among speculative persons some who maintained that fruit and vegetables are the proper food for men; and illustrious names, such as those of Pythagoras, Plato, Plutarch, in ancient times; of Rousseau, Shelley, Swedenborg, in modern, can be counted among the upholders of this doctrine. A society for promoting the practice of vegetarianism was established at Manchester in 1847, and three years later a similar society was established in the United States.

There is, first, a physiological argument used in behalf of Vegetarianism. It is said that the formation of the teeth and of the intestines in a man prove that man was not intended to be a carnivorous, but a fruit and vegetable eating animal. Then, it is maintained that a vegetable diet is the most favorable to man in all respects, physical, intellectual, and moral; that with it his life is longer, his enjoyment of life greater, his brain more vigorous, and his power of manual labor not less than with an animal diet; and that, while the use of animal food begets ferocious dispositions, a carelessness about life, a callousness to the sufferings of man or animal, a vegetable diet develops the gentler affections, and produces a broad and genial sense of brotherhood. It is affirmed that animal food produces febrile and inflammatory tendencies; that, like alcohol, it is a stimulant (some vegetarians call it a stimulating poison); and that a mixed diet is open to all the objections which lie against moderate drinking. It is also alleged that animal food, as exposed for sale, is often tainted with some disease or unwholesome condition, and that it thus becomes a frequent cause of disease in man. Moreover, it is submitted that vegetables contain all the principles necessary for the sustenance of man; that, therefore, the use of flesh is unnecessary; and that this being so, it is selfish, cruel, and tyrannical—calculated, too, to increase selfishness, cruelty, and tyranny in man—to cut short the existence of inferior animals.

The opinion of physiologists is not favorable to vegetarianism. The structure of man's organs is held to prove that nature intended him for an omnivorous animal, his stomach and intestines being fitted for deriving nourishment from every kind of food, and he being able, by means of cooking, to modify his food so as to prepare it for mastication and digestion. There is also almost a concurrence of medical experience against vegetarianism, and in favor of the opinion that man, as regards all his powers and faculties, thrives best, and that—if a difference can be made out—he also lives longest upon a mixed diet.

Upon the alleged beneficent moral influence of vegetable food, it may be observed that there is no proof whatever of this reality; moreover, that since the majority of mankind live either mostly or entirely on vegetables, vegetables must bear a large share of the responsibility which may fall upon diet for the evil tendencies of man; and that, in fact, the most cruel and the most debased of human races live entirely upon vegetables. To the charge of cruelty brought against the practice of killing animals for food, it has been answered, that the plan of nature contemplates such



cruelty, if cruelty it be, and makes it impossible to avoid it; that the microscope has shown us that even in taking a draught of water we may deprive a multitude of beings of life; and that on the other hand, the system of rearing cattle for the butcher, since the cattle would otherwise not be reared at all, really adds very largely to the sum of happy animal existence. It is not disputed that there is a liability to disease from the use of unwholesome meat; but, then, vegetables as well as animals are subject to diseases, and the reasoning which would drive us from the use of animal food, because it may be diseased, would really cut us off from food altogether.

VEGETIUS, FLAVIUS RENATUS, the compiler of a treatise on the art of war, dedicated to Valentinian II. (375-392). Nothing is known of his life save that in MSS. he is called *vir illustris* and also *comes*. The book, which is a poor compilation, has to be used with great caution. It has been often translated; an English version through the French was published by Caxton in 1489.

VEGLIA (Slavonic, *Krk*), an island in the Gulf of Quarnero, Adriatic Sea, belonging to the Austrian district of Istria, is separated from the mainland by the narrow channel of Morlacca or Maltempo and from the island of Cherso on the southwest by that of Mezzo. It is twenty-four miles long and about fourteen miles across at its widest part. In 1900 the island contained 18,089 inhabitants; the capital is Veglia, a town on the southwest side, with 1,580 inhabitants and a good harbor.

VEHMIC COURTS. See FEHMIC COURTS.

VEIL. See ETRURIA.

VEIL. This familiar article of dress is one of the most ancient in use; its origin is lost in remoteness; but we find an allusion to the wearing of veils by the Chinese in Ovid, and Juvenal speaks of woman as being so delicate as to be overheated by a silken veil. Although generally considered portions of female dress, we read in the works of Ambrose (374 A.D.) of silken garments and veils interwoven with gold, with which the body of the rich man is encompassed. Its use is now so extended that it may be found in every part of the civilized world, but almost exclusively confined to woman.

VEINS, in anatomy, if we except the pulmonary, the portal, and the umbilical veins, are the vessels which carry back venous blood from the capillaries, and, enlarging as they proceed, finally pour it through the ascending and descending *venæ cavæ* into the right auricle of the heart. Their coats are similar to those of the arteries, but much thinner, and even transparent. They are, however, of considerable strength. The internal coat consists of an epithelial layer, supported on several laminae of longitudinal elastic fibers. The middle or contractile coat consists of numerous alternating layers of muscular and elastic fibers; the muscular fibers being disposed circularly round the vessel. The muscular fibers are wanting in some parts of the venous system, and specially developed in others (as, for example, the splenic and portal veins, where, perhaps from the physical character of the tissues which they pervade, there may be more than the ordinary resistance to the passage of the blood). In the *venæ cavæ*, and pulmonary veins near the heart, striped muscular fibers may be detected, continuous with those in the auricles. The external or areolar fibrous coat consists of connective or areolar tissue and of longitudinal elastic fibers; within some of the larger veins, as the inferior *vena cava*, through its whole length, the external iliacs, the azygos, etc., there is also a longitudinal network of unstriped muscular fibers.

The existence of valves in the veins is a well known

fact. These valves are most numerous in the veins of the extremities, especially the lower ones, these vessels having to act against the force of gravity more than most others. They are absent in the *venæ cavæ*, the hepatic, portal, renal, pulmonary, and some other large veins, and in very small veins generally. The veins are nourished by nutrient vessels, or *vasa vasorum*, like the arteries; but except in a few instances (including the inferior *vena cava*), nerves are not distributed to them.

The chief diseases of the venous system are inflammation of the veins; phlebolites; phlegmasia alba dolens, or milk-leg; thrombus, and varicose veins. We shall merely refer to two conditions of the venous system which must be regarded as the results of natural rather than morbid action; they are hypertrophy and atrophy. Hypertrophy is a natural and healthy change which will be readily understood by one or two illustrations. When the uterus enlarges during pregnancy, the quantity of blood increases in at least a corresponding ratio, and so also do the venous canals by which it is removed; while, shortly after delivery, they return to their natural size; the hypertrophy being accompanied with a proportionate dilation. This form of hypertrophy, with dilatation, often exerts a compensative action, one vein or set of veins taking additional work (and consequently requiring an increase of caliber), to make up for the partial and entire occlusion of another. When, for example, the ascending *vena cava* is diminished in size, or even entirely and permanently closed, it is well known that the lower portion of the vessel dilates in common with the branches entering into it, and that the superficial abdominal veins or azygos, or both, become enlarged, and thus carry to the heart the blood which ought to have reached the heart by the usual course. If the obstruction is only temporary, the enlarged veins return to their original state, except that additional transverse fibers are found in the middle coat. Atrophy of the veins accompanies the corresponding changes of other tissues, when a part is permanently diseased. Amputation above the knee soon reduces the femoral vein to less than one-third of its previous size.

VEIT, PHILIPP, a distinguished German painter, was born at Berlin, Germany, February 13, 1793. His first famous work was the *Seven Years of Plenty*, executed as a companion piece to Overbeck's *Seven Years of Dearth*, and forming part of a series of frescoes illustrative of the history of Joseph, painted at the Villa Bartholdy in Rome. These procured him so great a reputation that he was called to the directorship of the Stadselsche Art Institute, in Frankfurt-on-the-Main. In 1843 he resigned his post as director, and removed to Sachsenhausen, in Hesse-Cassel. In 1868 he painted several frescoes for Mayence Cathedral. He died in December, 1877.

VELAZQUEZ, DIEGO DE SILVA, the head of the Spanish school of painting and one of the mightiest painters the world has known, was born in Seville early in June, 1599, the year in which Van Dyck also first saw the light at Antwerp. His European fame is of comparatively recent origin, dating from the first quarter of the nineteenth century. Till then his pictures had lain immured in the palaces and museum of Madrid; and from want of popular appreciation they had to a large extent escaped the rapacity of the French marshals during the Peninsular War.

Velazquez was the son of Rodriguez de Silva, a lawyer in Seville, descended from a noble Portuguese family, and was baptized on June 6, 1599. Following a common Spanish usage, he is known by his mother's name Velazquez. There has been considerable diversity of opinion as to his full name, but he was known to his



contemporaries as Diego de Silva Velazquez, and signed his name thus. He was educated, says Palomino, by his parents in the fear of God, and was intended for a learned profession, for which he received a good training in languages and philosophy. But the bent of the boy was toward art, and he was placed under the elder Herrera, a vigorous painter who disregarded the Italian influence of the early Seville school. Velazquez remained but one year, long enough, however, to influence his life. It was from Herrera that he learned to use long brushes, or, as Mr. J. E. Hodgson, R.A., suggests, brushes with long bristles, by means of which his colors seem to be floated on the canvas by a light fluent touch, the envy and despair of his successors. From Herrera's studio Velazquez betook himself to a very different master, the learned and pedantic Pacheco, the author of a heavy book on painting, and, as we see by his works at Madrid, a dull, commonplace painter. In this school he remained for five years.

Here, also—and this may explain much—he fell in love with his master's daughter, Juana, whom he married in 1618 with the hearty approval of Pacheco, who praises his hand and heart, claiming at the same time all the credit of having been his master. He must, however, have found Velazquez a wayward pupil; for, instead of looking to Raphael, according to orders, the young painter set himself to copy the commonest things about him—earthenware jars of the country people, birds, fish, fruit, and flowers of the market-place. To paint well and thoroughly what he saw, to model with his brush, and to color under the influence of light and shade were for him the vital purpose, the first lesson, in his art. It was with deliberate purpose that Velazquez painted these *bodegones* (tavern-pieces), as they were called; for we are told that he said he would rather be the first painter of common things than the second in higher art. Carrying out this idea still farther, Velazquez felt that to master the subtlety of the human face he must make this a special study, and he accordingly engaged a peasant lad to be his servant and model, making innumerable studies in charcoal and chalk, and catching his every expression. We see this model in the laughing *Peasant Boy* of the Belvedere Gallery at Vienna. In such work as this, and in his studies by the wayside, Velazquez laid the foundation of his subsequent mastery of expression, of penetration into character, and of rendering the life of his sitter to the quick. For sacred subjects we may turn to the *Adoration of the Magi* at Madrid, dated 1619, and the *Adoration of the Shepherds* in the London National Gallery, in both of which we have excellent examples of his realism. The peasants offering their gifts of poultry are the hard-featured women of the market-place of Seville, pre-Raphaelite in their uncompromising truthfulness. Thus, also, in the *St. John in the Desert*, we find his peasant boy transformed into the saint.

But Velazquez was now eager to see more of the world. Madrid, with its fine Titians, held out strong inducements. Accordingly in 1622, fortified with letters of introduction to Fonseca, who held a good position at court, he spent some months there, accompanied only by his servant. Two years later (1624) he received from the king three hundred ducats to pay the cost of the removal of his family to Madrid, which became his home for the remainder of his life. It was during this period that he painted the hunting-scenes of which examples are to be found in the collections of Sir Richard Wallace, Lord Clarendon, and others, and which served him in the production of the great *Boar Hunt* of the London National Gallery, painted, however, in the later years of his life—a magnificent work in spite of some restorations.

In 1628 Rubens visited Madrid on a diplomatic mission for nine months, and Velazquez was appointed by the king to be his guide among the art treasures of Spain. In 1627, the king had given for competition among the painters of Spain the subject of the Expulsion of the Moors. Velazquez bore off the palm; but his picture was destroyed in a fire at the palace in 1734. The triumph of Velazquez was rewarded by his being appointed gentleman-usher. As an extra payment he received (though it was not paid for five years) one hundred ducats for the picture of Bacchus, painted in 1629 (No. 485 of the Madrid gallery). The spirit and aim of this work are better understood from its Spanish name, *Los Borrachos* or *Los Bebedores* (the Toppers), who are paying mock homage to a half-naked ivy-crowned young man seated on a wine barrel.

In 1629 Philip gave Velazquez permission to carry out his desire of visiting Italy, without loss of salary, making him besides a present of 400 ducats, to which Olivares added 200. He sailed from Barcelona in August in the company of the marquis De Spinola, the conqueror of Breda, then on his way to take command of the Spanish troops at Milan. It was during this voyage that Velazquez must have heard the details of the surrender of Breda from the lips of the victor, and he must have sketched his fine head, known to us also by the portrait by Van Dyck. But the great picture was not painted till many years later, for Spinola had fallen into disfavor at court. In Venice Velazquez made copies of the *Crucifixion* and the *Last Supper* of Tintoretto, which he sent to the king, and in Rome he copied Michelangelo and Raphael, lodging in the Villa Medici till fever compelled him to remove into the city. Here he painted the *Forge of Vulcan* (No. 1,059 of the Madrid gallery), in which Apollo narrates to the astonished Vulcan, a village blacksmith, the news of the infidelity of Venus, while four Cyclops listen to the scandal. At Rome he also painted the two beautiful landscapes of the *Gardens of the Medici*, now in the Madrid museum, full of sparkle and charm. Landscape as a form of art never had attraction for the Spaniards; but Velazquez here, and in the silvery landscapes painted some years later at Aranjuez, shows how great a master he was in this branch of art. After a visit to Naples in 1631, where he worked with his countryman Ribera, and painted a charming portrait of the infanta Maria, sister of Philip, he returned early in the year to Madrid.

He then painted the first of many portraits of the young prince Don Baltasar Carlos, the heir to the throne, dignified and lordly even in his childhood, caracoling in the dress of a field-marshal on his prancing steed. In these portraits Velazquez has well repaid the debt of gratitude which he owed to his first patron, whom he stood by in his fall, thus exposing himself to the risk—and it was not a light one—of incurring the anger of the jealous Philip. The king, however, showed no sign of malice toward his favored painter. Faithful in few things, Philip kept true to Velazquez, whom he visited daily in his studio in the palace, and to whom he stood in many attitudes and costumes, as a huntsman with his dogs, as a warrior in command of his troops, and even on his knees at prayer, wearing ever the same dull, uninterested look. His pale face and lack-luster eye, his fair flowing hair and mustaches curled up to his eyes, and his heavy projecting Austrian lip are known in many a portrait and nowhere more supremely than in the wonderful canvas of the London National Gallery (No. 745), where he seems to live and breathe.

The greatest of the religious paintings by Velazquez belongs also to this middle period, the *Christ on the*



*Cross* (Madrid gallery, No. 1,055). Palomino says it was painted in 1638 for the convent of San Plácido. It is a work of tremendous power and of great originality, the moment chosen being that immediately after death.

Velazquez's son-in-law Mazo had succeeded him as usher in 1634, and he himself had received steady promotion in the royal household, receiving a pension of 500 ducats in 1640, increased to 700 in 1648, for portraits painted and to be painted, and being appointed inspector of works in the palace in 1647. Philip now intrusted him with the carrying out of a design on which he had long set his heart, the founding of an academy of art in Spain. Rich in pictures, Spain was weak in statuary, and Velazquez was commissioned to proceed to Italy to make purchases. At Modena he was received with much favor by the duke, and doubtless here he painted the two splendid portraits which now adorn the Dresden gallery, for these pictures came from the Modena sale of 1746. They presage the advent of the painter's third and latest manner, a noble example of which is the great portrait of Innocent X. in the Doria palace at Rome, to which city Velazquez now proceeded. There he was received with marked favor by the pope, who presented him with a medal and gold chain. Philip was now wearying for his return; accordingly, after a visit to Naples, where he saw his old friend Riberia, he returned to Spain by Barcelona in 1651, taking with him many pictures and 300 pieces of statuary, which he afterward arranged and catalogued for the king. Undraped sculpture was, however, abhorrent to the Spanish Church, and after Philip's death these works gradually disappeared.

Isabella of Bourbon had died in 1644, and the king had married Maria Anna of Austria, whom Velazquez now painted in many attitudes. He was specially chosen by the king to fill the high office of "apostador mayor," which imposed on him the duty of looking after the quarters occupied by the court whether at home or in their journeys—a responsible function, which was no sinecure and interfered with the exercise of his art. Yet far from indicating any decline, his works of this period are among the highest examples of his style. *Las Meninas* was the picture of which Luca Giordano said that it was the "theology of painting," another way of expressing the opinion of Sir Thomas Lawrence, that this work is the philosophy of art, so true is it in rendering the desired effect. The result is there, one knows not by what means, as if by a first intention without labor, absolutely right. The story is told that the king painted the red cross of Santiago on the breast of the painter, as it appears to-day on the canvas. Velazquez did not, however, receive the honor till 1659, three years after the execution of this work. Even the powerful king of Spain could not make his favorite a belted knight without a commission to inquire into the purity of his lineage on both sides of the house. Fortunately the pedigree could bear scrutiny, as for generations the family was found free from all taint of heresy, from all trace of Jewish or Moorish blood, and from contamination by trade or commerce. The difficulty connected with the fact that he was a painter was got over by his being painter to the king and by the declaration that he did not sell his pictures. But for this royal appointment, which enabled him to escape the censorship of the Inquisition, we should never have had his splendid *Venus and Cupid*, painted in his latest manner and worthy of comparison with Titian. There were in truth but two patrons of art in Spain—the church and the art-loving king and court. Murillo was the artist favored by the church, while Velazquez was patronized by the crown.

In 1660 a treaty of peace between France and Spain

was to be consummated by the marriage of the infanta Maria Theresa with Louis XIV., and the ceremony was to take place in the Island of Pheasants, a small swampy island in the Bidassoa. Velazquez was charged with the decoration of the Spanish pavilion and with the whole scenic display. In the midst of the grandes of the first two courts in Christendom Velazquez attracted much attention by the nobility of his bearing and the splendor of his costume. On June 26th he returned to Madrid, and on July 31st he was stricken with fever. Feeling his end approaching, he signed his will, appointing as his sole executors his wife and his firm friend Fuensalida, keeper of the royal records. He died on August 6, 1660.

VELEIA, a town of Liguria, near the frontier of Gallia Cisalpina, on the Apennine slope, about twenty miles to the south of Placentia. Interesting antiquities from Veleia, including the "tabula alimentaria" of Trajan, are deposited in the museum at Parma. None of the coins hitherto discovered on the site are later than the time of Probus (276–282).

VELEZ-MÁLAGA, a town of Spain, in the province of Malaga, and fifteen miles east-northeast from that town, is finely situated in a fertile valley at the foot of steep mountains (Sierra Tejada), within a mile of the mouth of the small river Velez. The vegetation of the neighborhood is most luxuriant, including the aloe, palm, sugar-cane, prickly pear, orange, vine, olive, and sweet potato. The inhabitants are chiefly employed in the various industries connected with the cultivation and export of the products of these. There is also a tunny fishery. The population within the municipal boundaries in 1897 was 25,332.

VELIZH, or VELIZ, a district-town of Russia, in the government of Vitebsk, on the Dwina, fifty-three miles northeast of the city of Vitebsk. It has an active trade in grain and linseed, grown in the neighboring provinces, and sent by river to Riga in exchange for fish, salt, tobacco, and groceries. The population (18,370 in 1895) has doubled since about 1860.

VELLEIUS. See PATERCULUS.

VELLETRI, a town of Italy, in the province of Rome, and twenty-six miles by rail to the southeast of that city, is picturesquely situated on a spur of Monte Artemisio on the southern edge of the Alban Hills and overlooking the Pontine marshes. The neighborhood produces a celebrated wine, a chief source of wealth to the town. The population in 1901 numbered 15,532.

VELLORE, a town and military cantonment of India, in North Arcot district of the Madras presidency, on the right bank of the river Palár in 12° 55' 17" N. latitude and 79° 10' 17" E. longitude. After the fall of Seringapatam (1799) Vellore was selected as the residence of the sons of Tippoo Sahib, and to their intrigues has been attributed the revolt of the sepoys at Vellore in 1806. Beside the fortress, the town contains a handsome Vishnuvite temple with some good carving. In 1901 the population was 39,491.

VELVET is a silken textile fabric having a short dense piled surface. It is the type of the numerous forms of piled fabric now made. In all probability the art of velvet-weaving originated in the far East; and it is not till about the beginning of the fourteenth century that we find any mention of the textile. Fustian, however, which differs from velvet only in material, is spoken of in English ecclesiastical inventories as early as the beginning of the thirteenth century. The peculiar properties of velvet, the splendid yet softened depth of dye-color it exhibited, at once marked it out as a fit material for ecclesiastical vestments, royal and state robes, and sumptuous hangings; and the most magnificent textures of mediæval times were Italian velvets. These were in



many ways most effectively treated for ornamentation, such as by varying the color of the pile, by producing pile of different lengths (pile upon pile, or double pile), and by brocading with plain silk, with uncut pile, or with a ground of gold tissue, etc. The earliest sources of European artistic velvets were Lucca, Genoa, Florence, and Venice, and to the present day Genoa continues to send out rich velvet textures. Somewhat later the art was taken up by Flemish weavers, and in the sixteenth century Bruges attained a reputation for velvets not inferior to that of the great Italian cities. The principal seats of the modern manufacture are Crefeld and Lyons; but, at the former center especially, a large proportion of an inferior texture, having a silken pile on a cotton foundation and known as *velveteen*, is now made.

VENANTIUS. See FORTUNATUS.

VENDACE is the name of a British freshwater fish of the genus *Coregonus*, of which two other species are indigenous in the fresh waters of the British Islands, viz., the gwyniad and the pollan. The vendace (*C. vandesius*) is restricted to some lochs in Dumfriesshire, Scotland; it is, however, very similar to a species (*C. albus*) which inhabits some of the large and deep lakes of northern Europe. It is considered a great delicacy, and on favorable days when the shoals rise to the surface, near the edges of the loch, great numbers may be taken. It spawns in November. In length it scarcely exceeds eight inches.

VENDÉE, a maritime department of France, formed in 1790 out of Bas-Poitou, and taking its name from an unimportant tributary of the Sèvre Niortaise, lies between 46° 16' and 47° 5' N. latitude and 0° 32' and 2° 10' W. longitude, and is bounded by Loire-Inférieure and Maine-et-Loire on the north, by Deux-Sèvres on the east, by Charente-Inférieure on the south, and by the Atlantic Ocean on the west for ninety-three miles. The islands of Yeu (or Dieu) and Noirmoutier are included. The plain of Vendée is bare and treeless, but fertile, though poor in springs; geologically it is composed of lias and oolite. The marshes, raised above the sea-level within historic times (four centuries ago), consist of two portions, the Breton marsh in the north and the Poitevin marsh in the south. The region includes salt marshes and cultivated areas artificially drained. Its area is constantly being increased by the alluvium of the rivers and the secular elevation of the coast. Population (1901), 439,637.

Out of the total area of 1,656,531 acres arable land occupies 1,023,275 acres, grass 290,503, vines 37,467, wood 65,853, and moor, pasture, and uncultivated land 136,432. Apples, pears, peaches, plums, cherries, and walnuts are the principal fruits grown. Iron, salt, coal, antimony, lead, "the Vendée diamond" (a kind of quartz), china clay, and slate are obtained; and granite, gneiss, slate schist, limestone, cement, millstones, and clay are objects of industry. The celebrated beds of sea-shells near St. Michel-en-l'Herm—2,300 feet long, 985 broad, and from 30 to 50 feet in depth—show to what an extent the coast has risen. The wool spinning and weaving industry occupies 12,570 spindles and 520 hand-looms; cotton, 3,100 spindles and 5 looms; linen, 388 spindles and 478 looms (80 being power looms). There are potteries, paper-mills, tan-yards, dye-works, a glass-works, manufactories of hats, boots and shoes, and lampblack, flour-mills, distilleries, tile-works, and ship-building-yards, and sardines and tinned foods are prepared—in all 575 industrial establishments. The sardine fishery occupies 800 boats and 2,000 men, and there are extensive oyster-beds near Sables-d'Olonne. Grain, cattle, mules, fish, salt, wine, honey, wood, glass, and manure are exported; wine, wood, building material, and coal are among the imports.

VENDETTA (vengeance), the term used to denote the practice, as it prevails in Corsica, of individuals taking private vengeance upon those who have shed the blood of their relations. In Corsica, when a murder has been committed, the murderer is pursued not only by the officers of justice, whose duty it is to punish offenses against society, but also by the relatives of the slain, upon whom the received views of social duty impose the obligation of personally revenging his death. In such a case the relatives of the murdered man take up their arms and hasten to pursue, and, if they can find him, to slay the murderer. If he succeed in eluding their pursuit the murder may be revenged upon his relatives, and the vengeance may be taken whenever the opportunity occurs; the relatives of a murderer, whose crime is unavenged, have, to live in a state of incessant precaution. When they go to the fields, they take their arms with them, and set a watch; at home, they have their doors well fastened and their windows barricaded; and, since the avenger is never far distant, they live in fact in a state of siege.

The origin of vendetta has often been referred to the lawlessness which prevailed in many parts of Corsica during the period of the Genoese domination, and to the venality which vitiated the Genoese administration of justice. And, no doubt, the insecurity and the maladministration of justice which existed in Corsica for ages, helped to consolidate this barbarous custom, which, thus consolidated, has been perpetuated by the isolated position of the country, and the absence of civilizing influences. But the explanation of its origin must be sought in more general causes, for it is not exclusively a Corsican custom. On the contrary, it may be safely affirmed that a system of private vengeance, almost precisely similar, has existed among every people during certain stages of its progress—never entirely passing away until government became strong enough to insure redress of injuries, and to restrain the passions of individuals.

VENDÔME, a town of France, chef-lieu of an arrondissement in the department of Loir-et-Cher, is situated on the river Loir, 109 miles southwest of Paris by the railway to Tours, at the junction of the line from Blois to Le Mans. The population in 1881 was 7,913 (commune 9,420), the corresponding figures for 1901 being 9,843 and 9,325.

VENEERING is the art of attaching thin sheets or leaves of wood, ivory, etc., to the surface of wood or other material of a less costly or less ornamental description. It is thus in connection with wood, ivory, etc., equivalent to plating in the working of metals. The art is largely practiced in cabinet-work. Veneers are either cut or sawn from solid blocks or planks. The ordinary veneer saw is a circular instrument of large diameter, made up of segments of thin steel bolted on a strong circular iron frame, which gives the requisite stiffness and rigidity to the saw edge. The teeth of the saw are minute and finely set, so as to waste as little as possible of the valuable material as sawdust. With such a saw from eight to sixteen leaves per inch may be cut out of a block of wood and as many as thirty leaves of ivory, one third of the solid being reduced to sawdust. Veneers are also made from certain straight-grained and pliant woods with cutting tools, either by the process of planing or of turning. For these methods of veneer-making, the wood to be operated on is first reduced to blocks of a size equal to the cutting edges by which they are to be made into veneer, and are then steamed in a closed chamber to soften the fiber. In the plane veneer-cutting machines the block of wood may be stationary and the cutter movable, or *vice versa*, and the cutting edge is applied obliquely to the



block. Immediately in front of the cutter pressure is applied to the block to keep the shaving from splitting up. With the planing machine from 100 to 150 veneer leaves can be cut from each inch of thickness. By the lathe-turning method continuous strips of veneer are obtained from circular blocks the width of the cutter, and it is possible to reduce the block till a core of about only nine inches remains. In the cutting, as opposed to the sawing, of veneers there is no waste whatever of the solid material; but cut veneers are not so serviceable, and the most valuable veneer woods, being hard, cross-fibred, and brittle, cannot be treated otherwise than by sawing. In veneering, the surfaces to be united, after roughening, so as to give grip, are coated with thin glue applied very hot, and then tightly pressed together in a veneering press, with heated cauls or plates of zinc applied to their surfaces, these cauls being contoured to the necessary outline when bent veneers are being planted. Should the veneer show any blistering after removal from the press, heat, damp, and local pressure are applied till veneer and wood are solidly cemented together. The surface is afterward smoothed, polished, and finished as in dealing with solid cabinet woods.

**VENEREAL DISEASES.** Three distinct affections are included under this term—gonorrhoea, chancre, and syphilis. At one time these were regarded as different forms of the same disease; and, though gonorrhoea is now generally held to be quite distinct from the other two, there are not wanting eminent authorities, including Mr. Jonathan Hutchinson, who are inclined to look upon chancre and syphilis as essentially one and the same disease. The present writer believes that gonorrhoea, chancre, and syphilis are three distinct diseases, due to separate causes, which have nothing in common except their habitat. The cause in each case is a specific virus, probably a micro-organism. In the case of gonorrhoea the virus attacks mucous membranes, especially that of the urethra; in chancre mucous membranes and the skin are affected; in syphilis the whole system comes under the influence of the poison. Gonorrhoea and chancre correspond to the process of septic intoxication. The organisms on implantation set up a local disturbance, and the products of this fermentative process pass into the system and give rise to constitutional effects; but the organisms themselves do not pass into the system generally. In syphilis, on the other hand, there is a true infective process: the organisms pass into the general circulation and live and multiply wherever they find a suitable nidus. The joint affection commonly called "gonorrheal rheumatism," which sometimes follows gonorrhoea, is in all probability an infective condition. If this is true, then in these rare cases gonorrhoea is infective. The chancre poison may pass into the lymphatics and cause inflammation of the lymphatic glands in the groin, giving rise to *chancreoid bubo*. These clinical facts are undoubtedly opposed to any generalization such as that laid down above, and it is right to note them, but the general comparison between gonorrhoea and chancre as non-infective and syphilis as distinctly infective in its character holds good in the great majority of cases. A further study of these quasi-infective varieties of gonorrhoea and chancre must undoubtedly throw light upon the physiological classification of pathogenic organisms. These three affections are generally acquired as the result of impure sexual intercourse; but there are other methods of contagion, as, for example, when the accoucheur is poisoned while delivering a syphilitic woman, the surgeon when operating on a syphilitic patient. An individual may be attacked by any one or any two of the three, or by all of them at

once, as the result of one and the same connection; but they do not show themselves at the same time; in other words, they have different stages of incubation. In gonorrhoea the disease appears very rapidly, so also in chancre, the first symptoms commencing as a rule three or four days after inoculation. It is very different, however, with syphilis. Here the period of incubation is one rather of weeks, the average length being twenty-eight days, though it may vary from one week to eight. The length of the period of incubation, therefore, is the great primary diagnostic in the case of syphilis.

Syphilis is an infective fever, and its life history may be best considered by comparing it with vaccinia. A child is vaccinated on the arm with vaccine lymph. For the first two or three days nothing is observed; but on the fourth day redness appears, and by the eighth day a characteristic vaccine vesicle is formed, which bursts and frees a discharge, which dries and forms a scab. If on the eighth day the clear lymph in the vesicle is introduced at another point in the child's skin, no characteristic local effect follows. The system is protected by the previous inoculation; this protection will last for some years, and in certain cases for the rest of the patient's life. We have here, then, exposure to a poison, its introduction locally, a period of incubation, a characteristic local appearance at the seat of inoculation, a change in the constitution of the individual, and protection from another attack for a variable period. So with syphilis. The syphilitic poison is introduced at the seat of an accidental abrasion either on the genital organs or on any part of the surface of the body. The poison lies quiescent for a variable period. The average period is four weeks. A characteristic cartilaginous hardness appears at the seat of inoculation. If this is irritated in any way, an ulceration takes place; but ulceration is an accident, not an essential. From the primary seat the system generally is infected. The virus is multiplied locally and, passing along the lymphatic vessels, attacks the nearest chain of lymphatic glands. If the original sore is in the genital organs, the glands in the groin are first attacked; if in the hand, the gland above the inner condyle of the humerus; if on the lip, the gland in front of the angle of the jaw. The affected glands are indurated and painless; they may become inflamed, just as the primary lesion may ulcerate; but the inflammation is an accident, not an essential. From the primary glands the mischief will affect the whole glandular system. The body generally is so altered that various skin eruptions, often symmetrical, break out. Any irritation of the mucous membrane is followed by superficial ulcerations, and in the later stages of the disease skin eruptions, pustular and tubercular in type, appear, and in weakly people in severe cases, or in cases that have not been properly treated by the surgeon, syphilitic deposits termed *gummata* are formed. These, if irritated, break down and give rise to deep-seated ulcerations. Gummata may attack the different organs in the body; the muscles, liver, and brain are the favorite sites. Their presence interferes with the functions of the organs, and, if the organ affected is one functionally important in the economy, may cause death. The individual is as a general rule protected against a second attack, although there have been rare cases recorded in which individuals have been attacked a second time.

Syphilis is treated by many surgeons by giving careful attention to the general health, to diet and regimen and tonics, by placing the patient in the most favorable hygienic circumstances, in the belief that it runs a natural course and has a tendency to natural cure. Special symptoms are treated as they arise. Other surgeons administer small doses of mercury, in the form of gray powder, iodide of mercury, or corrosive



sublimate. If the physiological effects of mercury are observed—tenderness of the gums and a metallic taste in the mouth—this treatment is desisted from and iodide of potassium is administered, mercury being given again when its physiological symptoms have disappeared. Oleate of mercury or mercurial ointment, or mercury with lanoline, is applied to the primary lesion and rubbed in over the enlarged glands. This is continued for six months or a year. In the later stages of the complaint iodide of potassium is the main remedy used. There are therefore two distinct methods of treating syphilis, the non-mercurial and the mercurial. Both methods have been extensively tried by the present writer, and he believes that the mercurial is infinitely preferable to the non-mercurial method. Recent investigations point to the value of corrosive sublimate as a germicide, and in all probability the good results which follow saturation of the system with mercury are to be explained in this way. It is said by the non-mercurialists that the administration of mercury masks the symptoms. There can be no doubt that the symptoms often appear after the mercury is stopped, but in a modified form, and there is no evidence that the mercurial treatment prolongs the disease. Syphilis has a tendency to natural cure, like all the continued fevers, and along with the administration of mercury careful hygienic treatment must receive particular attention, and often in weakly unhealthy people a long sea voyage is of great value. Any means which causes a free action of the skin, as, for instance, by periodic visits to thermal baths, is of great assistance in eliminating the poison.

Syphilis as commonly met with nowadays is not of so severe a type as it formerly was. One reason often given for this is that mercury was formerly always pushed until its full physiological effects were observed, and that the lowering of the patient's constitution by this severe treatment aggravated the primary complaint. There may be some truth in this explanation; but the principal reason in all probability is that the syphilitic organism does not now find so suitable a nidus or soil for its growth and development as it once did. Syphilis in the United States at the present moment is in the stage of an epidemic in its decline. This may be looked on as a startling statement; but it is true of syphilis as of all infective diseases. A time must come when the soil is practically worn out, when it becomes so poor that the organism grows only in a stunted form, producing a mild disease, till in time it ceases to grow altogether. It is not asserted that it will necessarily die out, because after lying fallow for a time the soil may recover its power and the disease be revived in a more virulent form, analogous to the luxuriant crop which follows after a period of fallow. Syphilis can be conveyed by the discharge from any syphilitic lesion occurring within two years after the commencement of the complaint. It cannot be conveyed by the normal secretions of the syphilitic person except in the case of the semen, which, impregnating the ovum in the female, causes the foetus to be syphilitic. Syphilization of the foetus is followed by syphilization of the mother. The blood of a syphilitic person is infectious for two years after the commencement of the attack. Pure vaccine lymph cannot convey syphilis; if, however, it is mixed with blood it may convey it. No person who has had syphilis should marry until he has been entirely free from the complaint for two, or better still for three, years. If a person marries before this time pregnancy greatly increases the risk to the mother. If there is any suspicion of syphilis the mother should take mercury during the period of pregnancy. It is interesting to note how time has a modifying influence in a case of

repeated pregnancies occurring in a syphilitic woman. At first there may be miscarriage in the early stage of pregnancy; after a time abortions in the later stage; there may then be a stillborn child; then one born alive but syphilitic; then a child born apparently healthy but soon becoming syphilitic; and ultimately a healthy child is born and remains healthy, showing no evidence of syphilitic disease. The disease has worn itself out. The relation of apparently healthy people born of syphilitic parents to syphilis acquired during the course of their life may explain those remarkable cases of escape from syphilitic infection which constantly come under the observation of the surgeon.

VENEZUELA, a federal republic in South America, lying between about  $57^{\circ}$  and  $73^{\circ} 30'$  W. longitude and  $1^{\circ} 40'$  and  $12^{\circ} 26'$  N. latitude. The republic claims that the area of its territory is 632,807 square miles; but the boundaries are not yet definitely fixed, and its area is consequently uncertain. In the southwest it claims large tracts extending to the south of the equator, which are also claimed by Colombia and Ecuador; and in the east it claims from British Guiana the upper valley of the Essequibo, together with all the territory on the left bank of that river below the influx of the Rupununi. Of the total area claimed only about 439,000 square miles are actually under Venezuelan administration.

The climate and vegetation are such as might be expected from the tropical situation of the country. But Venezuela, as well as the rest of tropical South America east of the Andes, is directly exposed to the trade-winds. The temperature is thereby considerably moderated, and no such extremes of heat are to be met with as are experienced in the corresponding latitudes of northern Africa. The more populous parts of Venezuela are, however, hotter than the maritime districts of Guiana, being less directly exposed to the Atlantic breezes. At La Guaira the mean temperature of the year is  $85^{\circ}$  Fahr.; at Caracas, only ten miles distant but 3,000 feet higher, it is  $71.2^{\circ}$  Fahr.; and the greatest extremes that have been observed at the latter station since 1868 are  $83.4^{\circ}$  and  $48^{\circ}$  Fahr. At both stations the hottest periods are the middle of April and the end of August, when the sun is in the zenith. Everywhere there is a well-marked distinction between a dry and a rainy season, the latter occurring in the English summer months, when the sun is in the northern hemisphere and the force of the trade-wind on the north coast of South America is considerably slackened. At La Guaira the rainy season proper lasts only three months (May to August); but this season lasts longer in the mountains and in the llanos.

The fauna includes among the mammals the rodents and carnivores common to the rest of tropical South America. The manatee is met with nearly everywhere on the coast. In all the rivers are to be found caymans, electric eels, rays, and caribs, the last (*Pygocentrus piraya*, *P. nigricans*, *P. niger*, Müll.) consisting of several species of savage and voracious fishes armed with two rows of very sharp teeth. Among the venomous serpents are the striped rattlesnake (*Crotalus durissus*), *Lachesis mutus*, an ally of the rattlesnakes, and a rather rare species of *Cophias*. Among the non-venomous sorts the commonest are the boa constrictor, the anaconda (*Eunectes murinus*), and the *Coluber variabilis*. Among birds is a singular form known from its note as the bell-bird (*Chasmorhynchus carunculatus*). Coral banks abound on the coast; like the waters which surround the roots of the mangroves, these teem with marine life, and are peculiarly rich in beautifully colored crustaceans. Swarms of locusts sometimes commit great ravages among the fields and plantations.



The lower slopes of all the mountains are clad with the richest tropical vegetation. Amid an endless variety of dicotyledonous foliage trees, interlaced by numerous twiners and climbers and adorned with epiphytic orchids, *Tillandsia*, aroids, and *Loranthaceæ*, grow numerous palms and tree-ferns, up to the height of about 3,500 feet. From among the forest trees may be singled out for mention the silk-cotton tree (*Bombax Ceiba*), the mango (*Mangifera indica*), the Saman (*Inga saman*)—remarkable, like the last-mentioned, less for its height than for the extent and density of the shade which it casts—the cow-tree (*Brosimum Galactodendron*), and the *Attalea speciosa*—this last being one of the finest ornaments of the palm tribe, a tree whose stem, 40 feet in height, carries erect on its crown leaves which also grow to a height of 40 feet, with a breadth of 8 feet. The mouths of the Orinoco and many parts of the coast are rendered unhealthy by mangrove swamps, which are no doubt partly to blame for the yearly recurrence of yellow fever in many of the coast towns. From these swamps, however, La Guaira is free, and there the yellow fever is not a regular visitant.

The two chief crops grown for food are manioc and maize, the latter being generally ground coarse and baked into a kind of cakes called *arepas*, which are eaten hot like the Mexican tortillas. Among other vegetable products which take an important place in the Venezuelan dietary are all kinds of tropical fruits, including several kinds of melons and pumpkins, the sugar-cane (the sugar in a little refined condition, known as *papelón*, being a favorite article of food), the taro, sweet potatoes, various beans (including two species of *Phaseolus*, which grow only high up in the mountains, but are highly prized everywhere), and a species of hemlock (*Conium moschatum*), which is eaten like celery. Of plantation products grown for export by far the most important are coffee and cocoa, next after which come tobacco and cotton.

The principal minerals of Venezuela are gold, copper, phosphates, and coal. The rich auriferous deposits on the banks of the Yuruari lie 100 miles southwest of the principal mouth of the Orinoco. At Aroa in the north-west, about seventy-five miles west of Puerto Cabello, are rich deposits of copper ore. Phosphates are obtained from the islands of Orchilla and Aves, which lie to the east of the Leeward Islands of the Dutch. A large deposit of bituminous coal, said to be of very good quality, exists about six miles south of Barcelona, and a concession for a railway from this port to the coal-bed has been obtained from the government. Another extensive deposit of bituminous coal has been found on the banks of the Utare, a small stream which empties itself into the sea about forty miles east of La Guaira. Good petroleum is refined from deposits worked near Belijoque in the State of Los Andes. Both gold and copper ore are important exports, gold ranking in this respect next after coffee.

Manufacturing industries are in general undeveloped. Artisans from Europe and North America are now settled in all the chief towns, and cotton weaving factories have been established. The manufacturing industries most extensively pursued are the making of shoes and hats. The latter industry is chiefly in the hands of Germans. A material called jipijapa is very largely used for the making of a kind of hats in imitation of Panama straw hats.

The principal exports, besides the plantation products and minerals already mentioned, are hides and skins, coir, and animals; those of minor importance are starch, indigo, sugar, tonqua beans, cinchona, caoutchouc, divi-divi, cocoa-nuts, copaiba balsam, plants, and timber.

The principal imports are manufactured articles, drugs, and wine, the last from Spain. Petroleum is imported from the United States, though it is expected that the native supplies will soon meet the home demand. Foreign commerce is chiefly carried on with the United States, Germany, France, and England.

*Population, Area, etc.*—The republic is divided into eight states, eight federal territories, the federal district, and two national colonies, the names of which, with their area in square miles and their population according to an official estimate for January 1, 1891, are given below:

	Area.	Population.
<i>States</i> —		
Carabobo .....	2,984	198,021
Miranda .....	33,969	484,509
Lara .....	9,296	246,760
Los Andes .....	14,719	336,146
Zamora .....	25,212	246,676
Falcon and Zulia .....	36,212	224,566
Bolivar .....	88,701	50,289
Bermudez .....	32,243	300,597
<i>Territories</i> —		
Alto Orinoco	350,562	140,930
Amazonas		
Yuruari		
Caura		
Goajira		
Colon		
Armistico	45	89,133
Delta		
Federal District .....	45	89,133
	593,943	2,323,527

Caracas, the capital, had in 1895 a pop. of 72,429; Valencia, 38,654; Maracaibo, 34,284; and Barquisimeto, 31,476.

The Roman Catholic is the religion of the state, but liberty of worship is guaranteed by law. So far as legislative enactment goes, elementary education is now well provided for. There are two universities (Caracas and Merida), nineteen federal colleges, and various other public and private institutions for higher education. The standing army consists of about 2,800 men, but every male subject between eighteen and forty-five has to be enrolled in the national militia. The monetary system of Venezuela is that of the Latin convention, the franc being represented by the *bolivar*. The French metric system of weights and measures is likewise the legal system; but the old weights, the libra=1.014 pounds avoird., the quintal=101.4 pounds avoird., and the arroba=25.35 pounds, are also in use.

The constitution is modeled to some extent on that of the United States. At the head of the executive is a president, who is assisted by eight ministers and a federal council. The legislative authority is vested in a congress of two houses—a senate (twenty-four members) and a chamber of deputies (fifty-two members). The members of the chamber of deputies (one for every 35,000 inhabitants, and one more for an excess of 15,000), are elected every four years directly by the electors of the states and the federal district, those of the senate by the legislative bodies of the different states (three for each). The congress elects the members of the federal council, in which there is one senator and one deputy for each of the political divisions of the republic, and one deputy for the federal district. The federal council elects the president. The federal council and the president remain in office for two years.

The coast of Venezuela was the first part of the American mainland sighted by Columbus, who, during his third voyage in 1498, entered the Gulf of Paria and sailed along the coast of the delta of the Orinoco. It



the following year a much greater extent of coast was traced out by Alonzo de Ojeda, who was accompanied by the more celebrated Amerigo Vespucci. In 1550 the territory was erected into the captain-generalcy of Carácas, and it remained under Spanish rule till the early part of the nineteenth century.

In 1810 Venezuela rose against the Spanish yoke, and on July 14th in the following year the independence of the territory was proclaimed. A war ensued which lasted for upwards of ten years, and the principal events of which are described under BOLIVAR (*q. v.*), a native of Carácas and the leading spirit of the revolt. It was not till March 30, 1845, that the independence of the republic was recognized by Spain in the treaty of Madrid. At the date of the battle of Carabobo (1821), by which the power of Spain in this part of the world was broken, Venezuela formed part of the federal state of Colombia, which embraced also the present Colombia and Ecuador; but a meeting of Venezuelan notables on November 26, 1829, declared for the separation of their country from the confederacy. Venezuela passed through the first years of its independent existence with more quietness than the other members of the confederacy. In 1846 there began a series of civil wars and revolutions, which continued, with but short periods of rest, down to the close of 1870. The chief rival parties in these internal dissensions were the Unionists and the Federalists; the former aimed at securing a strong central government, while the latter, who were ultimately victorious, desired to obtain a large measure of independence for separate states. It was during these troubles that the emancipation of the slaves took place, under a law of March 24, 1854. On March 28, 1864, a federal constitution was drawn up for the republic. Three years later, however, the civil war broke out again, and matters continued in an unsettled state, till in December, 1870, Don Guzman Blanco, who had taken the leading part on the side of the Federalists, was declared provisional president. From that date Blanco acted as dictator till February 20, 1873, when he was elected constitutional president for four years, and the confederacy has since continued progressive.

In December, 1895, the long dispute on boundaries with British Guiana enlisted the sympathy of the United States, when President Cleveland demanded peremptorily that Great Britain should submit the question to international arbitration. The United States Congress also provided a commission to report on the merits of the controversy, its members being Justices D. J. Brewer and R. H. Alvey, and Messrs. F. R. Coudert, D. C. Gilman, and A. D. White.

**VENICE.** Although the numerous marshy islands of the lagoons extending along the northwestern shores of the Adriatic between Altinum and Adria are known to have been largely used from the beginning of the fifth century by the inhabitants of Venetia—one of the twenty-nine provinces into which Italy was divided by Constantine—as temporary retreats from successive barbarian invasions, the first permanent settlement on the site of the present city of Venice—the Rivo Alto (Rialto) and its numerous adjacent islets—cannot with certainty be traced farther back than to the beginning of the ninth century. The physical conditions with which the earliest inhabitants had to deal were such as might seem singularly unpropitious to the growth of a large and prosperous city. Their untillable and salt-incrusted soil possessed no kind of mineral wealth; the thickets which here and there diversified the surface of the barren marshes produced no serviceable timber; and even drinkable water was hardly obtainable; yet it was here that the Venetians by their inventiveness, their energy,

their industry, and their genius for commerce succeeded in establishing themselves on a firm soil and maintaining their independence, in making their neighbors their tributaries, in sending their fleets to distant shores, in controlling the destiny of empires, and consolidating a naval power that is unique in the history of the world.

The year 810 was one of the most important in the annals of Venice; it was then that the people finally abandoned the mainland in order to make the Rivo Alto with its surrounding islets the permanent seat of their government. The same year witnessed the beginnings of the basilica of St. Mark. From 811 to 1026 there was a succession of eighteen doges, of whom no fewer than fifteen were selected out of three leading families, political power thus plainly tending to become hereditary. Toward the end of the tenth century the doge Pietro Orseolo by a vigorous effort cleared the sea of pirates, who dwelt on the eastern coast of the Adriatic and seriously harassed the Venetian commerce, and pursued them into the recesses of Quarnero and the islands of Istria. Having thus given full security to trade, he constituted himself protector of the sea from Trieste to Albania, receiving in consequence the title of duke of Dalmatia.

Under Sebastiano Ziani, the constitution underwent a modification. The citizens, already divided into quarters (*sestieri*), nominated twelve electors, who in their turn made choice of forty picked citizens in each of the divisions of the city. The 480 thus chosen constituted the great council, a body possessing at once deliberative and executive functions.

The fourteenth century is remarkable for a series of conspiracies. The conspiracy of Marino Bocconio in 1300, that of Bajamonte Tiepolo ten years later, a third in 1328, and finally that associated with the name of Marino Faliero (1355), without actually imperiling the existence of the state, compelled the great council to take measures against the recurrence of such movements, and resulted in the creation of the "council of the ten," that powerful and mysterious body the significance of which still continues to exercise the ingenuity of the modern historian. Of these four conspiracies the first three were certainly aimed at the restoration of popular rights; the fourth, on the other hand, arose out of an ambitious attempt to seize personal power.

The large extension of its territory on the mainland in the fourteenth century marks an important stage in the history of Venice. From being essentially a naval power, the republic now began to be an important continental one; and thenceforward down to the seventeenth century it threw its sword into the balance on every occasion on which Italy was made the battleground of Europe.

Meanwhile a new danger was arising to Venice out of the Turkish advance in Europe. Mohammed II. became master of Constantinople in 1453. Except for one united effort toward the end of the sixteenth century by Spain, Venice, and the pope, which resulted in the victory of Lepanto (1571), the banner of St. Mark was almost invariably unsupported in its contest with the crescent. At Negropont (1470), Smyrna, and Scutari (1474) Erizzo, Mocenigo, and Loredano valiantly maintained the honor of their flag; but after a struggle of several years the Venetian possessions in the archipelago were lost and the proud city was compelled to cede Scutari (1479), Negropont, and Modone. Nor was this all; the geographical discoveries of the Portuguese and the Spaniards were about to inflict an irreparable blow on the maritime supremacy of Venice. Although the bold feats of Columbus and Vasco da Gama deeply stirred her enthusiasm, yet times had changed.



Having entered into treaty relations with Florence, Milan, and the Vatican, she found herself continually involved in ceaseless struggles, which demanded the presence of her mercenaries now in the plains of Lombardy, now in the Romagna, sometimes even in the kingdom of Naples. At the close of the fifteenth century, after a forty years' dispute over the fragments of the Lombard kingdom, which had fallen into the hands of the condottieri, the Italians saw the Alps twice crossed by the French and their country turned into a European battle field. The efforts of the Venetians to extend their possessions on *terra firma* along the Italian shore of the Adriatic and inward toward Bergamo provoked the Italian captains who had founded hereditary dynasties to unite with the pope and the king of France in opposing their further progress. Thus arose the League of Cambrai, which brought the republic to the verge of extinction. The battle of Ravenna in 1512 and that of Marignano in 1515 changed the whole aspect of affairs; new combinations were formed; and the treaty of Noyon restored to the republic all the continental territory she had lost.

Nevertheless, the commonwealth was not allowed to rest, but was compelled henceforth to live constantly on the defensive, on the one hand against the Turks, who were a standing menace, and on the other, watching every movement and enterprise of the Italian princes, who would not suffer her to remain neutral in their incessant conflicts. The result of the battle of Lepanto, October 7, 1571, was apparently the complete destruction of Turkey's naval forces. But the mutual jealousies of the allied powers served to counteract the effects of the victory, and the peace which followed, instead of being advantageous to the victors, turned out much to their prejudice.

Every day new differences and mutual recriminations arose among the allies, and at length the idea of a peace with the Turks began to be broached in the councils of the republic. Such a proposal, however unlooked for, was suggested by considerations of the most practical kind, and by a just appreciation of the resources of the Ottoman empire; and the resulting negotiations, which were secretly conducted, led to a treaty being signed on March 15, 1573. By that treaty twenty years of peace were guaranteed to the republic; but it reversed the position of parties, and the vanquished of Lepanto now figured as victors. Nor was this all: it was not forgotten that Venice was tributary to the sultan; her dues were doubled and a war indemnity of 300,000 ducats was stipulated for. On the other hand, the commercial privileges hitherto enjoyed by the republic were confirmed, and the freedom of the seas was guaranteed.

In literature and art Venice was the link between Italy and Greece. Its Eastern colonists learned the Greek tongue; and the fall of the Greek empire brought to them its banished men of science and letters, who taught in their university and introduced to the Venetians the works of the ancients. Guarino of Verona opened to them Xenophon, Strabo, Lucian, Orpheus, Arrian, Dio, Procopius, Diodorus of Sicily, and Plato. At the same time they made Oriental architecture their own, impressing on it the stamp of their special needs and national genius. The Arabs gave them the manufacture of gunpowder and glass, and taught them decorative art; and from Persia they learned to weave costly tissues; while their plastic arts retained a reflection of the sunny lands which, for geographical reasons, were the source of their riches and the chief object of their preoccupation. Nor must it be forgotten that the city welcomed from the first the art of printing, and stamped it with

its own individuality. Venice, more than any other town, has the credit of having rescued from oblivion, by editions and translations, the masterpieces of Greek literature. The literary talent of Venice did not shine in works of imagination; but on the utilitarian side it was really great and original. In Venice history was written to order, and so is open to suspicion. In poetry, if we may cite Pietro, Bembo, Molza, Berni, Lodovico Dolce, Doni, Nicolo Franco, Rucellai, Sperone Speroni, and L. Aretino, whom his contemporaries called *Il Divino*, as all Venetians or refugees claiming the greater freedom of thought which Venice then afforded, we must yet admit the lack of a name of world-wide significance, a Dante or a Molière. But the library of St. Mark's shows the respect of the republic for letters; the building that housed the MS. collections bequeathed by Petrarch and Cardinal Bessarion is, perhaps, the most perfect model of sixteenth century architecture; and the librarian of the Marciana was, in virtue of his office, so high a personage that he had a title to be voted on by the senate and the great council for the ducal crown.

The doge Pasquale Cicogna, elected in 1585, was succeeded in 1595 by Marino Grimani, whose rule was marked by grave dissensions between the senate and the Vatican. The house of Este came to an end in 1597, Pope Clement VIII. declaring Caesar d'Este, the nephew of Alphonso II., duke of Ferrara, incapable of succeeding him. But Venice supported his claims and was ready to enforce them by war, when he ceded Ferrara to the pope, contenting himself with the dukedom of Modena and Reggio. This solution brought the Vatican into a permanent rivalry with Venice—a grave matter, since at the beginning of the century Caesar Borgia had seized the Romagna in the name of Alexander VI., and Julius II. had occupied Bologna, so that the Estates of the Church bordered on those of the republic. There were other causes of dissension also: Venice had never been on cordial terms with the Papacy; the recognition of Henry of Navarre had given umbrage at Rome; and, though peace was made for a time, the quarrel recommenced, and in 1606 Paul V. launched an interdict at the republic. The Venetian clergy made no contribution to public burdens; the tithes required in time of war could be raised only by a special papal brief, and this privilege the senate claimed the right to suppress. To this Sixtus V. had consented; but his successor was less complaisant. In face of the new pretensions of the Vatican the Venetians multiplied restrictive measures against the clergy, and the conflict grew hotter on both sides, till Paul V. laid the republic under the interdict—a step that still struck terror into nations. The hostile Spaniards were not without their share in this measure. But the supple Venetians made no appeal to temporal arms: they left the negotiation of the difficulty to theologians, and Paolo Sarpi made peace between Rome and the senate.

Peace was unbroken from 1631 to 1645. But in the latter year the Turks suddenly fell on the island of Crete. Surprised by the suddenness of the attack, the senate appealed to Europe for aid, and the Vatican, Florence, Naples, and the knights of Malta came to their succor; but after an alliance of thirty-seven days all the helpers regained their ships and left the Venetians to confront the enemy alone. The struggle was valiantly maintained and cost Venice, between 1645 and 1669, no less than 4,392,000 ducats. The siege of Candia alone lasted twenty-two years, and for three successive years the combats were continual. At length, on September 6, 1669, the Turks were masters of the island.

The first thirteen years of the eighteenth century



when almost all Europe was involved in the War of the Spanish Succession, were a time of repose for Venice, which remained neutral; but hardly was the peace of Utrecht concluded when the Turks resumed the offensive against the republic, which now had no allies. One after the other the islands and colonies ceded by the peace of Carlowitz were retaken; the Morea again became Turkish; Dalmatia was saved only by the interposition of Austria, which had need of the friendship of Venice to checkmate the projects of Philip of Spain against the Italian duchies. But soon the emperor found it necessary, in view of the struggle with Spain, to come to terms with the sultan; and his allies, the Venetians, were included in the peace of Passarowitz signed between Austria and Turkey July 21, 1718. From this moment Venice ceased to have any influence on European politics: she had no more wars, if she still had enemies, signed no more treaties, and, in a word, had abdicated her place in Europe.

The government meanwhile went on in the old form. The successive doges were still tied by the restrictive laws which made them crowned prisoners; but rivalries sprang up between the great powers of the state: the senate attacked the institution of the *savii*, the ministers delegated to each branch of the administration, and in turn the magistrates known as the *quarantie* proposed to reform the senate, while, lastly, the council of ten was threatened by the great council. In the midst of these reforms, which were calculated to make a great change in the institutions of Venice, the French Revolution broke out. Ludovico Manin had just become doge (1788), but was a mere cipher in the councils of the state. Soon the Venetians were called on to recognize the French republic; they refused, but did not join the coalition against it. When Bonaparte was at the gates of Mantua, they at length decided to treat with him; but it was too late. Mantua capitulated February 2, 1797; the Venetian envoys presented themselves before Bonaparte March 25th; and on April 18th the Austrians signed the peace of Leoben, which left Venice without an ally at the feet of the victorious invaders of Italy. On May 8th the great council decided to offer no resistance to the French; the doge abdicated on the 12th; and Napoleon entered the city on the 16th, and proclaimed the end of the republic. On October 17th following, Bonaparte, by the treaty of Campo Formio, abandoned the territory of Venice to Austria. Venice was buffeted to and fro between France and Austria from 1798 to 1814, when the new coalition assigned her to Austria. Till 1866 Venice remained Austrian, save for a few hours in the insurrections of 1848-49; but her people never acknowledged the rights of those who had bought and sold them like a flock of sheep. The war between Austria and the allied Prussians and Italians in 1866 gave Venice her freedom, and the unity of Italy was at length accomplished under the scepter of the house of Savoy (see ITALY).

The early bridges of Venice were wooden structures; even that over the Rialto was of no more durable material till the present bridge was built in 1591. Many were mere planks nailed on boats. One of the earliest built in stone was that by the southeast angle of the ducal palace, called the Ponte della Paglia, which was founded in 1360. Its name ("the bridge of straw") appears to be due to the fact that it was built with money from the tax on straw, large quantities of which were used to thatch the early houses of Venice. Till about the middle of the nineteenth century the Rialto was the only bridge across the Grand canal.

Owing to its isolated position on the verge of Italy, and its constant intercourse with the eastern shores and islands of the Mediterranean, Venetian architecture was

an independent development, though with many Oriental characteristics, having a character of its own quite unlike the styles employed in other Western countries. It was a very complex growth, in which the most diverse styles were absorbed and blended together in a very beautiful way.

In spite of its position on a number of small sandy islands in the lagoons, Venice was built upon firm and solid foundations, so that very few houses have suffered seriously from settlement. At a depth of ten to sixteen feet there is a firm bed of very stiff clay, and below this a bed of sand and gravel, and then a thin layer of peat. Here the builders dug down to the bed of stiff clay, and over the whole area of the footings of the tower drove in piles of white poplar, ten to eleven inches in diameter, nearly touching one another. On the top of these a level platform was formed by two layers of oak trees (*Quercus robur*), each roughly squared, the upper layer being laid crosswise upon the lower one. The oak and poplar both grew along the shores close to Venice; in later times, when the Venetian territory was extended, the red larch (*Pinus Larix*) of Cadore and the Euganean Hills was largely used, as, for example, in the foundations of the ducal palace. Another way of forming foundations, which was used in rather later times, was to omit the piles altogether and build footings with a wider spread. The use of trachyte for foundations was soon superseded by that of Istrian limestone, a very beautiful cream-colored stone, extremely fine and close in texture and capable of receiving a very high polish. Though not crystalline in grain, and, technically speaking, not a true marble, this Istrian stone has for most architectural purposes all the beauty of the finest white marble, and receives from age a beautiful golden-russet patina, very much like that assumed by Pentelic marble. From the eleventh century onward it was used very largely for plinths, angle-quoins, string-courses, window tracery, and other decorative purposes. Throughout the Middle Ages the main walling of Venetian buildings was always of fine brick; usually a rich red in color, made and fired in the kilns of Murano. Before 1405 the mortar used in Venice was made of the white lime from the Istrian limestone. But after that year, when the Venetians conquered Padua, they were able to get supplies of a strong hydraulic dark lime from Albettone, which formed a very durable cement or mortar, able to resist salt water and the destructive sea air. One of the chief glories of Venice depends on its extensive use of the most beautiful and costly marbles and porphyries, which give a wealth of magnificent color such as is to be seen in no other city in the world. In early times none of these seem to have been obtained direct from the quarries, but from older buildings, either of Roman or early Byzantine date. Thus Venice became a magnificent storehouse in which were heaped the rich treasures accumulated throughout many previous centuries by various peoples. The principal varieties used in the palaces of Venice are—the red porphyry of Egypt and the green porphyry of Mount Taygetus, red and gray Egyptian granites, the beautiful lapis Atracius (verde antico), Oriental alabaster from Numidia and Arabia, the Phrygian pavonazetto with its purple mottlings, cipollino from Carystus, and in great quantities, the alabaster-like Proconnesian marble with bluish and amber-colored striations. Till the fourteenth or fifteenth century the white marbles used in Venice were from Greek quarries—Parian of Pentelic—being all (like the colored marbles) stolen from older buildings, while in later times the native marble of Carrara was imported.

The façades of the chief palaces of Venice down to the end of the fifteenth century were wholly covered



with these magnificently colored marbles. But that was not all; a still greater splendor of effect was given by the lavish use of gold and color, especially the costly ultramarine blue. Very frequently the whole of the sculpture, whether on capitals, archivolts, or frieze-like bands, was thickly covered with gold leaf, the flat grounds being colored a deep ultramarine so as to throw the reliefs into brilliant prominence. The less magnificent palaces were decorated in a simpler way. With the early years of the sixteenth century and the later development of the Renaissance totally different methods of architectural decoration superseded the use of precious marbles and delicate repeated ornament in color. The Pseudo-Classic buildings of Sansovino, Palladio, and their schools were treated simply as a ground on which to paint large frescoes with figure subjects, not designed with any sense of the true principles of architectural decoration. These frescoes, which covered the otherwise unornamented façades of many of the sixteenth century palaces, were often the work of the greatest painters, from Giorgione to Tintoretto; the colossal groups dwarfed the building they were painted on, and were far inferior in decorative effect to the simpler patterns of earlier times. These, too, have mostly perished: on the *fondaco* of the Germans, once covered with frescoes painted jointly by Titian and Giorgione, only traces of two figures now remain.

*Painting.*—For an account of Venetian painting the reader is referred to the separate articles on the various painters, and to SCHOOLS OF PAINTING.

*Sculpture.*—Till the fourteenth century Venice continued to adhere to the old Byzantine style of sculpture. In the early part of the fourteenth century Florentine influence rapidly gained ground, and many sculptors from Florence came to work on the richly carved capitals of the ducal palace and other places, and especially produced a large number of very beautiful tombs, with recumbent effigies. One very graceful type, the general motive of which was first used by Arnolfo del Cambio (see ORVIETO), was frequently repeated; at the head and foot of the effigy an angel is represented drawing a curtain so as to expose the figure of the dead man. The sarcophagus, on which the effigy lies, has reliefs of the Virgin and the Angel of the Annunciation, with the Crucifixion or some other sacred subject between. In later times these subjects were usually replaced by allegorical figures of the virtues, and the simple curtain, drawn by angels, gradually became a large tent-like canopy, of rather clumsy and tasteless form. In most churches the sculptured decoration, apart from that on the tombs, was concentrated on the west façade, the tympanum of the central doorway being often filled with a very fine relief, such as that from the church of the guild Della Misericordia, now in the South Kensington Museum. In domestic architecture sculpture was but little used after the Byzantine period, the splendor of the façades depending mostly on their rich-colored marbles and on molded tracery and string-courses.

Though not the work of a Venetian, Venice possesses what is perhaps the most magnificent equestrian statue in the world, the colossal bronze portrait of the Venetian commander-in-chief, Bartolomeo Colleoni, which stands in the square at the west end of SS. Giovanni e Paolo. It was modeled by the Florentine VERROCCHIO (*q.v.*), and was cast, after his death, by Alessandro Leopardi, who also designed the pedestal; the whole was completed in 1495.

*Minor Arts.*—During the early part of the mediæval period the Venetians had no great skill in metal-work. Some of the bronze doors in the west façade of St. Mark's are importations from Byzantium. That on the right,

which has rude figures of saints inlaid in silver, was brought to Venice in 1204; another with a Latin inscription appears to be native work of about the year 1112; both are very rude in design and execution. The open bronze grills of the west atrium doorways, which are signed as the work of a Venetian goldsmith, Bertuccius, in 1300, show no increase of technical skill. Nor was the silver-work any better: the large silver rood in St. Mark's is a very coarse piece of work. In the latter part of the fifteenth century Venetian skill in bronze-work had greatly increased. Leopardi, who cast Verrocchio's statue of Colleoni, was a bronze-worker of great eminence; and in the following century the bronze doors and the font cover in St. Mark's, by Jacopo Sansovino, are models of technical excellence, though showing some decadence of taste in their design. The great bronze lion on the west façade of St. Mark's, cast by Gaetano Ferrari in the first half of the nineteenth century, is a really fine work. A great deal of beautiful metal-work, especially in copper and bronze, such as large salvers, ewers, and the like, was made during the fifteenth and sixteenth centuries, partly by Moslem workmen and partly by native Venetians who adopted Oriental designs.

Moslem influence was especially strong in the case of woven stuffs, for which Venice became very celebrated in the fifteenth century. Its damasks and other silk stuffs, with patterns of extraordinary beauty, surpassed in variety and splendor those of the other chief centers of silk weaving, such as Florence and Genoa. In addition to the native stuffs, an immense quantity of costly Oriental carpets, wall-hangings, and other textiles was imported into Venice, partly for its own use, and partly for export throughout western Europe. Thus, in wealth of gorgeous stuffs and embroideries Venice surpassed all other cities, and on occasions of festivals or pageants the balconies, the bridges, the boats, and even the façades of the houses were hung with rich Eastern carpets or patterned textiles in gold and colored silk. The glass manufactory of MURANO (*q.v.*), a small island about one and one-half miles to the north of Venice, was a great source of revenue to the republic; the glass-workers enjoyed special privileges, and great pains were taken to preserve the secrets of the craft. Glass drinking cups and ornamental vessels, some decorated with enamel painting, and "silvered" mirrors were produced in great quantities from the fourteenth century downward, and exported to other European countries, where they were sold for high prices. Much beautiful glass-work is still produced in Murano, but the workmen have lost all power of original design, and do little but copy the forms invented in the fifteenth and sixteenth centuries. Like many other arts in Venice, that of glass-making appears to have been imported from Moslem countries, and the influence of Oriental design can be traced in much of the Venetian glass. The art of making stained glass windows was not practiced by the Venetians; almost the only fine glass in Venice is that in a south transept window in the Dominican church, which, though designed by able Venetian painters, is obviously the work of foreigners.

The modern city stands on 117 islands separated by 150 canals (*rio*) and united by 380 bridges; all the main traffic passes along the canals. The usual range of tide-level is about twenty inches; but under exceptional circumstances there is a difference of nearly six feet between lowest and highest water. The name "gondola" given to the passenger boats does not occur earlier than the fourteenth century. As shown in Carpaccio's and Gentile Bellini's pictures (*c.* 1500), the gondola of that date was quite unlike the present boat with its heavy black cabin and absence of any coloring.



the older form had an awning of rich stuffs or gold embroideries, supported on a light arched framework open at both ends. The peculiar method of rowing with one oar at the stern is the same now as it was in the fifteenth century, and probably much earlier. Since 1880 "omnibus" steamers have been introduced on the Grand canal, which has also been disfigured in the nineteenth century by the addition of two hideous iron bridges, over one of which passes the railway that connects Venice with the mainland. Before the Venetian republic was suppressed by Napoleon I. the population amounted to nearly 200,000; in 1830 it had sunk to about 100,000; but since then it has increased, and in 1901 amounted to 151,841 (commune 165,637). The city has grown rapidly in prosperity since its restoration to the kingdom of Italy, and it is now second only to Trieste among the seaports of the Adriatic. The climate is mild but somewhat rainy, owing to the water-surrounded site. The principal manufactures of the city remain what they were in the Middle Ages, namely, gold and silver work, glass, and velvet and silk, to which must now be added cotton, in all of which, as well as in grain, oils, wine and spirits, fruits, drugs, fish, and hides and leather an active trade is carried on.

VENLO, a frontier town of Holland, in the province of Limburg, on the right bank of the Meuse (here crossed by a bridge), is an important railway junction; Cologne lies sixty miles to the southeast and Maestricht forty-three miles to the southwest. The population, which is somewhat closely packed, was 8,494 in 1876, and 12,550 in 1900.

VENOSA (anc. VENUSIA), a town in Southern Italy, in the province of Basilicata, 100 miles east-northeast of Naples. The unfulfilling interest of Venosa arises from its being the birthplace of HORACE (*q.v.*) In one of the streets is a column surmounted by the bust of the poet; and many of the localities of the vicinity can be identified with the places he has immortalized. Population, about 7,000.

VENTILATION is the process of changing the air of rooms and other closed places so that a certain standard of purity may be preserved notwithstanding the vitiation which the air undergoes from the breath of inhabitants, the products of combustion of illuminating agents, and other causes. In estimating the amount of air to be supplied, account must be taken of the standard of purity which is aimed at and of the rate at which vitiation occurs.

Of the various impurities that are found in the air of inhabited rooms carbonic acid forms the most ready index of the ventilation. The open air of London and other large inland towns contains about four parts by volume of this gas in 10,000 of air. In the country and in towns near the sea two or three and one-half parts in 10,000 is a more usual proportion. Authorities on ventilation usually take four parts in 10,000 as the standard for pure air, and use the excess over that quantity in estimating the adequacy of the air supply. But they differ as to the proportion to which the carbonic acid may be allowed to rise in good ventilation. It is generally admitted that the air in which people dwell and sleep should not under any circumstances be allowed to contain more than ten parts in 10,000. De Chaumont, judging by the rough and unsatisfactory test afforded by the sense of smell, concluded that the air of a room ceased to be good when it contained eight volumes of carbonic acid in 10,000 of air, and recommends that six parts in 10,000 be taken as the maximum permissible in good ventilation. Parkes, in his *Manual of Hygiene*, quotes observations which point to an equally exacting standard as desirable. The rate at which an adult respire carbonic acid varies widely with his condition of

repose, being least in sleep, greater in waking rest, and very much greater in violent exercise. As a basis on which to calculate the air necessary for proper ventilation we may take the production of carbonic acid by an adult as 0.6 cubic feet per hour. Hence he will produce per hour, in 6,000 cubic feet of air, a pollution amounting to one part of carbonic acid in 10,000 of air. If the excess of carbonic acid were to be kept down to this figure (1 in 10,000), it would be necessary to supply 6,000 cubic feet of fresh air per hour; if the permissible excess be two parts in 10,000, half this supply of fresh air will suffice; and so on.

To preserve the lowest standard of purity tolerated by sanitarians, ventilation must go on at the rate per person of 1,000 cubic feet per hour, and 3,000 cubic feet per hour are required to preserve the higher standard on which some authorities insist. Parkes advises a supply of 2,000 cubic feet of air per hour for persons in health and 3,000 or 4,000 cubic feet for sick persons. The English Barracks Improvement Commissioners require that the supply be not less than 1,200 cubic feet per man per hour. Gas lights add to the vitiation of the air of rooms at a rate which may be roughly estimated by treating one cubic foot of gas burnt per hour as nearly equivalent to one adult person, so far as the production of carbonic acid is concerned. Thus an ordinary burner, giving a light of about twenty candles and burning four cubic feet of gas per hour, uses the air of three or four men.

The purity of the air of a room depends, of course, to some extent, on the proportion of its cubic capacity to the number of inmates. The influence of capacity is, however, often overrated. Even when the allowance of space is very liberal, if no fresh air be supplied, the atmosphere of a room quickly falls below the standard of purity specified above; on the other hand, the space per inmate may be almost indefinitely reduced if sufficient means are provided for systematic ventilation. Large rooms are good, chiefly because of their action as reservoirs of air in those cases (too common in practice) where no sufficient provision is made for continuous ventilation, and where the air is changed mainly by intermittent ventilation, such as occurs when doors or windows are opened. It must be borne in mind, too, that no room is hermetically sealed. In the absence of proper inlets and outlets casual ventilation goes on through every chink and cranny, and even by diffusion through the plaster of the walls. The ventilation given in this way is generally most inadequate; but a large room has at least the advantage over a small one that it offers more chances for the casual entrance of fresh air, as well as a larger wall-surface through which diffusion may occur. It has also the advantage that a greater volume of air may more easily be passed through it than through a small room in a given time, without causing disagreeable draughts.

The atmosphere of rooms is changed partly by diffusion, but chiefly by actual currents of air. The experiments of Pettenkofer have shown that air passes to a very sensible extent through the substance of brick walls. In houses built of stone the movement of air through the walls must be insignificant; but, as regards individual rooms, what is chiefly important in this connection is the percolation through dry plaster, causing an exchange of atmosphere to occur between the inside of the room and the space within the lining of the wall, which is generally in communication with other parts of the building and with the external air. In order that the atmosphere of a room should be changed by means of air currents, three things are necessary—(1) an inlet or inlets for the air, (2) an outlet or outlets, and (3) a motive force to produce and maintain the current.



One might think it needless to enumerate such obvious requirements were it not that, in providing appliances which are intended to act as ventilators, one or other of the three essentials is not infrequently overlooked. In systems which are distinguished by the general name of *mechanical* or *artificial* ventilation special provision is made for driving the air, by fans, or by furnaces, or by other contrivances to be described more fully below. In what is called *natural* ventilation no special appliance is used to give motive force, but the forces are made use of which are supplied by (1) the wind, (2) the elevated temperature of the room's atmosphere, and (3) the draught of fires used for heating.

The chief agent in domestic ventilation is the chimney; when a bright fire is burning in an open grate, it rarely happens that any other outlet for foul air from a room need be provided. The column of hot air and burnt gases in the chimney is less heavy, because of its high temperature, than an equal column of air outside; the pressure at the base is therefore less than the pressure at the same level outside. This supplies a motive force compelling air to enter at the bottom through the grate and through the opening over the grate, and causing a current to ascend. The motive force which the chimney supplies has not only to do work on the column of air within the chimney, in setting it in motion and in overcoming frictional resistance to its flow; it has also to set the air entering the room in motion and to overcome frictional resistance at the inlets. In many cases the latter part of the chimney's work is the more considerable of the two. The discharge of air by an ordinary open fire and chimney varies widely, depending on the rate of combustion, the height and section and form of the chimney, and the freedom with which air is entering the room. About 10,000 cubic feet per hour is probably a fair average, about enough to keep the air fresh for half-a-dozen persons. Even when no fire is burning the chimney plays an important part in ventilation: the air within an inhabited room being generally warmer than the air outside, it is only necessary that an up-current should be started in order that the chimney should maintain it, and it will usually be found that a current is, in fact, passing up.

When a room is occupied for any considerable length of time by more than about half-a-dozen persons, the chimney outlet should be supplemented by others, which usually take the form of gratings in the ceiling or cornices in communication with flues leading to the open air.

With regard to inlets, a first care must be to avoid such currents of cold air as will give the disagreeable and dangerous sensation of draught. At ordinary temperatures a current of outer air to which the body is exposed will be felt as a draught if its velocity exceeds two, or at most three, feet per second. The current entering a room may, however, be allowed to move with a speed much greater than this without causing discomfort, provided its direction keeps it from striking directly on the persons of the inmates. To secure this, it should enter, not horizontally nor through gratings on the floor, but vertically through openings high enough to carry the entering stream into the upper atmosphere of the room, where it will mix as completely as possible with warm air before its presence can be felt.

In the natural ventilation of churches, halls and other large rooms we often find air admitted by gratings in the floor or near it—an offensive plan, since it fouls the air, besides causing objectionable draughts, unless the temperature is very carefully regulated. The inlets should consist of upright flues rising to a height of about six feet above the floor, from which the air proceeds in

vertical streams. If the air is to be warmed before it enters, the supply may be drawn from a chamber warmed by hot-water or steam pipes or by a stove, and the temperature of the room may be regulated by allowing part of the air to come from a hot chamber and part from outside, the two currents mixing in the shaft from which the inlets to the room draw their supply. If a basement or story below the room to be ventilated is available, a good plan is to carry the inlet tubes vertically down through it and warm the air in them, so that the height of the warm column assists the flow. Outlets usually consist of gratings or plain openings at or near the ceiling, preferably at a considerable distance from points vertically above the inlet tubes. One of the chief difficulties in natural ventilation is to guard them against down-draught through the action of the wind. Numberless forms of cowl have been devised with this object, and often with the further intention of turning the wind to useful account by making it assist the up-current of foul air.

The two things that supply motive force in automatic ventilation—the difference of temperature between inner and outer air and the wind—are so variable that even the best arrangements of inlets and outlets give a somewhat uncertain result. To secure a strictly uniform delivery of air, unaffected by changes of season or of weather, the influence of these irregular motive forces must be as far as possible minimized, and recourse must be had to an artificial method of driving the air.

This finds application on the largest scale in the ventilation of collieries, by methods which are fully described under COAL and MINING. Motive force is supplied to the up-cast shaft either by a furnace at the base, which heats the rising column of air, or (in more modern practice) by a centrifugal fan, such as Guibal's, exhausting air from the top. The long galleries and workings through which the air has to be driven oppose so much resistance that the pressure required to move a sufficient volume of air is immensely greater than is ever necessary or desirable in the artificial ventilation of buildings.

A broad distinction may be drawn between what are sometimes called vacuum and plenum methods of artificial ventilation. In the former, as in colliery ventilation, the motive force is applied at the outlets: air is drawn from the rooms, and the pressure of their atmosphere is less than the pressure outside. In the latter the motive force is applied at the inlets: air is pushed in, and the pressure within the room is greater than outside. The plenum method has distinct advantages; it makes the air escape instead of coming in as a cold draught at every crevice and casual opening to the outer air; it avoids drawing foul and moldy air from sewers and basement; and with it, more easily than with the other, one may guard against the disturbing influence of wind. In the plenum method the air is driven by pumps or by fans; in the vacuum method pumps are rarely if ever used; suction is produced by fans or by heating the column of air in a long vertical shaft through which the discharge takes place. Water jets and steam jets have also been employed to impel the air.

Extraction by a hot-air shaft is a common mode of ventilating hospitals and other public buildings. Heat is applied by a furnace or stove at the bottom of the shaft, or by coils of hot water or steam pipes, which should not extend up the shaft farther than necessary. In the lecture theater of the Paris art conservatory, ventilated by Morin, where this means of extraction is employed, fresh air enters through the ceiling and foul air is drawn off through the floor from under the seats; this reversal of the natural direction of the current is of course only possible when a sufficient



external motive force is applied. The English House of Commons furnishes another example: there the air, after being warmed and moistened, or cooled by water spray, as the state of the atmosphere may require, is admitted through large gratings in the floor, which are covered by porous matting to prevent draughts; outlets from the top of the house lead by flues to the Victoria tower, where a furnace maintains the current in an up-cast shaft. In theaters and other buildings lighted by clusters of gas jets or sun-lights at the ceiling the lights may be turned to account as effective ventilating agents by letting the foul air escape through shafts placed over them, which they heat at the base. What is known as the Ruttan or Smeed system of ventilation, successfully applied in many schools, employs a hot-air shaft to furnish motive power. In warm weather a stove at the base of the shaft is used to heat the column; in cold weather the exhaust air from the rooms is so much warmer than the atmosphere outside that the up-cast shaft acts without additional heating. This is in fact an example in which the classification of systems into natural and artificial breaks down. The supply of fresh air is warmed as it enters by passing through chambers containing tubular metal stoves; the outlets are at or near the floor level. A curious feature in the arrangements is that the foul air, in passing to the up-cast shaft, is drawn through the privies, where it desiccates all discharges.

Extraction by fans presents no features requiring special remark. A favorite fan for the purpose is the Blackman propeller, the nearly flat form of which allows it to be readily placed in walls and partitions. One of these fans, four feet in diameter, when driven at a speed of about 330 revolutions per minute, is said to discharge 15,000 cubic feet of air per minute with an expenditure of one horse-power.

The plenum method, with fans to drive the air, is exemplified on a large scale in the ventilation of St. George's Hall, Liverpool, where there are four large fans in the basement, driven by a ten-horse-power steam-engine. The building is heated by passing the air through chambers containing coils of hot-water and steam pipes; after the air is warmed it is moistened by injecting steam, and provision is made for washing it by water-spray before it reaches the fans.

When fans are used, either with suction or with pressure, the amount of the current is not strictly independent of those variable motive forces which are the sole agents in natural ventilation; the case is analogous to that of an electric circuit in which several sources of electromotive force are at work, assisting or opposing one another. The fan may be the main agent in circulating the air; but differences of temperature, and at times the action of the wind, may make large variations in the resultant effect. The case is different when pumps are used. A certain quantity of air is delivered at each stroke, and the only effect of these irregular forces is to make the power required to drive the pump sometimes greater and sometimes less. Provided there are no casual inlets and outlets, the amount of air supplied is known with certainty.

The advantage of ample and systematic ventilation is not to be measured only by the low proportion of carbonic acid it secures. Carbonic acid is not the only test of vitiation; it is not even the most dangerous impurity. Another criterion of the foulness of close air is the amount of oxidizable organic matter it contains; still another—and a most valuable one—is the number of micro-organisms, especially of bacteria. The micro-organisms may be determined by Hesse's method of slowly passing a given volume of the air to be examined through a tube coated inside with beef jelly; the germs

are deposited on the nutrient jelly and each becomes in a few days the center of a very visible colony. In outside air the number of micro-organisms, as tested in this way, varies greatly: it is often less than 1 per litre (61 cubic inches); in well-ventilated rooms it ranges from 1 to 20; in close school-rooms as many as 600 per litre have been found. The elaborate researches of Carnelley, Haldane, and Anderson on the air of dwellings and schools illustrate well the value of this test. One of the uses to which they have put it has been to compare schools known to be well ventilated (by mechanical means) with schools ventilated at hap-hazard or not ventilated at all. A large number of trials were made in each case; in the mechanically ventilated school-rooms the average number of micro-organisms was 17 per litre, and in the others 152.

VENTNOR, a watering-place in the southeast of the Isle of Wight, England, is finely situated in the Undercliff district, at the foot of St. Boniface Down, twelve miles south-southwest of Ryde and ten south-southeast of Newport, with both of which there is communication by coach as well as by rail. The town is finely and picturesquely built on a succession of terraces sloping toward the sea, and from its sheltered situation, equable temperature, and comparatively dry atmosphere is regarded as one of the best resorts in England for consumptive invalids. About fifty years ago it was only a small fishing hamlet; now it extends along the shore for a distance of about two miles, including Bonchurch to the east. An esplanade was constructed in 1848, and a pier (645 feet in length) in 1872, which was greatly improved in 1887. The church of St. Boniface at Bonchurch is perhaps the oldest in the island. The population of the urban sanitary district (area 215 acres) was 5,904 in 1901; but there is a considerable population outside the district.

VENTRILOQUISM, the art of producing tones and words without any apparent motion of the lips, and so that the hearer is induced to refer the sound to some other place. It does not depend upon any peculiar structure of the organs of voice, but upon practice and dexterity. The name is founded upon the mistaken supposition that the voice proceeds from the belly. The art of the ventriloquist consists mainly in taking a deep inhalation of breath and allowing it to escape slowly; the sounds of the voice being modified and muffled by means of the muscles of the upper part of the throat and of the palate. The ventriloquist avails himself at the same time of means such as are employed by sleight of hand performers to mislead the attention. Ventriloquism is a very ancient art, and is mentioned by Isaiah (xxix. 4). The Greeks ascribed it to the operation of demons and called ventriloquists Engastrimanteis (belly-seers) and also Euryklytes, from Eurykles, a professor of the art at Athens. In modern times Professor Wyman and Zera Simon are the representative ventriloquists of America; a Frenchman by the name of Alexandre obtained a great reputation for his mimetic representations, combined with ventriloquism and sleight of hand; and in England Love was one of the most popular ventriloquists.

VENUE (from Lat. *vicinetum*) denotes in English law the place from which a jury must be brought for the trial of a case. The word occurs early in constitutional documents, for it was for a long time one of the essentials of trial by jury that the jury should belong to the neighborhood in which the cause of action arose or the alleged crime was committed (see JURY). In civil matters venue became after a time divided into local and transitory, the former where the cause of action could only have arisen in a particular county, such as trespass to land, the latter where it might have arisen



in any county, such as debt. In the latter case the plaintiff might lay the venue where he pleased, subject to the power of the court or a judge to change it. In criminal practice venue is still of importance, though not as much so as formerly since the large powers of amendment of indictments given by recent legislation.

In the United States venue may generally be changed by the courts; but in some States it is provided by their constitutions that provision for change of venue is to be made by the legislature. In other States the passing of local or special laws for change of venue is forbidden.

VENUS. See APHRÔDITE.

VERA, AUGUSTO, the chief representative of Hegelianism in Italian philosophy, was born at Amelia in the province of Perugia on May 4, 1817. He completed his education in Paris, and, after teaching classics for some years in Switzerland, was appointed professor of philosophy in connection with the University of France. Attaching himself to Hegel's system with the enthusiasm of a disciple, Vera (who wrote fluently both in French and English as well as in Italian) became widely influential in spreading a knowledge of the Hegelian doctrine. Without any marked originality, his writings are distinguished by the lucidity of their exposition, and by their genuine philosophic spirit. His English works are an *Inquiry into Speculative and Experimental Science* (1856), more recently an *Introduction to Speculative Logic and Philosophy*, and a translation of Bretschneider's *History of Religion and of the Christian Church*. Vera also translated a number of Hegel's works into French, with introductions and commentaries, including the *Logic*, the *Philosophy of Nature*, the *Philosophy of Spirit*, and the *Philosophy of Religion*. In 1860 Vera returned to Italy, where he was made professor of philosophy in the royal academy of Milan. In the following year he was transferred to Naples as professor of philosophy in the university there. He held this post till his death, which took place at Naples in the autumn of 1885.

VERA CRUZ, a fortified town and seaport of Mexico, formerly capital of the State of Vera Cruz, is situated in  $19^{\circ} 11' 50''$  N. latitude and  $96^{\circ} 20'$  W. longitude, at the southwest corner of the Gulf of Mexico. The town, which in 1896 had a population of 24,085, is distant 263 miles by rail from Mexico and 60 from Jalapa, the summer residence of the upper classes. It has few buildings of interest, except a superb cathedral decorated in the Moorish style. Most of the streets, which are laid out at right angles, are paved with cobble stones, and have a kennel or open gutter in the middle. A characteristic feature of the place are the turkey-buzzards, who do the scavenging and are consequently protected by law. Vera Cruz is the largest seaport in the republic. In 1886 over one-half of the exports of Mexico (\$15,000,000 altogether) were shipped from this place. In the same year 487 vessels of 295,000 tons cleared Vera Cruz. In 1887 the exports from Vera Cruz amounted to \$5,200,000 and the imports to \$11,000,000.

The state of Vera Cruz has a seaboard of 450 miles on the Gulf of Mexico, with a mean breadth of 55 miles. Its area is 24,700 square miles, and its total population was 960,570 in 1900, nearly all native Mexicans.

VERATRUM. The Greek physicians were acquainted with a poisonous herb which they called white hellebore, and which has been supposed to represent the existing *Veratrum*. Be this as it may, in modern times the name has been applied to a genus of herbaceous plants closely allied in their structure to *Colchicum*, but differing greatly in general appearance. *Veratrum* is a tall-growing herb, having a fibrous root-stock, an

erect stem, with numerous broad, plicated leaves, placed alternately, and terminal much-branched clusters of greenish or purplish polygamous flowers. The genus is included in the order *Melanthaceae*, otherwise called *Colchicaceae*, and comprises a small number of species, natives of the temperate regions of the northern hemisphere, generally growing in pastures or woods. Some, and presumably all, contain a violently poisonous alkaloid called veratrin; but, given in small doses and under careful supervision, some of the preparations yielded by *Veratrum* are valuable medicinal agents, their effect being to lower the pulse and the heat of the body.

VERBENA. The vervain genus gives its name to the natural order (*Verbenaceae*) of which it is a member. The species are herbaceous or somewhat shrubby, erect or procumbent, with opposite or whorled leaves, generally deeply cut. The sessile flowers originate in the axils of bracts, and are aggregated into close spikes. The fruit consists of four hard nuts within the persistent calyx. There are about eighty species known, mostly natives of tropical and subtropical America. *V. officinalis*, according to Bentham, is also widely dispersed in the temperate and warmer regions of the eastern hemisphere. *V. bonariensis* occurs in Africa and in Asia, while *V. supina* is indigenous only in the Mediterranean and Canarian regions. The plant is now but lightly esteemed, and its medicinal virtues, if it have any, are entirely ignored. The garden verbenas, once so popular for "bedding out," are derivatives from various South American species, such as *V. teucrioides*, a native of southern Brazil, and *V. chamædrifolia* from Uruguay. The range of colors extends from pure white to rose-colored carmine, violet, and purple.

VERCELLI, a town of Italy, in the province of Novara. The cathedral is a large building dating from the sixteenth century; its library contains a number of rare ancient MSS., especially the *Codex Vercellensis*, one of the most important MSS. of the old Latin version of the Gospels, written in the fourth century by Eusebius, bishop of Vercelli. The leading industry is silk-spinning; and there is an active trade in the products of the surrounding district (silk, hemp, flax, and rice). The population is 20,165 (commune, 21,169).

VERD ISLANDS, CAPE. See CAPE VERD ISLANDS.

VERDICT in law, is the finding of a jury as to the issue of fact raised between the parties. The usual verdict in criminal cases is "guilty" or "not guilty," in civil cases it is a verdict for the plaintiff or the defendant according to the fact. These are called general verdicts. In some civil cases, the jury when doubtful, or when the court directing them is doubtful how the law ought to be applied to the facts, found a special verdict, *i.e.*, specific facts, leaving the court to draw the proper conclusion. A verdict by a jury is usually conclusive in all criminal cases, and no new trial can be had, except where obvious error has been committed in course of trial, or for any cause which, operating at the previous trial, would have caused a different verdict to the one rendered; but in civil cases the party defeated may, within a certain number of days allowed by the practice of the court, move to set the verdict aside, and apply for a new trial on various grounds, as, for example, that the judge misdirected or misled the jury, that the verdict was against the weight of evidence, or was perverse, that the damages were too great or too small, etc.

VERDIGRIS is an incrustation of copper properly known as diacetate of copper, and is practically caused by the oxidation of the metal. It is largely used in chemistry and is prepared commercially by applying fermented grape skins to copper plates. As it is an active irritant poison and often ferments upon domestic copper



vessels, the greatest care should be taken to keep the latter clean.

VERDUN, a town of France, chef-lieu of an arrondissement in the department of Meuse, an episcopal see, and a first-class fortress, is situated on the Meuse, 174 miles east-northeast of Paris by the railway to Metz, at the junction of the line from Lérrouville to Sedan by the Meuse. The enciente is pierced by four gates; that to the northeast consists of two crenellated towers, and is an interesting specimen of the military architecture of the fifteenth century. On the left bank of the river is the citadel, on the site of the old abbey of St. Vannes (tenth century), the remaining buildings of which are used as barracks. On all sides the approaches to the place are guarded by an important line of defensive works, including five redoubts and six forts. From afar can be seen the square towers of the cathedral, the exterior of which still recalls the original building of the eleventh century. The town is famous for its confectionery, sugar plums, and liqueurs. The population in 1901 was 19,282 (commune 19,755).

In 843 the famous treaty was signed here by the sons of Louis the Pious (see FRANCE and GERMANY). In the tenth century Verdun was definitely conquered by Germany and put under the temporal authority of its bishops. In the eleventh century the burghers of the now free and imperial town began a struggle with their bishops, which ended in their obtaining certain rights in the twelfth century. In 1553 Henry II. of France took possession of Verdun, which finally became French by the treaty of Westphalia. In 1792, after some hours of bombardment, the citizens opened their gates to the Prussians—a weakness which the Revolutionary Government punished by the execution of some young girls who had offered flowers to the king of Prussia. In 1870 the Prussians, unable to seize the town by a *coup de main*, invested and bombarded it three different times, till it capitulated in the beginning of November.

VERGILIUS. See VIRGIL.

VERGNAUD, PIERRE VICTURNIEN, French orator and Revolutionist, was born on May 31, 1753, at Limoges. He was the son of a merchant of that town, who lost the greater part of his means by speculation. The boy was early sent to the college of the Jesuits at Limoges, and soon achieved distinction. Vergniaud was called to the bar in 1782. The influence of Duputy gained for him the beginnings of a practice; but Vergniaud, though capable of extraordinary efforts, too often relapsed into reverie, and was indisposed for study and sustained exertion, even in a cause which he approved. In 1789 Vergniaud was elected a member of the general council of the department of the Gironde. Being deeply stirred by the best ideas of the Revolutionary epoch, he found a more congenial sphere for the display of his great powers in his new position. About this period he was charged with the defense of a member of the national guard of Brives, which was accused of provoking disorders in the department of La Corrèze. Abandoning all reserve, Vergniaud delivered one of the great orations of his life, depicting the misfortunes of the peasantry in language of such combined dignity, pathos, and power that his fame as an orator spread far and wide.

By the self-denying ordinance of the constituent assembly France was deprived of the whole talent and experience of its members in that new body—the legislative assembly—for which they were declared ineligible; and the election of new men was proceeded with. Vergniaud was chosen a representative of the Gironde in August, 1791, and he forthwith proceeded to Paris. The legislative assembly met on October 1st. For a time, according to his habit, he refrained from speaking; but on October 25th he ascended the tribune, and he

had not spoken long before the whole assembly felt that a new power had arisen which might control even the destinies of France. This judgment was reëchoed outside, and he was almost immediately elected president of the assembly for the usual brief term. Between the outbreak of the Revolution and his election to the legislative assembly the political views of Vergniaud had undergone a decided change. At first he had lauded a constitutional monarchy; but the flight of Louis filled him with distrust of the sovereign, and his views in favor of a republic were rapidly developed. One great blot on his reputation is that step by step he was led on to palliate violence and crime, to the excesses of which his eyes were only opened by the massacres of September and which ultimately overwhelmed the party of Girondists which he led.

In the project of an address to the French people which he presented to the assembly on December 27, 1791, he shook the heart of France, and, especially by his call to arms on January 18th, shaped the policy which culminated in the declaration of war against the king of Bohemia and Hungary on April 20th. This policy in foreign affairs, which he pursued through the winter and spring of 1791–92, he combined with another—that of fanning the suspicions of the people against the monarchy, which he identified with the counter-revolution, and of forcing on a change of ministry. On July 3d he electrified France by his bold denunciation of the king, not only as a hypocrite and a despot, but as a base traitor to the constitution. His speeches breathe the very spirit of the storm, and they were perhaps the greatest single factor in the development of the events of the time. On August 10th the Tuileries was stormed, and the royal family took refuge in the assembly. Vergniaud presided. To the request of the king for protection he replied in dignified and respectful language.

The massacres of September again unchained his eloquence. He denounced the massacres—their inception, their horror, and the future to which they pointed—in language so vivid and powerful that it raised for a time the spirits of the Girondists, while on the other hand it aroused the fatal opposition of Robespierre and of his followers within and without the convention.

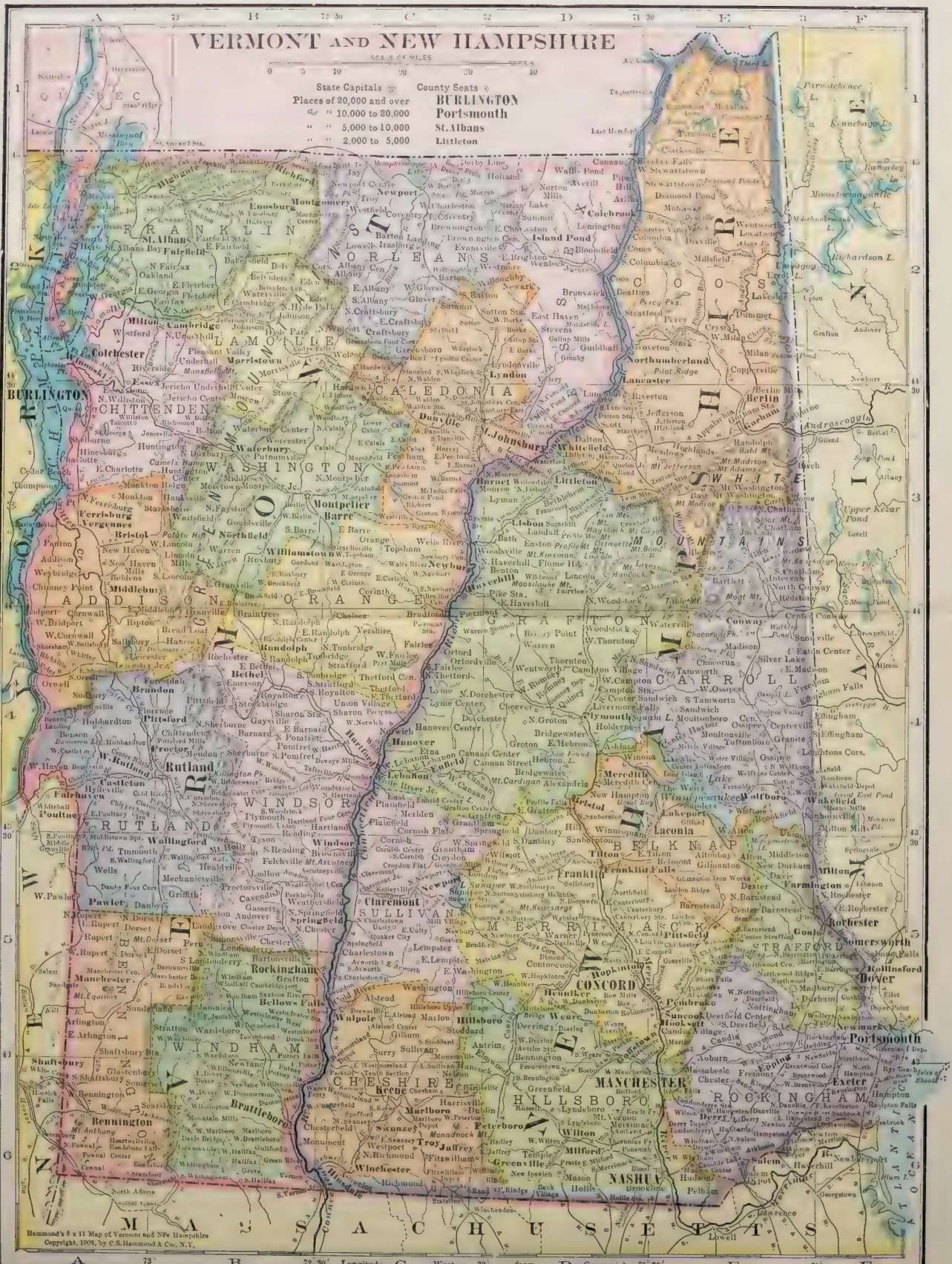
The question whether Louis XVI. was to be judged, and if so by whom, were the subject of protracted debate in the convention. They were of absorbing interest to Paris, to France, and to Europe; and upon them the Girondist leader at last, on December 31, 1792, broke silence, delivering one of his greatest orations, probably one of the greatest combinations of sound reasoning, sagacity, and eloquence which has ever been displayed in the annals of French politics. He pronounced in favor of an appeal to the people. He pictured the consequences of that temper of vengeance which animated the Parisian mob, and was fatally controlling the policy of the convention, and the prostration which would ensue to France after even a successful struggle with a European coalition, which would spring up after the murder of the king. The great effort failed; and four days afterward something happened which still further endangered Vergniaud and his whole party. This was the discovery of a note signed by him along with Gaudet and Gensonné and presented to the king two or three weeks before August 10th. It contained nothing but sound and patriotic suggestions; but it was greedily seized upon by the enemies of the Gironde as evidence of treason. On January 16, 1793, the vote began to be taken in the convention upon the punishment of the king. Vergniaud voted early, and voted for death. The action of the great Girondist was and will always remain inscrutable: but it was followed by a



# VERMONT AND NEW HAMPSHIRE

State Capitals    County Seats  
Places of 20,000 and over  
" 10,000 to 20,000  
" 5,000 to 10,000  
" 2,000 to 5,000

**BURLINGTON**  
Portsmouth  
St. Albans  
Littleton







similar verdict from nearly the whole party which he led. On the 17th Vergniaud presided at the convention and it fell to him to announce the result of the voting.

When the institution of a revolutionary tribunal was proposed by the Robespierrists, Vergniaud vehemently opposed the project, denouncing the tribunal as a more awful inquisition than that of Venice, and avowing that his party would all die rather than consent to it. Their death by stratagem had already been planned, and on March 10th they had to go into hiding. On the 13th Vergniaud boldly exposed the conspiracy in the convention. The antagonism caused by such an attitude had reached a significant point when, on April 10th, Robespierre himself laid his accusation before the convention. He fastened especially upon Vergniaud's letter to the king and his support of the appeal to the people as a proof that he was a moderate in its then despised sense. Vergniaud made a brilliant extemporaneous reply, and the attack for the moment failed. But now, night after night, Vergniaud and his colleagues found themselves obliged to change their abode to avoid assassination, a price being even put upon their heads. Still with unflinching courage they continued their resistance to the dominant faction, till on June 2, 1793, things came to a head. The convention was surrounded with an armed mob, who clamored for the "twenty-two." In the midst of this it was forced to continue its deliberations. The decree of accusation was voted, and the Girondists were proscribed.

Vergniaud was offered a safe retreat. He accepted it only for a day, and then returned to his own dwelling. He was kept under surveillance there for nearly a month, and in the early days of July was imprisoned in La Force. On one of the walls of the Carmelite convent, to which for a short time the prisoners were removed, Vergniaud wrote in letters of blood—"Potius mori quam fœdari." Early in October the convention brought forward its indictment of the twenty-two Girondists. They were sent for trial to the revolutionary tribunal, before which they appeared on October 27th. The procedure was a travesty of justice. Conscious of innocence, but certain of death, Vergniaud preserved silence, and his example was largely followed by his companions. By the end of the fourth day of the trial it became evident that the demeanor of the prisoners was touching the hearts of the people and making them relent. Then suddenly came the order from the alarmed committee of safety to bring the proceedings to an end. Gensonné demanded to be heard in defense of the prisoners. This was refused; a verdict of guilty followed, and a sentence of death. Valazé stabbed himself to the heart and fell dead among his comrades. They were conducted to the conciergerie, which they entered singing the Marseillaise. Early on the following morning, October 31, 1793, they were conveyed to the scaffold, again singing on the way the national chant, and keeping up the strain till one by one they were guillotined. Vergniaud was executed last.

VERKHNE-URALSK, a district-town of Orenburg, Russia, at the eastern base of the Ural Mountains and on the upper Ural river, 380 miles northeast of Orenburg, is an important center of trade with the Bashkirs and Kirghiz in honey, wax, wool, hides, horses, and sheep. The population (10,354) has doubled within the last twenty-five years.

VERMIFUGES, or VERMICIDES, are remedies which possess the power of destroying intestinal worms or of expelling them from the digestive canal. These remedies are common in every drug store and need no description here.

VERMIGLI, PIETRO MARTIRE, commonly known as PETER MARTYR, a Reforming theologian of the

sixteenth century, was born at Florence on September 8, 1500. In 1516 he entered the house of the Augustinian canons regular at Fiesole, and from 1519 onward studied at Padua. In his twenty-sixth year he was sent out as a preacher, in which capacity he visited various Italian cities. At Lucca, whither he had gone to be prior of San Frediano, the "evangelical" tone of his preaching attracted the attention of the Inquisition, and he was compelled to quit Italy (1542). After short halts at Zurich and Basel he settled in Strasburg as professor of Old Testament exegesis, and in 1547 he removed to England, mainly at Cranmer's instance. During the next six years he taught exegesis as a professor in Oxford, conducted public disputations, and was generally active in the theological discussion of the time. The accession of Queen Mary in 1553 obliged him to leave England, and he resumed his former duties at Strasburg. From 1555 till his death in the autumn of 1562 he taught at Zurich.

VERMILION is a brilliant scarlet pigment composed of the sulphide of mercury, HgS. To a small extent it is obtained direct from pure and bright-colored portions of the native ore CINNABAR (*g.v.*); but it is chiefly an artificial preparation. The process of manufacture, as conducted principally in Holland, consists in making an intimate mixture of mercury with about one-sixth of its weight of sulphur, and these under the influence of a gentle heat combine to form the black sulphide of mercury called æthiop's mineral. In successive portions pieces of this compound are thrown into tall earthen pots the lower parts of which are kept at a red heat, and the mass sublimes, depositing a coating of artificial cinnabar on the iron covers and over the upper part of the pots themselves. At the end of the subliming process, the pots are broken, the deposit of cinnabar is scraped off, ground in a mill, levigated, and when dry it is ready for use as vermilion. The pigment is also prepared by the wet method (see MERCURY), and it is said that Chinese vermilion owes its superiority to being made in this way. For antimony vermilion, see PIGMENTS.

VERMONT, one of the New England States of the American Union, lies between 42° 44' and 45° 0' 43" N. latitude and 71° 38' and 73° 25' W. longitude. It is bounded on the north by the Canadian province of Quebec, on the east by New Hampshire, from which it is separated by the Connecticut river, on the south by Massachusetts, and on the west by New York, from which it is separated for more than 100 miles by Lake Champlain. The Canadian boundary is 90 miles long; but from this the width of Vermont continually grows less toward the southern border, where it is 41 miles. The length is 158 miles. The boundary between Vermont and New York passes through the western side of Lake Champlain, so that three-fourths of the lake and most of its islands belong to the former. The area of the State is 10,212 square miles.

The Green Mountains, following a southwesterly trend, divide it into nearly equal portions. Near Canada there are two ranges, the western being the larger; but near the forty-fourth parallel they unite and continue through western New England as a single range. The highest mountain is Mansfield (4,430 feet), and there are five others over 4,000 feet and twelve over 3,500 feet. Except upon the loftiest summits, the whole range is densely covered with forests of spruce (*Abies nigra*), mingled with which are other evergreen and deciduous trees. Many of the streams flowing west unite to form five rivers which enter Lake Champlain. Eleven smaller rivers flow into the Connecticut, which drains about one-third of the area of Vermont.



Three streams run north and enter Lake Memphremagog, about one-fifth of which is within the State, and two flow south to join the Hudson river. Most of the larger streams pass through wide, fertile valleys. Small lakes and ponds are abundant.

The rocks of Vermont are largely metamorphic. Their age has long been disputed among geologists; it appears now, however, to be clearly established that most of them are Paleozoic, although there are a few small areas which may prove to be Archaean. The entire surface of Vermont shows the effects of glaciation. Some of the Silurian ledges are striated and polished most beautifully. Drift, boulders, sands, clays occur everywhere; every stream is bordered by terraces; remains of mammoth, mastodon, beluga, are found in the drift deposits, as well as *Mya*, *Saxicava*, *Mytilus*, and other marine *Mollusca*. Sea-beaches over 2,000 feet and terraces over 1,000 feet above the present sea-level testify to movements of the surface. From the early Cambrian to the late Quaternary epoch Lake Champlain was an arm of the sea, and for a portion of this time it was connected with the ocean at each end, so that a current flowed from what is now New York Bay to St. Lawrence Gulf, converting New England into an island.

Ores of copper, silver, lead, gold, manganese, and iron occur; but, although numerous attempts at mining have been made, very few have continued or ever been profitable. A large amount of copper is obtained at the Ely mines, where the ore is chalcoppyrite; and gold has been found in paying quantity in river gravel, and also in veins, and is still sought in one or two places. The chief mineral wealth of the State is in its quarries. No other State in the Union produces so great a variety or quantity of marble. The annual production is nearly 2,000,000 cubic feet, and is increasing. Roofing and other slate is obtained in very large quantities and of fine quality. Most excellent granite is quarried in increasing amount, and there are large beds of soap-stone, which are worked.

The climate of Vermont, like that of New England generally, is subject to extremes and to sudden changes. In summer the temperature varies from 65° to 75° Fahr., sometimes rising to 90°; in winter it ranges from 18° to 50°, sometimes falling to -10° or rarely -20°. At Burlington the mean annual temperature is 45°. The climate is milder in the Champlain valley than east of the Green Mountains. During the winter there is often much snow, which in the colder parts of the State covers the ground for three months. The average annual rainfall is thirty-three inches. The air is clear and pure. Notwithstanding the changeable climate, the death-rate is low and the people robust.

Most of the large mammals formerly common—the panther, wolf, lynx, beaver, otter, moose—have either disappeared or are very rare; others, as the black bear, red deer, mink, and marten are found only in certain localities. More common are the red fox, raccoon, skunk, porcupine, woodchuck, rabbit, squirrel, and other smaller species. Birds have changed less; but the wild turkey, golden eagle, raven, etc., have become very rare, and the white-headed eagle, large hawks, owls, herons, bitterns, and the like are far from common. The lakes are visited at certain seasons by great numbers of ducks, geese, and other water-fowl.

The flora is of great beauty and of unusual botanical interest. *Saxifraga aizoon*, *Poa laxa*, *Arenaria grandica*, and other alpine plants are found on the higher mountains. *Lathyrus maritimus*, *Hudsonia tomentosa*, and other maritime species recall the time when Lake Champlain was salt. A number of western species find their eastern limit in the Champlain valley, and a

greater number of Canadian plants have ended their southward migrations in northern Vermont. Over 1,300 species of phanerogams and higher cryptogams grow wild in the State. Ferns grow luxuriantly in many mountain forests and ravines, where fifty species may be collected. The once prevalent forests are now chiefly confined to the mountains. There are nearly one hundred species of trees and large shrubs; the forests and groves consist chiefly of eleven species of oak, six of maple, seventeen of willow, six of birch, eight of poplar, three of elm, seventeen of conifers, besides beech, ash, walnut, butternut, etc. The sugar maple is a common and conspicuous tree.

The population (U. S. census) in 1900 was 343,641. The first census taken, in 1791, gave 85,425. The different enumerations from 1800 to 1880, inclusive, have been as follows: 154,465; 217,895; 235,966; 280,652; 291,948; 314,120; 315,098; 330,551; 332,422. The very slight gain in the decades succeeding 1850 is accounted for by the large emigration from Vermont to the western portions of the country. Of the total population in 1900, 298,894 were natives and 44,747 foreign born. Of the latter class British America furnished the largest contingent, 24,620; Ireland, 11,657; other parts of Great Britain, 3,773. The number of colored was 870; the excess of males over females, 6,635. The largest towns are Rutland, 11,499 (in 1886 two new towns were formed from it); Burlington, 18,640; St. Albans, 6,239; Bennington, 5,656; Brattleboro, 6,266; St. Johnsbury, 5,666. Montpelier, the capital, has 5,297.

Agriculture is the chief occupation of the State. The 33,104 farms make up a total of 4,724,440 acres, of which 2,126,624 are improved land. The western portion of the State contains the finest tracts of arable land; the climate as well as the soil of the Champlain valley is especially adapted to fruit-raising, the surface of the lake being but ninety feet above sea-level. The average size of farms in Vermont is 142 acres; the total estimated value of the farms in 1900 was \$108,451,427, and of the total products in 1900, \$33,570,892. Subjoined are the figures relating to the leading crops: Wheat produced 34,650 bushels; oats, 2,742,140 bushels; corn, 2,322,450 bushels; barley, 380,940 bushels; rye, 31,950 bushels; buckwheat, 196,010 bushels; potatoes, 3,547,829 bushels; hay and forage, 1,336,499 tons. The wool clip was 1,334,253 pounds; and there were 270,194 cows, producing 18,834,706 pounds of butter and 406,659 pounds of cheese. The value of orchard products amounted to \$450,429. Maple sugar produced 4,779,870 pounds, being but one-third that of 1890.

Returns for June 1, 1900, prepared by the United States Department of Agriculture show the number and value of farm animals as follows: Horses, 85,531, value, \$5,319,597; milch cows, 270,194, value, \$7,740,908; other neat cattle, 231,746, value, \$2,787,887; sheep and lambs, 296,576, value, \$871,402; hogs, 95,099, value, \$620,169.

Lake Champlain abounds in fish of various kinds. Great pains have been taken of late years to stock the numerous ponds and streams of the State with salmon, trout, carp, and bass. Both fish and game are protected by stringent laws, and to some extent by special police supervision.

The State rates as nineteenth in value (\$6,131,808) of lumber products, while Burlington ranks third in importance among the lumber markets of the United States. Eighteen marble quarries produced a value of \$1,340,050; there are also granite and slate quarries—sixty-one quarries in all, with a total production of \$1,752,333.

Railroad construction was begun in 1846, and by December, 1849, two lines were completed from the



Connecticut river to Burlington. In 1853 the working mileage had risen to 493 miles, and it is now 1,030 miles, mainly of trunk lines.

The report of the Inspector of Finance shows that in 1900 there were 22 savings banks and 19 trust companies in operation in the State. Their united deposits were \$38,000,000. The number of depositors was 118,354, of whom 103,799 were residents of the State. The average credit to each depositor was \$323.52.

The receipts of the State Treasury for the two years ending June 30, 1901, were (including balance brought forward) \$1,630,702; disbursements, \$1,513,541; balance on hand, \$117,161. The manufactures of the State in 1900 were 4,071 in number, with an aggregate capital of \$48,547,964; the value of the products was \$57,646,715.

The Congregationalists have 197 churches, 186 ministers, 20,271 members, 22,035 pupils in Sunday schools and 13,748 families belonging to the congregations. The Baptists have 105 churches, 111 ministers, 8,623 members, 8,922 pupils in Sunday schools. The Methodists have 192 churches, 161 ministers, 16,067 members, 18,830 children in Sunday schools. The Episcopalians report 36 ministers in charge of 52 parishes, with 3,926 communicants; number of families 1,789. The Free Baptists and Christians together have 60 churches and 4,000 members; the Adventists 35 churches, with 1,750 members. The Roman Catholics have 39 priests in charge of 79 churches and number about 25,000.

Lands were set apart for the support of schools by the proprietors of townships as early as 1761. Legislative provisions for education dates from 1782. The original educational system of the State contemplated primary schools in every township, a grammar or high school in each county, and one university. There are 2,483 public schools of all grades, with 65,608 pupils, besides 6,225 in private schools. The number of persons above ten years unable to read is 12,993, or 4.9 per cent., the population between five and twenty being 99,463. The total revenue for school purposes is \$712,988. This revenue is derived partly from funds held by the State, but chiefly from town and district taxes. Facilities for advanced instruction are offered by thirty-nine public high schools and twenty-five incorporated academies. The State has three normal schools, founded in 1866. Since 1874 State supervision is exercised through a superintendent elected by the general assembly. The State University at Burlington, chartered in 1791, was inaugurated in 1800; it provides instruction in arts, engineering, chemistry, agriculture and medicine, with a teaching staff of fifteen in the academic and twenty-six in the medical faculty; there are 189 students in medicine, 148 in arts and sciences, and in all departments 487. The library contains 35,300 volumes. Middlebury College (Congregational), chartered in 1800, has a teaching staff of nine with sixty-three students, and a library of 16,000 volumes. Norwich University (Episcopalian), at Northfield, is organized as a military school; there are ten instructors and fifty-six students. The State library contains 18,600 volumes, the free public library of Burlington 18,000 volumes, that of St. Johnsbury 12,000, and that of Lunenburg (free but not public) 14,000. Altogether there are ninety public libraries in Vermont in 1891.

The governor and chief executive officers are elected by direct vote of the male citizens twenty-one years old and upward who have resided within the State for one whole year preceding the election. The general assembly, or legislative body, is composed of a senate of thirty members apportioned among the fourteen counties according to population, and a house of representatives consisting of one member from each organized township

(244). The sessions of the legislature have been biennial since 1870. The State election occurs in September in the even years. The judiciary is elective throughout, the chief justice and six assistant justices of the supreme court being chosen by the senate and house in joint assembly. The term of service is usually a long one, by virtue of repeated re-elections. The assistant judges of county courts are chosen by the freemen of the counties, and justices of the peace by the several towns. The county courts hold two terms annually, a justice of the supreme court presiding. A general session of the supreme court is held at the capital in October or November. Probate courts are held in each county, six of the counties being divided each into two probate districts. The State is represented in the Federal Government by two senators and two representatives, and has four votes in the electoral college. Since 1852 the policy of the State in regard to intoxicating liquors has been that of prohibition.

Vermont first became known to Europeans in 1609, when Champlain explored the lake since known by his name. During the next century the lake and its borders were a thoroughfare for various military expeditions in the Indian and colonial wars, and several points along the lake were occupied, mainly as military posts, by both French and English; but the first permanent settlement was made in 1724 at Fort Dummer in the limits of Brattleboro. In 1760 there were not more than 300 inhabitants scattered along the Connecticut river within fifty miles of the southern border. Both New Hampshire and New York claimed jurisdiction over the territory under royal grants. By 1763 New Hampshire had chartered 138 townships west of the Connecticut, and between 1765 and 1776 New York had issued grants of land, covering in all 2,418,700 acres, often embracing the same territory as the New Hampshire charters. The claims of New York were always stoutly, and sometimes forcibly, resisted by the great majority of the settlers. In 1776 the Vermonters sought admission to the Provincial Congress, but through the influence of New York were refused. In January, 1777, they proclaimed their independence, framed a State constitution, and again applied for a place in the confederacy. Congress hesitated as before. In 1780 British generals made overtures to the little republic, but with no result beyond a diplomatic intercourse continued until 1783, so managed by the envoys of Vermont as to gain time and save the State from invasion. In 1782 they knocked at the doors of Congress again without avail. By July, 1789, New York was willing to waive its pretensions, and Vermont was admitted as the fourteenth State in March, 1791. In May, 1775, the "Green Mountain boys" under Ethan Allan and Seth Warner had captured Ticonderoga and Crown Point. The battle of Bennington in August, 1777, was won by the combined forces of Vermont and New Hampshire. During the whole struggle the State, though unrecognized, contributed its full share of men and means. In the war of 1812-14 Vermont is credited with 5,236 soldiers in regular service, exclusive of 2,500 volunteers who were under arms at Plattsburgh in September, 1814. In the Civil War of 1861-65 the State furnished more than its due quota of troops, 33,288 men from a total population (1860) of 315,098. The present organized force consists of but one regiment, with one battery, 565 men. The unorganized militia numbered 64,162 men.

VERNET, the name of three eminent French painters.

I. CLAUDE JOSEPH VERNET, who was born at Avignon on August 14, 1714, when only fourteen years of age aided his father, a skillful decorative painter, in the



most important parts of his work. For twenty years Vernet lived in Rome, producing views of seaports, storms, calms, moonlights, etc., when he was recalled (1753) to Paris, and executed, by royal command, the remarkable series of the seaports of France (Louvre) by which he is best known. On his return he became a member of the academy, but he had previously contributed to the exhibitions of 1746 and following years, and he continued to exhibit, with rare exceptions, down to the date of his death, which took place in his lodgings in the Louvre on December 3, 1789.

II. ANTOINE CHARLES HORACE VERNET, commonly called CARLE, the youngest child of the above-named, was born at Bordeaux in 1758, where his father was painting the view from the château of La Trompette (Louvre). He showed, at the age of five, an extraordinary passion for drawing horses, but went through the regular academical course as a pupil of Lépicié. After carrying off the great prize (1782) he lost all ambition and interest in his profession, so that his father had to recall him to France to prevent his entering a monastery. In Paris Carle Vernet became himself again and distinguished himself at the exhibition of 1791 by his *Triumph of Paulus Emilius*. But the Revolution drew on and Carle Vernet's career for awhile seemed to end in the anguish of his sister's death on the scaffold. When he again began to produce, it was as the man of another era: his drawings of the Italian campaign brought him fresh laurels; his vast canvas, the *Battle of Marengo*, obtained great success; and for his *Morning of Austerlitz* Napoleon bestowed on him the Legion of Honor. From Louis XVIII. he received the order of St. Michael. In 1827 he accompanied his son Horace (see below) to Rome, and died in Paris on his return, November 17, 1835.

III. ÉMILE JEAN HORACE VERNET, born in Paris, June 30, 1789, was one of the most characteristic, if not one of the ablest, of the military painters of France. He was just twenty when he exhibited the *Taking of an Entrenched Camp*—a work which showed no depth of observation, but was distinguished by a good deal of character. His picture of his own studio (the rendezvous of the Liberals under the restoration), in which he represented himself painting tranquilly, while boxing, fencing, drum and horn playing, etc., were going on, in the midst of a medley of visitors, horses, dogs, and models, is one of his best works, and together with his *Defense of the Barrier at Clichy* (Louvre), won for him an immense popularity. Enjoying equal favor with the court and with the opposition, he was most improperly appointed director of the school of France at Rome, from 1828 to 1835, and thither he carried the atmosphere of racket in which he habitually lived. After his return the whole of the Constantine room at Versailles was decorated by him in the short space of three years. This vast work shows Vernet at his best and at his worst; as a picture it begins and ends nowhere, and the composition is all to pieces; but it has good qualities of faithful and exact representation. He died at Paris on January 17, 1863.

VERNIER, PIERRE, inventor of the instrument which bears his name, was born at Ornans (near Besançon) in Burgundy about 1580. He was for a considerable time commandant of the castle in his native town. In 1631 he published at Brussels a treatise entitled *Construction, usage, et propriétés du quadrant nouveau de mathématiques*, in which the instrument associated with his name is described (see NAVIGATION and SURVEYING). He died at Ornans in 1637.

VERNON, EDWARD, English admiral, was born in Westminster, on November 12, 1684. His father, James Vernon, secretary of state from 1697 to 1700, is

best remembered by three volumes of his letters to the duke of Shrewsbury, which were published in 1841. He entered the navy in 1701, and from that time until 1707 took part in many expeditions in the Mediterranean and the West Indies. He served with Sir George Rooke at the taking of Gibraltar in July, 1704; and, on his return to England, Queen Anne acknowledged his gallantry with the present of two hundred guineas. He next went to the West Indies as rear-admiral to Sir Charles Wager. In 1715, and again in 1726, Vernon assisted in the naval operations in the Baltic, supporting Sir John Norris in the first enterprise, and on the latter serving under his old chief, Sir Charles Wager. During the long supremacy of Walpole little opportunity arose for distinction in warfare, and Vernon's energies found relief in politics. At this period the English people regarded the Spaniards as their legitimate enemies, and, with the sailor as with the soldier, the motto was "No peace with Spain." Vernon pledged himself in 1739 to capture Porto Bello with a squadron of but six ships, and the minister whom he had assailed with his invectives sent him, as vice-admiral of the blue and commander of the fleet in the West Indies, to the enterprise with the force which he had himself called sufficient. Vernon weighed anchor from Spithead on July 23, 1739, and arrived off Porto Bello on November 20th. Next day the combat began with a bombardment of an outlying fort which protected the mouth of the harbor, and, on November 22d, the castle and town surrendered with a loss on the English side of only seven men. The joy of the nation knew no bounds.

In February, 1741, in a by-election at Portsmouth, Vernon was sent to parliament. At the general election in the following May he was returned for Ipswich, Rochester, and Penryn, and all but succeeded in winning Westminster. A larger squadron was placed under Vernon's command at the close of 1740, and with this force he resolved upon attacking Cartagena. After a fierce struggle the castle, which stood at the harbor's entrance, was gained, but in the attack upon the city the troops and sailors failed to act in concert, and, with the numbers of his forces thinned by combat and by disease, the British admiral retired to Jamaica. A similar enterprise in July, 1741, against Santiago in Cuba, met with a similar reverse, and Vernon attributed the defeat to the divided command of the British forces. He landed at Bristol, January 6, 1743, and on January 24th received the freedom of the city of London. When the country dreaded the march of Prince Charles to London, the fleet in the Downs was placed under the command of Vernon; but his jealous disposition brooked no interference from the Admiralty, and on January 1, 1746, he struck his flag and handed over the command to another. His next act was to describe his grievances in a couple of angry pamphlets, revealing the communications of his official chiefs, and for this indiscretion he was struck off the list of flag officers (April 11, 1746). He continued to represent the borough of Ipswich until his death, but with this proceeding his public services practically ceased. He died suddenly at Nacton in Suffolk, October 30, 1757, and was buried in the church of the village.

VERONA, an important city of northern Italy, in the province of Venetia, situated in a loop made by the winding of the Adige (ancient *Athesis*). It lies at the junction of the Adige valley railway and that from Mantua with the Milan, Vicenza, and Venice line, twenty-five miles north of Mantua and thirty south-southwest of Vicenza.

The cathedral, consecrated in 1187 by Pope Urban III., stands at the northern extremity of the ancient city, by the bank of the Adige; it is inferior in size and



importance to S. Zeno, but has a fine twelfth-century west front of equal interest, richly decorated with Lombard sculpture.

The strongly fortified castle built by the Della Scala lords in the fourteenth century stands on the line of the Roman wall, close by the river. In the latter part of the city, on a steep elevation, stands the castle of St. Peter, originally founded by Theodoric, mostly rebuilt by Gian Galeazzo Visconti in 1393, and dismantled by the French in 1801. This and the other fortifications of Verona were rebuilt or repaired by the Austrians, but are no longer kept up as military defenses. Verona, which is the chief military center of the Italian province of Venetia, is now being surrounded with a circle of forts far outside the obsolete city walls.

The early palaces of Verona, before its conquest by Venice, were of very noble and simple design, mostly built of fine red brick, with an inner court, surrounded on the ground floor by open arches like a cloister, as, for example, the Palazzo della Ragione, an assize court, begun in the twelfth century.

The episcopal palace contains the ancient and valuable chapter library, of about 12,000 volumes, and over 500 MSS., among them the palimpsest of the *Institutiones* of Gaius which Niebuhr discovered. The Piazza delle Erbe (fruit market) and the Piazza dei Signori, both in the oldest part of the city, are very picturesque and beautiful, being surrounded by many fine mediæval buildings. In the former of these a copy of the lion of Venice has recently been erected.

Verona had a population of 67,080 in 1871, which by 1901 had increased to 74,261. In spite of its pleasant and healthy site, Verona is in winter liable to be cold and rainy like other places which lie along the southern spurs of the Alps. The Adige, a rapid but shallow river, shrinks to an insignificant stream during the summer. Verona possesses some silk, linen, and woolen manufactures, and carries on a considerable trade in these goods and in grain, hides, flax, hemp, marble, drugs, etc. Among the public institutions of the place may be mentioned the public library (1802), the agricultural academy (1768), the botanical garden, various good schools and colleges (including a theological seminary, a lyceum, and gymnasia), and numerous hospitals and charitable organizations.

The most conspicuous of the existing Roman remains is the great amphitheater, a building of the second or third century, which in general form closely resembled the Colosseum in Rome. Almost the whole of its external arcades, with three tiers of arches, have now disappeared; it was partly thrown down by an earthquake in 1184, and subsequently used as a stone-quarry to supply building materials. Many of its blocks are still visible in the walls of various mediæval buildings. The interior, with seats for about 20,000 people, has been frequently restored, till none of the old seats remain.

In many respects the resemblance between Verona and Florence is very striking: in both cases we have a strongly fortified city built in a fertile valley, on the banks of a winding river, with suburbs on higher ground, rising close above the main city. In architectural magnificence and in wealth of sculpture and painting Verona almost rivaled the Tuscan city, and, like it, gave birth to a very large number of artists who distinguished themselves in all branches of the fine arts.

Nothing is certainly known of the history of Verona until it became a Roman colony with the title of *Augusta*, together with the rest of Venetia (Tac., *Hist.*, iii. 8, and Strabo, p. 213). The emperor Constantine, while advancing toward Rome from Gaul, besieged and took Verona (312); it was here, too, that Odoacer was

defeated (489) by Theodoric the Goth, who built a palace at Verona and frequently resided there. Verona was the birthplace of Catullus.

In the Middle Ages Verona gradually grew in size and importance. In early times it was one of the chief residences of the Lombard kings, and though, like other cities of northern Italy, it suffered much during the Guelph and Ghibelline struggles, it rose to a foremost position both from the political and the artistic point of view under its rulers of the Scaliger and Della Scala families. In 1404-5 Verona, together with Padua, was finally conquered by Venice, and remained subject to the Venetians till the overthrow of the republic by Napoleon in 1797, who in the same year, after the treaty of Campo Formio, ceded it to the Austrians with the rest of Venetia; and since that time its political history has been linked to that of Venice.

VERONESE, PAOLO, the name ordinarily given to PAOLO CALIARI, or CAGLIARI, the latest of the great cycle of painters of the Venetian school, was born in Verona in 1528 according to the best authorities (Zanetti and others), or in 1532 according to Ridolfi. His father, Gabriele Caliarì, a sculptor, began to train Paolo to his own profession. The boy, however, showed more propensity to painting, and was therefore transferred to his uncle, the painter, Antonio Badile. He did some work in Verona, but found there little outlet for his abilities. Cardinal Ercole Gonzaga took him, when barely past twenty years of age, to Mantua, along with other artists, to execute in the cathedral a picture of the Temptation of St. Anthony; here Caliarì was considered to excel his competitors. Returning to Verona, he found himself exposed to some envy and ill-will. Finally Paolo went on to Venice. In this city his first pictures were executed in 1555 in the sacristy and church of St. Sebastian, an uncle of his being prior of the monastery. The subjects on the vaulting are taken from the history of Esther; and these excited so much admiration that thenceforward Caliarì, aged about twenty-eight, ranked almost on a par with Tintoretto, aged about forty-five, or with Titian in his eightieth year, and his life became a series of triumphs. Besides the Esther subjects, these buildings contain his pictures of the Baptism of Christ, the Martyrdom of St. Marcus and St. Marcellinus, the Martyrdom of St. Sebastian, etc. He visited Rome in 1563, in the suite of Girolamo Grimani, the Venetian ambassador, and acquired enhanced elevation of style by studying the works of Raphael and Michelangelo, and especially the antique. Returning to Venice, he was overwhelmed with commissions, almost transcending the resources even of his own marvelous assiduity, fertility, and promptitude, qualities in which no painter perhaps has ever surpassed him. He was compelled to decline an invitation from Philip II. to go to Spain and assist in decorating the Escorial. One of his pictures of this period is the famous *Venice, Queen of the Sea*, in the ducal palace. He died in Venice on the 20th (or perhaps 19th) of April, 1588.

Of all Veronese's paintings the one which has obtained the greatest world-wide celebrity is the vast *Marriage at Cana*, now in the Louvre. It contains about a hundred and twenty figures or heads, those in the foreground being larger than life. Several of them are portraits. Among the personages specified (some of them probably without sufficient reason) are the Marquis del Vasto, Queen Eleanor of France, Francis I., Queen Mary of England, Sultan Soleyman I., Vittoria Colonna, Charles V., Tintoretto, Titian, the elder Bassano, Benedetto Caliarì, and Paolo Veronese himself (the figure playing the viol). It is impossible to look at this picture without astonishment; it enlarges one's

conception of what pictorial art means and can do. The only point of view from which it fails is that of the New Testament narrative; for there is no more relation between the Galilean wedding and Veronese's court-banquet than between a true portrait of Lazarus and a true portrait of Dives.

VERONICA, Sr. According to the Bollandists Veronica or Berenice was a pious woman of Jerusalem who, moved with pity as Jesus bore His cross to Golgotha, gave Him her kerchief that He might wipe the drops of agony from His brow. The Lord accepted the offering and after using it handed it back to her, bearing the image of His face miraculously impressed upon it. According to various forms of the legend, Veronica is identified with the niece of Herod the Great, with the woman whom Christ healed of an issue of blood (Mark v. 25 *seq.*; Matt. ix. 20 *seq.*), and with a woman who afterward, along with fifty others, young men and maidens, suffered martyrdom at Antioch. Current tradition in the Roman Church has it that Veronica was able to heal Tiberius of a grievous sickness with her napkin, and that the emperor, thus convinced of the divinity of Christ, forthwith sent Pilate into exile. This napkin (*sudarium*) was in the time of Pope John VII. (705) in the church of S. Maria Maggiore in Rome, but is now in St. Peter's, though possession of it is indeed claimed also by Milan and Jaen (Spain). The Bollandist form of the story cannot be traced further back than to about the second quarter of the fifteenth century; but in a MS. of the eighth century, now in the Vatican, Veronica is said to have painted or caused to be painted, the portrait of Christ after she had been healed by Him.

VERRES, whose name has been branded with everlasting infamy by the speeches of Cicero, was born 112 B. C. and was the bad son of a bad father.

Verres held his first important appointment about 82 B. C. as quaester of the consul Carbo in Cisalpine Gaul. About 80 B. C. he was in Asia on the staff of Dolabella, governor of Cilicia, where he again acted as quaester. The governor and his subordinate plundered in concert, till in 78 B. C. Dolabella had to stand his trial at Rome, and was convicted, mainly on the evidence of Verres, who thus secured a pardon for himself. In 74 B. C. he had what was termed the city praetorship, which gave him all the powers of an English lord chancellor, with but inadequate checks on their abuse. After his year of praetorship Verres went as governor to Sicily, the richest and most attractive of the Roman provinces, with its treasures of Greek art, its Greek civilization, and returned to Rome in 70 B. C., with plunder which he boasted would enable him to live in ease and luxury, even if he had to surrender two-thirds of it to bribe a Roman jury. The prosecution which he anticipated was commenced the same year by the provincials of Sicily, and was at their request undertaken by Cicero. Verres intrusted his defense to the most eminent of Roman advocates, Hortensius, and he had the sympathy and support of several of the leading Roman nobles. The trial, one of the most memorable in antiquity, began early in the August of 70 B. C., after an unsuccessful attempt by the counsel for Verres to get it adjourned to the following year. Cicero opened the case with a comparatively brief speech (*Actio Prima in Verrem*), following it up with the examination of witnesses and documentary evidence, and convincing Hortensius that his client's cause was hopeless. Before the expiration of the nine days allowed for the prosecution, Verres was on his way to Marseilles; there he lived in exile to the year 43 B. C., with abundant means of enjoying life in his own way.

VERROCCHIO, ANDREA DEL, one of the most dis-

tinguished Florentine artists of the fifteenth century, equally famed as a goldsmith, sculptor, and painter, was born at Florence in 1435. He was the son of Michele di Francesco de' Cioni, and took his name from his master, the goldsmith Giuliano Verrocchi. Except through his works, little is known of his life. As a painter he occupies an important position from the fact that Leonardo da Vinci and Lorenzo di Credi worked for many years in his bottega as pupils and assistants. Only one existing painting can be attributed with absolute certainty to Verrocchio's hand, the celebrated *Baptism of Christ*, originally painted for the monks of Vallombrosa, and now in the academy of Florence.

In examining Verrocchio's work as a sculptor we are on surer ground. One of his earliest works was the beautiful marble medallion of the Madonna, over the tomb of Leonardo Bruni of Arezzo in the church of Santa Croce at Florence, executed some years after Bruni's death (1443). In 1472 Verrocchio completed the fine tomb of Giovanni and Piero de' Medici, between the sacristy and the lady chapel of San Lorenzo at Florence. This consists of a great porphyry sarcophagus enriched with magnificent acanthus foliage in bronze. In 1474 Verrocchio began the monument to Cardinal Forteguerra at the west end of Pistoia cathedral.

Verrocchio died in Verice in 1488, and was buried in the church of St. Ambrogio in Florence.

VERSAILLES, a town of France, chef-lieu of the department of Seine-et-Oise and an episcopal see, lies eleven miles west-southwest of Paris, with which it is connected by railways on both banks of the Seine and by a tramway. The town owes its existence to the palace (460 feet above the sea) built by Louis XIV. The fresh healthy air and the nearness of the town to Paris have attracted many residents, and the interest attaching to the place draws crowds of visitors. The population in 1901 was 54,081 (commune 59,852), including about 10,000 military.

The three avenues of St. Cloud, Paris, and Sceaux converge in the Place d'Armes. Between them stand the former stables of the palace, now occupied by the artillery and engineers. To the south lies the quarter of Satory, the oldest part of Versailles, with the cathedral of St. Louis, and to the north the new quarter, with the church of Notre Dame. To the west a gilded iron gate and a stone balustrade shut off the great court of the palace from the Place d'Armes. At the highest point of the court there is an equestrian statue in bronze of Louis XIV., and to the right and left of this stretch the long wings of the palace, while behind it stand the central buildings one behind the other as far as the Marble Court. Here all the lines of construction meet, and here were the rooms of Louis XIV. To the north the Chapel Court and to the south the Princes Court, with vaulted passages leading to the gardens, separate the side from the central buildings. On the latter is the inscription "À toutes les gloires de la France," which Louis Philippe justified by forming a collection of five thousand works of art (valued at \$5,000,000), commemorating the great events and persons of French history. The palace chapel (1696-1710), the roof of which can be seen from afar rising above the rest of the building, was the last work of Mansard. Opposite the altar is the king's gallery, which communicates with the rooms on the first floor of the palace. The ground floor of the north wing on the garden side contains eleven halls of historical pictures from Clovis to Louis XIV., and on the side of the interior courts a gallery of tombs, statues, busts of kings and celebrities of France for the same period. The Halls of the Crusades open off this gallery, and are decorated with the arms of crusaders, kings, princes, lords, and knights, and with those



of the grand-masters and knights of the military religious orders. On the first floor of the north wing on the garden side are ten halls of pictures commemorating historical events from 1795 to 1855; on the court side is the gallery of sculpture which contains the Joan of Arc of the Princess Marie of Orleans; and there are seven halls chiefly devoted to French campaigns and generals in Africa, Italy, the Crimea, and Mexico, with some famous war pictures by Horace Vernet. The second story has a portrait gallery. In the north wing is also the theater built under Louis XV. by Gabriel, which was first used on May 16, 1770, on the marriage of the dauphin (afterward Louis XVI.) and Marie Antoinette. Here on October 2, 1789, the celebrated banquet was given to the Gardes du Corps, the toasts at which provoked the riots that drove the royal family from Versailles; and here the national assembly met from March 10, 1871, till the proclamation of the constitution in 1875, and the senate from March 8, 1876, till the return of the two chambers to Paris in 1879. The central buildings of the palace project into the garden. On the ground floor are the halls of celebrated warriors (once the anteroom of Madame de Pompadour), marshals, constables, and admirals. The Great Dauphin (son of Louis XIV.), the duke and duchess of Berri, the dauphin (son of Louis XV.), Madame de Montespan, Madame de Pompadour, and the daughters of Louis XV. all lived in this part of the palace. The gallery of Louis XIII., decorated with historical pictures of his and Louis XIV.'s time, leads to the halls surrounding the Marble Court. One of these contains many plans of battles, and at its door Louis XV. was wounded by Damiens in 1757. The famous state rooms are on the first floor. On the garden side, facing the north, are a series of seven halls. To the front of the palace, facing the west, are the Galleries of War and Peace, with allegorical pictures, and the Glass Gallery, built by Mansard in 1678 (240 feet long, 34 wide, and 43 high), having 34 arches, 17 of which are filled with windows looking on the gardens and 17 with large mirrors. The gallery is overloaded with ornament, and the pictures by Lebrun, the trophies and figures of children by Coysevox, and the inscriptions attributed to Boileau and Racine all glorify Louis XIV. This gallery was used by him as a throne room on state occasions. Here the king of Prussia was proclaimed emperor of Germany on January 16, 1871. Connected with the Gallery of Peace is the queen's room, occupied successively by Marie Thérèse, Marie Leczinska, and Marie Antoinette, where the duchess of Angoulême was born, the duchess of Burgundy died, and Marie Antoinette was almost assassinated on October 6, 1789. The Coronation Hall is so called from David's picture of Napoleon's coronation, which is regarded as the artist's masterpiece. This hall opens on the marble, or queen's, staircase. Behind the Glass Gallery on the side of the court are the rooms of Louis XIV. The *Ceil de Bœuf*, named from its oval window, was the anteroom where the courtiers waited till the king rose.

It leads to the bedroom in which Louis XIV. died, after using it from 1701, and which Louis XV. occupied from 1722 to 1738. To the north of the Marble Court are the "petits appartements" of Louis XV. and to the south those of Marie Antoinette. Among the former is the Porcelain Gallery. On the second floor of the buildings surrounding the Stags Court Madame du Barry lived, and Louis XVI. afterward worked at lockmaking. Marie Thérèse and Marie Leczinska had previously used the "petits appartements" of Marie Antoinette, one of the rooms of which is ornamented with woodwork of her time. In this part of the palace Madame de Maintenon and the duke of Burgundy had rooms, those of

the latter being afterward occupied by Cardinal de Fleury and the duke of Penthièvre. In the south wing of the palace, on the ground floor, are the Imperial Galleries and the rooms occupied by the president of congress when the two legislative bodies meet together at Versailles. A sculpture gallery contains busts of celebrated scholars, artists, generals, and public men from the time of Louis XVI. onward. In the south wing is also the room where the chamber of deputies met from 1876 till 1879 and where the congress has since sat to revise the constitution of 1875 and to elect the president of the republic. The first floor is almost entirely occupied by the Battle Gallery (394 feet long and 43 wide). It is lighted from above, and the walls are hung with pictures of French victories. In the window openings are the names of soldiers killed while fighting for France, with the names of the battles in which they fell, and there are more than eighty busts of princes, admirals, constables, marshals, and celebrated warriors who met a similar death. Another room is given up to the events of 1830 and the accession of Louis Philippe, and a gallery contains the statues and busts of kings and celebrities from Philip VI. to Louis XVI. In the rooms of the second story are portraits (mostly modern), sea-pieces, pictures of royal residences, and some historical pictures of the time of Louis Philippe.

The gardens of Versailles were planned by Le Nôtre. The best view is obtained from a balcony of the Glass Gallery. The ground falls away on every side from a terrace adorned with ornamental basins, statues, and bronze groups. Westward from the palace extends a broad avenue, planted with large trees, and having along its center the grass of the "Tapis Vert;" it is continued by the Grand canal, 200 feet wide and one mile long. On the south two splendid staircases of 103 steps, sixty-six feet wide, lead past the Orangery to the Swiss Lake, 1,312 feet long and 460 wide, beyond which is the wood of Satory. On the north an avenue, with twenty-two groups of three children, each group holding a marble basin, from which a jet of water rises, slopes gently down to the basin of Neptune, remarkable for its fine sculptures and abundant water. The Orangery (built in 1685 by Mansard) is the finest piece of architecture at Versailles; the central gallery is 508 feet long and forty-two wide, and each of the side galleries is 375 feet long. There are twelve hundred orange-trees, one of which is said to be 465 years old, and three hundred other kinds of trees. The alleys of the parks are ornamented with statues, vases and regularly-cut yews, and bordered by hedges surrounding the shrubberies. Beyond the Tapis Vert is the large basin of Apollo, who is represented in his chariot drawn by four horses; there are three jets of water, one sixty and the others fifty feet in height. The Grand canal is still used for nautical displays; under Louis XIV. it was covered with Venetian gondolas and other boats, and the evening entertainments usually ended with a display of fireworks. Among the chief attractions of Versailles are the fountains and waterworks made by Louis XIV. in imitation of those he had seen at Fouquet's chateau of Vaux. Owing to the scarcity of water at Versailles, the works at MARLY-LE-ROI (*g.v.*) were constructed in order to bring water from the Seine; but part of the supply thus obtained was diverted to the newly-erected chateau of Marly. Vast sums of money were spent and many lives lost in an attempt to bring water from the Eure, but the work was stopped by the war of 1688. At last the waters of the plateau between Versailles and Rambouillet were collected and led by channels (total length ninety-eight miles) to the gardens, the soil of which covers innumerable pipes, vaults, and aqueducts. The total volume of water annually brought



to Versailles is about 175,000,000 cubic feet, of which two-fifths supply the town and the rest the park.

Beyond the present park, but within that of Louis XIV., are the two Trianons. The Grand Trianon was originally erected as a retreat for Louis XIV. in 1670, but in 1687 Mansard built a new palace on its site. Louis XV., after establishing a botanic garden, made Gabriel build in 1766 the small pavilion of the Petit Trianon, where the machinery is still shown by which his supper-table came up through the floor. It was a favorite residence of Marie Antoinette, who had a garden laid out in the English style, and lived an imaginary peasant-life. The Grand Trianon is a one-storied building with two wings, and has been occupied by Monsieur (Louis XIV.'s brother), by the Great Dauphin, the duke of Burgundy, the duchess of Orleans, Napoleon I., and Louis Philippe and his court. The duke and duchess of Orleans lived in the Petit Trianon. The gardens of the Grand Trianon are in the same style as those of Versailles, and there is a museum with a curious collection of state carriages, old harness, etc.

Apart from the palace, there are no buildings of interest in Versailles, the church of Notre Dame, built by Mansard, the cathedral of St. Louis, built by his grandson, the Protestant church, and the English chapel being in no way remarkable. The celebrated tennis-court is now used as a museum. The large and sumptuous palace of the prefecture was built during the second empire, and was a residence of the president of the republic from 1871 to 1879. The library consists of 60,000 volumes; and the military hospital formerly accommodated 2,000 people in the service of the palace. There is a statue of General Hoche and one of Abbé de l'Épée in the town. A school of horticulture was founded in 1874, attached to an excellent garden, near the Swiss Lake. Versailles is the seat of a school of artillery and of a school for non-commissioned officers of the artillery and engineers.

Louis XIII. often hunted in the woods of Versailles, and built a small pavilion at the corner of what is now the Rue de La Pompe and the avenue of St. Cloud. In 1627 he intrusted Lemercier with the plan of a château, and in 1632 bought the land from François de Gondy, first archbishop of Paris, for \$13,000. In 1661 Leveau made some additions, and in 1682 Louis XIV. took up his residence at Versailles, and gave Mansard orders to erect the great palace in which the original buildings disappeared. Fabulous sums were spent on the palace, gardens, and works of art, the accounts for which were destroyed by the king. Till his time the town was represented by a few houses to the south of the present Place d'Armes; but land was given to the lords of the court and new houses sprang up, chiefly in the north quarter. Under Louis XV. the parish of St. Louis was formed to the south for the increasing population, and new streets were built to the north on the meadows of Clagny, where in 1674 Mansard had built at Louis XIV.'s orders a château for Madame de Montespan, which was now pulled down. Under Louis XVI. the town extended to the east and received a municipality; in 1802 it gave its name to a bishopric. In 1783 the peace by which England recognized the independence of the United States was signed at Versailles. The states-general met here on May 5, 1789, and on June 20th took the solemn oath by which they bound themselves never to separate till they had given France a constitution, and which led to the riots of October 5th and 6th. Napoleon, Louis XVIII., and Charles X. merely kept up Versailles, but Louis Philippe restored its ancient splendor at the cost of \$5,000,000. In 1870 and 1871 the town was the headquarters of the German

army besieging Paris. After the peace Versailles was the seat of the French national assembly while the commune was triumphant in Paris, and of the two chambers till 1879, being declared the official capital of France. Versailles was the birthplace of Hoche, Abbé de l'Épée, Philip V. of Spain, Louis XV., Louis XVI., Louis XVIII., Charles X., Count de Maurepas, Prince de Polignac, Marshal Berthier (Prince of Wagram), Houdon the sculptor, Ducis the poet, Callet the mathematician, and Ferdinand de Lesseps.

VERSEZ, a royal free town in the county of Temes, Hungary, forty miles south of Temesvár. It is partly fortified and is the seat of a Greek bishop. Among its principal institutions are a high college for girls, a gymnasium, and a real school. Versez is one of the principal wine-producing centers in the kingdom, its yearly export amounting to an average of 5,500,000 gallons. There is also a good trade in rice and silk. The population numbers 22,329.

VERTEBRATA, the name of a great branch or phylum of the Animal Kingdom which comprises those animals having bony "vertebræ," or pieces of bone jointed so as to form a spinal column. The first recognition of the group is due to Lamarck (1797), who united the four highest classes of Linnaeus' system as "animaux à vertèbres," while distinguishing the rest of the animal world as "animaux sans vertèbres." The same union of the four Linnaean classes had been previously made by Batsch in 1788, who, however, proposed for the great division thus constituted the name "Knochenthiere." The significance of Lamarck's classification was materially altered, and the foundation laid of our present attempts to represent by our classifications the pedigree of the animal kingdom, when Cuvier propounded his doctrine of "types," and recognized the *Vertebrata* as one of four great types or plans of structure to be distinguished in the animal world.

The *Vertebrata* of Lamarck and Cuvier included beasts, birds, reptiles, and fishes, and until recently the group was considered as one of the most sharply limited in the animal kingdom. The progress of anatomical studies very soon rendered it clear that all *Vertebrata* did not possess bony vertebrae; for, besides the commoner sharks and skates, with their purely cartilaginous skeletons, naturalists became acquainted with the structure of fishes, such as the sturgeons and the lampreys, which possess no vertebrae at all, but merely a continuous elastic rod (the notochord) in the place of the jointed spinal column. The muscles and their skeletal septa were seen in these fishes to be arranged in a series of segments attached to the sides of this continuous rod; and hence the structural character of bony vertebrae, as distinguishing the *Vertebrata*, gave place to the character of segmental arrangement of the muscles of the body-wall, such muscles being supported by a skeletal axis which might be itself unsegmented (notochord), or replaced by segmental cartilaginous or bony vertebrae. The studies of embryologists furnished a sound foundation for this conception by demonstrating that in the embryos of *Vertebrata* with true vertebrae these structures are preceded by an unsegmented continuous notochord. The inquiry into the structural characteristics of *Vertebrata* led further to the recognition of several additional points of structure, the combination of which was present only in the group which had been recognized by Lamarck on superficial grounds. It was found that all *Vertebrata* possess laterally-placed passages leading from the pharynx to the exterior, serving in the aquatic forms as the exits for water taken in by the mouth, and provided with vascular branchial processes, while in the embryos of the higher air-breathing classes they appear only as temporary structures. It was further



established that the great mass of nervous tissue lying dorsally above the spinal column, and known as the cerebro-spinal nerve-center or brain and spinal cord, is in all cases a tube, and originates as part of the dorsal surface of the embryo, which becomes depressed in the form of a long groove and finally closed in by the adhesion of its opposite edges, thus forming a tube or canal. The three structures—notochord, gill-slits, and tubular dorsal nerve-cord—were more than twenty years ago recognized as characterizing, together with the metameric segmentation of the musculature of the body-wall, all *Vertebrata* at some one or other period of their existence.

The establishment by Darwin of the doctrine of organic evolution in 1859 led naturalists consciously to make the attempt to determine the genetic affinities and the probable ancestry of the various groups of animals, and enabled them to recognize in the classifications by "type," and other such conceptions of earlier systematists, the unconscious striving after genealogical representation of the relationships of organic beings. The question naturally arose in regard to the *Vertebrata*, as in regard to other great divisions of the animal kingdom, What were the characteristics of the earliest forms, the ancestors of those now living? Then came the further questions as to whether any surviving *Vertebrata* closely resemble the ancestral form, and whether any animals are still in existence which retain the general characteristics of those primeval forms which were the common ancestors at once of Vertebrates and of other large and equally well-marked phyla or branches of the animal kingdom, such as the Molluscs, the Annulates, etc. This fascinating subject of inquiry received its most important impulse from the embryological investigations of the Russian naturalist Kowalewsky, and has been for nearly a quarter of a century the fertile source of speculation and its indispensable accompaniments, new observation and research. Kowalewsky published in 1866 an account of the embryology of the lowest and simplest of then recognized Vertebrates, the lancelet (*Amphioxus lanceolatus*), in which he attempted to trace, cell for cell from the fertilized egg-cell, the origin of the characteristic Vertebrate organs of this animal. This work alone would not have acquired historic importance, although it is the starting-point of what may be called strict cellular embryology, as compared with the less severely histological works of previous students. But it was accompanied by an account of the development of *Ascidia mamillata*, one of the so-called Tunicate Molluscs, in which it was demonstrated by Kowalewsky, not only that this supposed Mollusc possesses when first hatched from its egg-envelope a notochord, pharyngeal gill-slits, and a tubular dorsal nerve-cord and brain, but that these three characteristically Vertebrate features of organization originate from the same cell-layers of the embryo, and in essentially the same way as in *Amphioxus*, while the cell-layers themselves originate from the egg-cell in the two animals by precisely similar movements of cell division and invagination. Kowalewsky's discoveries established once for all that the Ascidian tadpole is identical in three very special and distinct features of structure with the frog's tadpole. No classification which pretended to set forth the genetic affinities of animals could henceforth separate the Ascidian from the *Vertebrata*, and with it the Ascidian brought the whole series of *Tunicata*.

The admission of *Tunicata* as a group of *Vertebrata* was proposed as long ago as 1877, but it required the intermediate proposition by Balfour of a group *Chordata*, to comprise the two divisions *Tunicata* and *Vertebrata*, in order to render the final admission of

*Tunicata* to their proper association with the *Vertebrata* of Cuvier palatable to systematists.

The admission of *Tunicata* to association with Cuvier's *Vertebrata* has been followed by a further innovation. The remarkable marine worm *Balanoglossus*—originally described by Della Chiaje at the end of the eighteenth century—was shown in 1866 by Kowalewsky to possess a series of pharyngeal gill-slits similar to those of *Tunicata* and *Amphioxus*. Later researches by Bateson have demonstrated that *Balanoglossus* develops in embryonic life a short notochord, while its nerve-cord is, in part at least, tubular, and similar in position and relations to the median epidermal tract by the infolding of which the nerve-tube of *Tunicata* and the other *Vertebrata* is formed. Hence it seems impossible to exclude *Balanoglossus* from a place in the phylum *Vertebrata*.

The Cuvierian *Vertebrata*, *Amphioxus*, *Tunicata* and *Balanoglossus* being thus indisputably connected by a remarkable combination of structural points, which admit of no explanation consistent with the principles of evolutionary morphology except that of the genetic relationship of the forms thus enumerated, we are at once confronted by those questions as to the ancestral history of *Vertebrata* which have been already mentioned above as stimulated by Kowalewsky's discoveries. Undoubtedly *Amphioxus* is lower and simpler in structure than any Fish, *Tunicata* as low as or lower than *Amphioxus*, and *Balanoglossus*, in some respects, more archaic than either *Amphioxus* or the Ascidian tadpole. The first tendency arising from the discovery of the affinities of the simpler forms with the Cuvierian *Vertebrata* was to see in them the representatives of the ancestors of all *Vertebrata*. *Amphioxus* has been pointed to by authorities in morphology as the living presentation of our common Vertebrate ancestor; a similar position corresponding to an earlier stage of development has been admitted by no less an authority than Darwin for the Ascidian. It appears, nevertheless, that all such simple solutions of the problem of Vertebrate ancestry are without warrant. They arise from a very common tendency of the mind, against which the naturalist has to guard himself—a tendency which finds expression in the very widespread notion that the existing anthropoid apes, and more especially the gorilla, must be looked upon as the ancestors of mankind, if once the doctrine of the descent of man from ape-like forefathers is admitted. A little reflection suffices to show that any given living form, such as the gorilla, cannot possibly be the ancestral form from which man was derived, since *ex hypothesi* that ancestral form underwent modification and development, and in so doing ceased to exist. The same considerations apply to the question of the ancestry of *Vertebrata*.

The general result of the considerations which have been urged with regard to degeneration is this, that it is *prima facie* as legitimate an hypothesis, that any existing animal has developed by progressive simplification from more elaborate ancestors, as it is that such an animal has developed by a continuous and unbroken progress in elaboration from simpler ancestors; and we are specially called upon to apply the hypothesis of degeneration where the animal under consideration is likely from its mode of life to have undergone that process. Such modes of life, tending to degeneration, are parasitism, sessile or adherent habit, burrowing in the seabottom, and diffuse feeding. The animal which pursues living prey, and contends with other organisms for the dominion of the regions of earth and water that are flooded with light and richly supplied with oxygen gas, is the animal which represents the outcome of a longer



or shorter period of progressive elaboration. It is worth while noting in parenthesis that in all cases the "whirligig of time" has probably brought its revenges, and that the ancestry of a form evolved through a long period of progressive elaboration was at an antecedent period subject to simplification and degeneration, while in the past records of the present exemplars of the latter process there must certainly have been long stretches of continuous elaboration.

Applying these considerations to the construction of the genealogical tree of *Vertebrata*, we find that the task is by no means simplified. We cannot with the earliest evolutionists adopt a scale or ladder-like series, placing the simplest form on the lowest step; nor can we be satisfied with a tree-like arrangement, in which the forms at the ends of the branches are always more elaborate than those nearer the trunk.

The structural features of those animals which must be admitted to the Vertebrate phylum in consequence of possessing notochord, pharyngeal gill-slits, and dorsal nerve-plate, tubular or unrolled, are such as enable us very readily to group them in four great divisions, which appear to be equally distinct from one another. As to what may be the genetic relations to one another of these four groups we will inquire subsequently; for the present we term these groups "branches." They are as follows: Phylum VERTEBRATA. Branch *a*—*Craniata* (Cuvierian *Vertebrata*). Branch *b*—*Cephalochorda* (*Amphioxus*). Branch *c*—*Urochorda* (*Tunicata*). Branch *d*—*Hemichorda* (*Balanoglossus*).

The *Craniata* are *Vertebrata* in which the tubular cerebro-spinal nerve-mass is swollen anteriorly to form a brain, consisting primarily of three successive vesicles, in connection with the anterior of which the special nerves of the olfactory organs and of the eyes originate. The notochord, while extending posteriorly to the extremity of the body, does not reach quite so far forward anteriorly as the termination of the nerve-tube. A cartilaginous cranium or brain-case develops round the anterior extremity of the nerve-cord, and rises up laterally so as to inclose and protect the brain (hence *Craniata*). Cartilage is developed in other parts of the body as a skeletal substance, though it may be subsequently replaced in the cranium, as elsewhere, by bone. The longitudinal muscles of the body-wall are divided by transverse fibrous septa into a series of segments, varying in the adult from 10 to 100 or more in number. Cartilaginous neural arches, corresponding in number and position to the fibrous septa, and resting on the notochord, are developed so as to protect the nerve-cord. Cartilaginous bars also pass outward, with a direction at first horizontal and then ventral, from the sides of the notochord into the intermuscular fibrous septa. Very generally, but not always, a tubular cartilaginous sheath forms round the notochord; this sheath with rare exceptions becomes segmented to form a series of vertebral bodies, which lie in the planes of the fibrous intersegmental septa, and, increasing in thickness by encroaching upon the substance of the notochord, finally obliterate it almost entirely.

All *Craniata*, except some Fishes, possess a muscular process on the floor of the oral cavity which may carry teeth, or act as a licking organ, or assist in suction. This is the tongue.

All *Craniata*, with degradational exceptions, possess an outgrowth, single or paired, of the post-pharyngeal region of the alimentary canal, which is filled with gas. In many Fishes this becomes shut off from the gut; in others it remains in communication with the gut by an open duct. In Fishes it functions as a hydrostatic apparatus. In terrestrial *Craniata* it is subservient to the gas-exchange of the blood and becomes the lungs.

All *Craniata* have a large and compact liver; and a pancreas is also uniformly present, except in *Cyclostoma*, some bony fishes, and the lower *Amphibia*.

All *Craniata* have a thick-walled muscular heart, which appears first as an "atrium," receiving the great veins, attached to a "ventricle," by which the blood received from the atrium is propelled through a number of arteries, right and left, corresponding in number to the pharyngeal gill-slits between which they pass.

All *Craniata* have a lymphatic system or series of channels by which the exudation from the capillary blood-vessels is returned to the vascular system. It includes in its space-system the coelom and a variety of irregular and canalicular spaces in the connective tissues.

The group of *Craniata* *Vertebrata* thus anatomically described, while retaining the essential unity indicated, presents an immense variety of modifications. The chief modifications are distinctly traceable to and accounted for by mechanical and physiological adaptation to a terrestrial and air-breathing life, as opposed to the earlier aquatic and branchial condition. The existing forms of *Craniata* have been arrested at several points, in the progress toward the most extreme adaptation to terrestrial conditions, which is presented by those forms that can not only breathe air and live on dry ground, but fly habitually in the air. The organs most obviously affected by this progressive adaptation are the skin, the skeleton, especially of the limbs, the pharyngeal gills, and the air-bladder. This fact will appear most clearly in the subjoined classification of *Craniata*; for space does not permit us to pursue further the history of these modifications.

*Cephalochorda* are *Vertebrata* in which there is no anterior dilatation of the nerve-tube to form a brain and no specialized skeletal brain-case. The notochord extends from one extremity of the elongate body to the other as a tapering uncontracted rod, passing anteriorly some distance in front of the nerve-cord. The longitudinal muscles of the body-wall are divided by transverse fibrous septa into a series of segments (sixty-two in *Amphioxus lanceolatus*), the more anterior of which are in front of the mouth and not in any way fused to form a head or cranial structure. Dense connective tissue (differing but little from cartilage) forms an unsegmented sheath to the notochord and an unbroken neural canal above it, in which the nerve-cord lies. The same tissue forms a series of metamericly repeated fin rays, which support the base of a median fin extending along the entire dorsal surface. The fin is continued ventrally from the caudal extremity as far forward as the anus, but without fin rays. Two lateral up-growths of the body-wall (the epipleura) extend one on either side from the head as far back as the anus.

The gill-slits in *Amphioxus* are very numerous (100 or more), and have no numerical relation to the metameres of the muscular body-wall, though the first few which appear in the embryo correspond at the time to successive myomeres—a relation which they subsequently lose. The sides of the gill-slits are supported by chitinous bars, and each slit is divided into two equal portions by a longitudinal tongue or bar, which grows out from the dorsal margin of the slit soon after its first formation. The number of gill-slits increases continually throughout the life of *Amphioxus* by the formation of new ones at the posterior border of the pharynx, while the myomeres do not increase in number after early embryonic life.

There is no representative of the *Craniates*' swim-bladder in *Amphioxus*. A single wide diverticulum of the alimentary canal represents the liver of *Craniata*; the pancreas is unrepresented.



The vascular system is singularly incomplete: large trunks exist, but few branches and no heart, while the blood itself is colorless, and communicates (as in *Craniata* by the lymphatic "hearts") with the coelomic fluid at various points. A contractile ventral trunk runs along the lower face of the slit pharynx, and sends vessels right and left up the successive bars; these vessels unite above, as in *Craniata*, to form a double "dorsal aorta," which posteriorly becomes a single vessel. A portal system of veins can be traced in connection with the hepatic cæcum.

No system of lymphatic vessels, nor lymphatic "glands," nor a spleen exist; but the coelom, and certain other spaces in the connective tissue, contain coagulable lymph, and correspond to the lymph spaces of *Craniata*.

In many respects *Amphioxus*, the only representative of *Cephalochorda*, bears evidence of being derived from a more highly organized ancestry. Its mode of life (burrowing in the sand in shallow water, while its general build is that of a swimming animal) and the nature of its food (diatoms, etc., carried into the pharynx by ciliary currents) in themselves suggest such a history. The vascular system is elaborate in plan yet incomplete in detail, suggesting an atrophy of its finer branches, which is consistent with the small size of *Amphioxus* and the general principle that a complex vascular system can only be developed in an animal which has attained to a certain bulk. The absence of well-developed sense organs and of "cephalization" in an animal which has attained to such elaboration of structure as is shown by the pharynx and atrial chamber, and which has such well-developed muscles to the body-wall, is an inconsistency best explicable by degeneration; so, too, the existence of the elaborate series of fin rays, which are out of proportion to the mechanical requirements of so small a form.

Degenerate though *Amphioxus* must be, the ancestor from which it started on its retrogressive course was probably a long way behind any living *Craniate*. There is no reason to suppose that this ancestor had a cranium, or that the muscular segments and segmental nerves in its cephalic region were fused and welded. *Amphioxus* has probably lost, as compared with that ancestor, lateral eyes and otocysts, nephridia, and, above all, size.

*Urochorda* are *Vertebrata* which, with the exception of the group *Larvalia* (*Appendicularia*, *Fritillaria*, *Oikopleura*), have receded very far indeed from the characteristic Vertebrate structure, showing neither notochord nor nerve-cord, and gill-slits only of the most highly modified and aberrant form; some, however (certain Ascidians), pass through a larval condition in which these structures are present in the normal form. It is necessary for the purposes of the present article to confine our attention to *Larvalia* and to the larval forms which retain ancestral characteristics. (For a description of the whole group, see the article TUNICATA.)

*Urochorda* are so extremely aberrant, and show so little more than a transient developmental indication of the essential Vertebrate organs, that we cannot hope to get much positive information from them on the subject of Vertebrate ancestry. Only the minute *Appendicularia* (*Larvalia*) retain the Vertebrate structure through life, and they are obviously, on account of their minute size, extremely degenerate.

*Hemichorda* comprise the single genus *Balanoglossus*—formerly classified by Gegenbaur as *Euteropneusta*, an independent phylum of the animal kingdom. They are *Vertebrata* of worm-like form, elongate and somewhat flattened from above downward. In front of the mouth is a long cylindrical proboscis, and behind it a collar, the free margin of which is turned backward,

and corresponds to the opercular epipleural folds of *Cephalochorda* and *Craniata*. This agreement is supported by the existence of a pair of collar pores opening into the coelom of the collar, as the "brown funnels" of *Amphioxus* open into the epipleural coelom of that animal.

A general network of nerve-fibers (and cells?) exists beneath the epidermis all over the body. The blood-system is peculiar, consisting of an anterior heart and a dorsal and ventral vessel; these are united by a plexus of subcutaneous vessels. Not the least remarkable fact about *Hemichorda* is the nature of their larvæ. No other *Vetebrata* present larval forms which indicate the nature of the early ancestral history in what we may call præ-chordal times; however interesting the Ascidian larva, or the young *Amphioxus* and the embryo dog-fish, they do not take us out of the Vertebrate area.

VERTIGO, in medicine, is where the patient experiences a sensation of being about to fall or of turning around, or as if the earth were turning round with him. It usually comes on without any premonition and associated with it are such symptoms as flashing of light before the eyes, buzzing in the ears, headache, etc. It is usually caused by a too copious rush of blood to the brain, and should be treated accordingly. (See APOPLEXY).

VERTUE, GEORGE, engraver and antiquary, was born in London in 1684. At the age of thirteen he was apprenticed to a heraldic engraver. Vertue then studied drawing at home, and afterward worked for seven years as an engraver under Michael Vanderghucht. He was patronized by Sir Godfrey Kneller, and was one of the first members of the Academy of Painting which that artist instituted in 1711. His plate of Archbishop Tillotson, after Kneller, commissioned by Lord Somers, established his reputation as an engraver. In portraiture alone he executed over five hundred plates. In 1717 he was appointed engraver to the Society of Antiquaries, and his burin was employed upon many interesting statues, tombs, portraits, and other subjects of an antiquarian nature. He died on July 24, 1756, and was buried in the cloisters of Westminster Abbey.

VERUS, M. AURELIUS. See AURELIUS.

VERVIERS, a town of Belgium, in the province of Liège, is situated on the Vesdre, nineteen miles south west from Aix-la-Chapelle. It is divided into an upper and a lower town, but has no striking architectural features. The staple commodity is cloth, which is manufactured here and in the immediate environs to the value of \$16,000,000 annually. Other manufactures are soap, chemicals, confectionery, and machinery; dyeing, tanning, and iron and copper founding are also carried on. The town is a modern one; its manufacturing prosperity, the beginning of which dates from the eighteenth century, is partly attributed to the waters of the Vesdre, which are said to be peculiarly well adapted to the purposes of the dyer. The pop. (1901) was 52,203.

VESALIUS, ANDREAS. See ANATOMY.

VESICAL DISEASES. The urinary bladder is the temporary reservoir of the renal secretion, and as such contains the urine for longer or shorter periods. In recent years diseases of the bladder have come more than formerly within the scope of operative surgery, owing especially to great advances in the methods of examining the inner wall of the bladder both by sight and touch—by sight in virtue of the endoscope, an instrument which when introduced into the bladder enables a visual examination of the interior to be made; and by touch, as surgeons do not now hesitate to make incisions into the bladder, either from the perineum or suprapubically, for purely diagnostic purposes. Further.



more careful and improved chemical and microscopical examination of the urine enables the surgeon to judge better than formerly what the condition of the bladder is. Diseases of the bladder may be conveniently divided into two groups—(1) those which involve recognizable organic structural change, and (2) those which do not necessarily involve obvious organic structural change. The more important diseases of the first class are inflammation or cystitis, calculi, and neoplastic growths; but there are also others of less importance, such as hypertrophy, dilatation, and tuberculosis. The diseases of the second group in which no organic structural change can be recognized in the bladder-wall are numerous. In many cases, however, they can scarcely be considered as diseases of the bladder pure and simple, but rather as concomitants or results of other diseases. Moreover, in many cases they give rise sooner or later to diseases which are accompanied by structural changes. Thus "irritable bladder," although at first it may be independent of any such change, soon gives rise to inflammation of the bladder-wall, or cystitis; and many surgeons describe it from the beginning as simple cystitis, while cystitis as described in this article they call catarrhal cystitis. In this division, however, we may describe paralysis, atony, incontinence of urine, stammering micturition, and retention of urine.

Inflammation of the bladder may be acute or chronic. It is due in most cases to the presence of irritating matters in the urine, produced by decomposition of the urine itself or by morbid admixture. The inflammation may result also from traumatic injury, from cold, or in cases of gonorrhoea from extension of the inflammation along the urethra into the bladder (through continuity of tissue). Although frequently ushered in by rigors, the chief symptoms of acute inflammation are local; there is pain over the region of the bladder and frequent micturition. The desire to pass water is often uncontrollable, even before more than one or two ounces of urine have been secreted. The urine is much changed in its character, being cloudy from the presence of epithelial scales, pus, mucus cells, and often blood. Chronic inflammation is not in itself dangerous; but the patient, so long as it remains, is liable to an attack of acute cystitis, which, superadded to the pre-existing condition of the bladder, may be very serious. The treatment in both varieties of the disease consists in giving rest to the inflamed part and in alleviating the pain. Hot sitz-baths may be used two or three times daily for ten minutes or a quarter of an hour at a time; and, if the pain be very severe, hot fomentations with tincture of opium should be applied to the perineum or hypogastrium, or a hot douche may be used per rectum. Diluent drinks are given, and tincture of hyoscyamus may be prescribed, as it has a very soothing influence. It may be necessary to give morphia, but generally the pain can be allayed without its use. In chronic cystitis the treatment depends very much on the cause, which must if possible be removed. Thus, if the cystitis is due to a calculus in the bladder, the treatment is to remove the calculus. Very often, however, special remedies are employed to relieve the inflammatory condition, and one of the best is washing out the bladder. Internal remedies have to be administered, one of the most valuable being benzoate of soda. The benzoate in its passage through the blood is changed into hippuric acid, and thus tends to render the urine less alkaline. Attention to the diet of the patient is of great importance in both acute and chronic cystitis; it should be very light, easily digested, and nutritious. Diluents are often of much value, lessening the irritability of the bladder. All wines and stimulants should be avoided.

*Calculi.*—Important information, as we have already said, is derived both by the surgeon and physician from a careful examination of the urine, whether this be done chemically or microscopically. Not infrequently on such examination crystals, varying in their chemical and physical characteristics, are found, and if these be in large amount, distinct urinary deposits are got from the urine after it has been kept in a vessel for a time. The cause producing these crystals or their presence alone may give rise to disease, as, for instance, oxaluria, a condition in which, in addition to other symptoms, we find oxalate of lime crystals present in the urine.

Calculus of the bladder constitutes a most formidable and important disease, and its treatment, either medical or surgical, has probably attracted more attention than that of almost any other disease. Urinary calculi occur in all parts of the world and affect both sexes. They are much more common, however, in some regions than in others. Thus in India they are very common, while in Great Britain very few cases occur among people who live on the western side of the island. Calculi are much rarer in females than in males, and this may perhaps be explained by the shortness and more vertical position of the urethra, so that the contents of the bladder can be more easily evacuated, and by the fact that the habits of the female with regard to diet are more regular than those of the male. The cause of the formation of a calculus may be (a) a tendency in the kidneys to precipitate salts, or (b) some abnormal state of the urine in the bladder, or (c) the presence of a foreign body in the bladder. Probably the last is the most common cause. Calculi vary much in their physical characteristics and chemical constitution. Most frequently only a single stone is present; but very large numbers have been removed from one bladder. The shape of the stone depends on whether it be movable or fixed, and whether there be only one or more in the bladder. A single stone is usually spherical or ovoid, but may be smooth or tuberculated or spinous, this last point being determined chiefly by the composition of the stone; when there are a number of stones present they are usually faceted or many-sided. Some stones are hard; others are soft. In size and weight they vary very much: we find them as small as a pea and as large as a child's head. The largest stone found in the bladder of a human being is in the Royal College of Surgeons' museum of England; and in the Edinburgh university surgical museum there is a stone of very large size.

Seven different kinds of calculi are described, but only three are very common. Vesical calculi are classified according to their composition, and five different forms are very generally recognized; but layers of different salts may be found in the same calculus.

When a stone is present in the bladder, whatever its nature, it acts similarly to any other foreign body, and usually gives rise to a series of definite symptoms. The patient complains of pain in the end of the penis at the completion of micturition. Rough or jolting movements give rise to pain in the region of the bladder. Occasionally there is a sudden stoppage of the flow of urine, which is overcome by a change in position. He suffers from frequency of micturition, just as in any other irritable condition of the bladder. If, in addition to these symptoms, the patient states that at varying intervals he has passed "gravel," the surgeon is almost certain that a calculus is present; but even with all these symptoms there is only one certain diagnostic sign of the presence of a stone, and that is to feel it. This is done by "sounding" the bladder with a sound—an instrument resembling a bougie, but made of steel and with a shorter curve. It can be easily turned from side to side within the bladder, the whole of which must be



systematically examined, and not only enables the surgeon to ascertain the presence of a stone, but, when judiciously used, assists him in determining the size, mobility, situation, number, and hardness of the calculi.

The treatment of calculi by other means than operative surgery has been found to be of very little value.

Urinary calculi are removed by one of three methods—(i.) lithotomy or cutting for stone, (ii.) lithotripsy or crushing the stone, and (iii.) litholapaxy, a modification of lithotripsy, and the method now most commonly adopted. In about nine cases out of every ten the stone may be crushed; but occasionally there are some circumstances which render the operation of lithotomy preferable to lithotripsy. Thus, where the urethra is constricted, as in organic stricture or enlarged prostate, or where the stone is very large or extremely hard, it is right to cut for the stone instead of making any attempt to crush it. Again, in children lithotomy is safer than lithotripsy.

When there is long-continued obstruction to the flow of urine, as in stricture of the urethra, enlarged prostate, etc., the bladder-wall becomes much thickened, the muscular fibers increasing both in size and number; the interstitial fibrous tissue is also increased. The wall on its inner surface becomes rugose, and the condition is technically known as *hypertrophy*.

*Paralysis* of the bladder is a want of contractile power in the muscular fibers of the bladder-wall. It may result from injuries whereby the spinal cord is lacerated or pressed upon at or below the micturitory center situated in the lumbar region. Paralysis is also produced in certain nervous diseases, as in locomotor ataxia, and in various cerebral lesions, as in apoplexy.

*Atony* of the bladder differs from paralysis in being only a paresis or partial paralysis. It is due to a want of tone in the muscular fibers, and is most frequently the result of habitual overdistension of the bladder, such as may occur in cases of enlargement of the prostate.

In both paralysis and atony the indication is to carefully prevent over-distension of the bladder by the urine being retained too long, and at the same time to treat by appropriate means the cause which has produced or is keeping up the condition.

*Incontinence of urine* may occur in the adult or in the child, but is due to widely different causes in the two cases. In the child it may be simply a bad habit, the child not having been properly trained; but more frequently there seems to be a want of control in the micturitory center, so that the child passes its water unwittingly, especially during the night. In adults it is not so much a condition of incontinence in the sense of water being passed against the will, but is rather due to a difficulty in retaining the urine in consequence generally of an over-full bladder—the water which passes being the overflow from a too full reservoir. Occasionally the presence of a calculus may produce the condition. The treatment differs in the case of the child and of the adult. In the child an attempt must be made to improve the tone of the micturitory center by the use of belladonna or strychnia internally and of a blister or faradism externally over the lumbar region, and every effort should be made to train the child to pass its water at stated times and regular intervals. In the adult the cause which produces the over-distension must be removed if possible; but as a rule the patient has to be provided with a catheter, which he can pass into his bladder and thus thoroughly empty it before it has filled to overflowing. A soft flexible catheter should be given in preference to a rigid or semi-rigid one. The best form is the red-rubber catheter.

*Retention of urine* cannot be called a disease of the bladder, but may be the cause of, or result from, blad-

der disease. It may occur in paralysis of the bladder, or in conditions where the patient is suffering from an illness which blunts the nervous sensibility, *e.g.*, typhoid fever. It is, however, much more commonly due to obstruction in some part of the urinary passage anterior to the bladder, as in stricture of the urethra or enlargement of the prostate. The patient can usually tell when he last passed any urine; but, even when no such information can be obtained, there are signs which lead the surgeon to a correct diagnosis. Thus, the bladder if much distended can be felt as a rounded swelling above the pubes, and it may even have passed to the level of the umbilicus. Percussion of the hypogastrium gives a dull note. When retention of urine occurs and the bladder is over-distended, it is necessary to evacuate its contents as soon as possible. If there is no obstruction to the flow of urine, the retention being due merely to atony or paralysis of the bladder, a flexible soft catheter is passed into the bladder and the water drawn off. But, when there is an obstruction which cannot be overcome, aspiration of the bladder has to be resorted to.

**VESOU**, a town of France, chef-lieu of the department of Haute-Saône, is situated 147 miles southeast of Paris on the river Durgon, which here receives two tributaries. The isolated conical hill of La Motte (1,483 feet), which shelters the town on the north, affords fine views of the Jura and the Vosges Mountains. The chief features of Vesoul are the palace of justice, the church of St. George with a fine altar, a library of 20,000 volumes, and an archaeological museum. The population in 1901 was 10,733.

**VESPASIAN**. **TITUS FLAVIUS VESPASIANUS**, the tenth of the twelve Cæsars, was Roman emperor from 70 to 79 in succession to Vitellius. He was born in the year 9, in the Sabine country near Reate. After having served with the army in Thrace and been a questor in Crète and Cyrene, Vespasian rose to be ædile and prætor, having meanwhile taken to wife the daughter of a Roman knight, Flavia Domitilla, by whom he had two sons, Titus and Domitian, both of whom succeeded him. Having already served in Germany, in the years 43 and 44, in the reign of Claudius, he had the command of a legion in Britain under Aulus Plautius, and saw much hard fighting, reducing to subjection the Isle of Wight and penetrating very possibly into Devonshire and the neighborhood of Exeter. In 51 he was for a brief space consul; soon afterward he went as governor to Africa, where, according to Tacitus, his rule was "infamous and odious," according to Suetonius, "upright and highly honorable." He went with Nero's suite to Greece, and in 67 was appointed to conduct the war in Judæa, which was threatening general commotion throughout the East, owing to a widely spread notion in those parts that from Judæa were to come the future rulers of the world.

All eyes in the East were now upon him; Mucianus and the Syrian legions were eager to back him up; and on July 1, 69, while he was at Cæsarea, he was proclaimed emperor, first by the army in Egypt, and then by his troops in Judæa. The legions of the East at once swore to him the customary oath of allegiance. Nevertheless Vitellius had on his side the veteran legions of Gaul and Germany, Rome's best troops. But the feeling in Vespasian's favor quickly gathered strength, and the armies of Mœsia, Pannonia, and Illyricum soon declared for him, and made him in fact master of half of the Roman world. They entered Italy on the northeast under the leadership of Antonius Primus, defeated the army of Vitellius at Bedriacum, sacked Cremona, and advanced on Rome, which they entered after furious fighting and a frightful confusion,



in which the Capitol was destroyed by fire. Leaving the war in Judea to his son Titus, he arrived at Rome in 70, where he restored the Capitol, rebuilt a great part of the city, enforced discipline in the army, which, under Vitellius, had become utterly demoralized, and with the coöperation of the senate put the government and the finances on a sound footing. By his own example of simplicity of life, he put to shame the luxury and extravagance of the Roman nobles and initiated in many respects a marked improvement in the general tone of society. As censor he raised the character of the senate, removing unfit and unworthy members, and promoting good and able men, among them the excellent Julius Agricola. In 70, a formidable rising in Gaul, headed by Claudius Civilis, was suppressed; the Jewish War was brought to a close by Titus' capture of Jerusalem, and in the following year, after the joint triumph of Vespasian and Titus, memorable as the first occasion on which a father and a son were thus associated together, the temple of Janus was closed, and the Roman world had rest for the remaining nine years of Vespasian's reign. The peace of Vespasian passed into a proverbial phrase. In 78 Agricola went to Britain, and both extended and consolidated the Roman dominion in that province, pushing his arms into North Wales and the Isle of Anglesey. In the following year Vespasian died, in his seventieth year.

VESPER (officium *vespertinum*) in the Roman Catholic liturgy is that part of the daily office which follows none (*nona*) and precedes compline (*completorium*). In it the Pater Noster, Ave Maria, Deus in Adjutorium, etc., are followed by five psalms and five antiphons, after which come the "little chapter," the hymn and the verse, which vary according to the season, the Magnificat and its antiphon, and the appropriate collect. In its general features the use of this office can be traced back to a very early date both in the Eastern and in the Western Church.

VESPUCCI, AMERIGO, navigator, was born at Florence on March 9, 1451. His father, Nastagio Vespucci, was a notary, and his uncle, to whom he owed his education, was a scholarly Dominican and a friend of Savonarola. As a student Amerigo showed a preference for natural philosophy, astronomy, and geography. He was placed as a clerk in the great commercial house of the Medici, then the ruling family in Florence. About 1490 he was sent by Lorenzo de' Medici to Spain, and in January, 1492, he was at Cadiz, along with an associate, Donato Nicolini, probably as an agent of the Medici. Shortly after this he seems to have entered the service of a Florentine merchant, Juonato Berardi, established at Seville, who had fitted out the second expedition of Columbus in 1493. Berardi had also undertaken to fit out twelve ships for the king of Spain, and on his death in December, 1495, Vespucci was commissioned to complete the contract. There is no proof that Vespucci accompanied Columbus on either his first or his second voyage, though there can be no doubt that the two Italians were known to each other. As Ferdinand had recalled the monopoly conceded to Columbus, the new passion for exploring became widespread and adventurers of all kinds were constantly leaving Spain for the West.

On the authority of Vespucci himself, he sailed, possibly as astronomer, with one of these adventurous expeditions from Cadiz, on May 10, 1497. After touching at the Canaries, the four vessels are stated to have reached after twenty-seven days "a coast which we thought to be that of a continent;" from Vespucci's account this may have been Campeachy Bay. Thence they doubled Cape Sable and may even have reached Cape Hatteras. Finally, after sailing about a hundred

leagues to an archipelago, the chief island of which was called Iti, they made for Spain and reached Cadiz on October 15, 1498. Still following Vespucci's own statement, he on May 16, 1499, started on a second voyage in a fleet of three ships under Alonzo de Ojeda. They reached the coast of Brazil about Cape St. Roque, sailed north to the mouth of the Amazons, round to the Gulf of Maracaibo, and on to San Domingo. The expedition returned to Cadiz on September 8, 1500. Entering the service of Dom Manuel of Portugal, Vespucci took part in a new expedition to the "Land of Parrots" (Brazil), which left Lisbon on May 10, 1501. Cape St. Roque was reached on August 16th; Rio Janeiro Bay was discovered and named on New Year's day 1502; and in April the expedition appears to have got as far as South Georgia. It reached Lisbon again on September 7, 1502. Next year, on June 10th, Vespucci started from Lisbon on his fourth expedition, with six ships under Coelho, the object being to reach Malacca by sailing west. At the island of Fernando Noronha Vespucci's ship separated from the others and sailed to Bahia and then to Cape Frio, where he built a fort. He returned to Lisbon on June 18, 1504. In 1505 he went back to Spain and reentered the service of Ferdinand, settling in Seville. According to one account, Vespucci made two other voyages to the isthmus of Panama. In 1508 he was appointed *piloto mayor*. He died at Seville on February 22, 1512.

If his own account is trustworthy, Vespucci reached the mainland of America eighteen days before Cabot. Yet he was attached to the expedition only in a subordinate capacity, and, had it not been that his name has become attached to the New World, it is probable he would scarcely have been heard of. It seems to be credible, however, that in a letter written soon after his return from his third voyage he referred to the newly discovered lands as the "New World." Vespucci's claim to have touched the American mainland before Cabot has been hotly disputed, and the controversial literature on the subject is voluminous. The facts, as accepted by those who admit his claims, or at least his good faith, are these. After his fourth voyage, that is after 1504, he wrote a diary called *Le Quatre Giornale*. No fragment of the original exists, and it is only known by allusion. He also wrote several letters to his former schoolfellow Soderini, the gonfalier or chief magistrate of Florence. One of these only remains, and that not in the original, but in a Latin translation printed at the monastery of St. Dié in the Vosges on April 25, 1507. The statement is that a French translation of Vespucci's original had been given to King René, who was patronizing the college at St. Dié. Waldseemüller (*Hylacomylus*) made use of this letter in his *Cosmographia Introductio* published at St. Dié in 1507. Here it is that we have the first suggestion of a name for the New World in the words—"A fourth part of the world, which, since Amerigo found it, we may call Amerigé or America;" and again, "now a fourth part has been found by Amerigo Vespucci, and I do not see why we should be prevented from calling it Amerigé or America." Since Humboldt discussed the subject in his *Examen Critique de l'Histoire de la Géographie du Nouveau Continent*, vol. iv. (1837), the general weight of opinion has been that Vespucci did not make the 1497 voyage, and that he had no share in the first discovery of the American continent, but that there is not sufficient evidence to convict him of deliberate falsification. Varnhagen, however, in his *Amerigo Vespucci* (Lima, 1845) and many other writers on the subject maintain Vespucci's right to be regarded as a member of the expedition.

VESTA (Greek *Fēstia*), the goddess of fire and the



domestic hearth. The cults of the Greek Hestia and the Latin Vesta, both of which involved the guardianship of an ever-burning sacred fire, are most probably derived from a very early custom, common to a great variety of races, and practiced during many different ages. Among people in a primitive state of development the production of fire is a slow and very laborious process; thus it became the custom for each village to maintain a constant fire for the general use of the community, in order to avoid the troublesome necessity of obtaining a spark by friction in case of the accidental extinction at one time of all the village fires. This fire, the central hearth or *ἑστία* of the village (*focus publicus*), became a sacred symbol of home and family life, and by degrees grew into a religious cult of great sanctity and importance. To watch this fire would naturally be the duty of women, and especially of those who were not burdened with the cares of maternity, and hence may have arisen the Roman order of virgin priestesses, whose chief duty it was to tend the sacred fire. A survival of the prehistoric method of getting a spark appears to have existed in the rule which enacted that, if ever the sacred fire of Vesta did go out, the negligent vestal was to be punished by scourging, and the fire rekindled either by friction of dry sticks or, in later times, by the sun's rays brought to a focus by a concave mirror. In the prytaneum, which existed in every Greek state, a different form of cult was developed, though the essential point, the sacred fire, was kept up, just as in the Latin worship of Vesta; and in both cases the fire was extinguished annually at the beginning of the new year, and solemnly rekindled by one of the primitive and hence sacred methods. In Rome this was done on March 1st, the Latin New Year's Day. Both among Greek and early Latin races, at the founding of a new colony, fire was solemnly sent from the prytaneum or Vesta temple of the mother colony to kindle a similar sacred fire in the new settlement.

The intimate connection between the Greek prytaneum fire sacred to Hestia and that of Vesta in Rome has been ably worked out by Mr. J. G. Frazer, in his paper on this subject. The most generally received Latin legend attributes the founding of the Roman temple of Vesta to Numa, who transferred the center of the cult from Alba together with the four vestal virgins, its priestesses (Plut., *Numa*, 10). One of the later kings, either Tarquin I. or Servius Tullius, is said to have increased the number to six (Dion. Hal., iii. 67, and Plut., *Numa*, 10), and it is not till the last years of the pagan period that we hear of a seventh vestal having been added (see Ambrose *Epis.*, ed. Pareus, p. 477; also Plut., *Rom. and Cam*).

The election (*captio*) of the vestal during the early period of Rome was in the hands of the king, and in those of the pontifex maximus under the republic and empire, the candidate was to be more than six and less than ten years of age; she was to be *patrima* and *matrima*, i.e., having both parents alive; free from physical or mental defects; daughter of a free-born resident in Italy. The selected child had her hair cut off, and was solemnly admitted by the pontifex maximus, who held her by the hand, and addressing her by the name *amata*, pronounced an ancient formula of initiation, which is given by A. Gellius in his interesting chapter on the subject. In early times there were certain rules by which girls could be excused from serving as vestals, but the honor soon became so eagerly sought that these provisions were practically useless. Vows were taken by the vestal for a limited period of thirty years, after which she was free to return to private life and even to marry—a thing very rarely done.

Strict observance of the vow of chastity was one of

the chief obligations of the vestals, and its breach was horribly punished by burial alive. Cases of unchastity and its punishment were rare; and, as the evidence against the vestal was usually that of slaves, given under torture, it is probable that in many instances an innocent vestal suffered this cruel death. The case described by the younger Pliny is one of special pathos, as the vestal appears to have been condemned without any sufficient evidence, simply at the wish of the emperor Domitian. A fanciful reason for this fearful punishment is given by Ovid.

The privileges of the vestals and their influential position were very remarkable. They were exempt from any *patria potestas*, except that of the pontifex maximus, their religious father; they could dispose by will of their property, and were in most respects not subject to the Roman laws.

VESTMENTS, in ecclesiastical law, are the garments worn during the church service by the officiating clergy. In England and Scotland before the Reformation the vestments in use were similar to those still worn by the Roman Catholic clergy—probably modifications of the dress of Roman citizens in their origin (see *COSTUME*)—and were either sacrificial, as the chasuble, or non-sacrificial, as the surplice. After the Reformation the question of vestments became of comparatively small importance in the Church of Scotland; but in the Church of England it has in recent years been the cause of much controversy and litigation.

VESTRY. The governing body of a Parish.

VESUVIUS, the most celebrated volcano in the world, rises from the eastern margin of the Bay of Naples in Italy, in the midst of a region which has been densely populated by a civilized community for more than twenty centuries. Hence it has served as a type for the general popular conception of a volcano, and its history has supplied a large part of the information on which geological theories of volcanic action have been based. The height of the mountain varies from time to time within limits of several hundred feet, according to the effects of successive eruptions, but averages somewhere about 4,000 feet above the sea. Vesuvius consists of two distinct portions. On the northern side a lofty semicircular cliff, reaching a height of 3,747 feet, half encircles the present active cone, and descends in long slopes toward the plains below. This precipice, known as Monte Somma, forms the wall of an ancient prehistoric crater of vastly greater size than that of the present volcano. The continuation of the same wall round its southern half has been in great measure obliterated by the operations of the modern vent, which has built a younger cone upon it, and is gradually filling up the hollow of the prehistoric crater. At the time of its greatest dimensions the volcano was perhaps twice as high as it is now. By a colossal eruption, of which no historical record remains, the upper half of the cone was blown away. It was round this truncated cone that the early Greek settlers founded their little colonies.

At the beginning of the Christian era, and for many previous centuries, no eruption had been known to take place from the mountain, and the volcanic nature of the locality was perhaps not even suspected by the inhabitants who planted their vineyards along its fertile slopes, and built their numerous villages and towns around its base. The sagacious and observant geographer Strabo, however, detected the probable volcanic origin of the cone and drew attention to its cindery and evidently fire-eaten rocks.

After centuries of quiescence the volcanic energy began again to manifest itself in a succession of earthquakes, which spread alarm far and wide through Campania. For some sixteen years after 63 these



convulsions continued, doing much damage to the surrounding towns. At Pompeii, for example, among other devastation, the temple of Isis was shaken into ruins, and, as an inscription records, it was rebuilt from the foundations by the munificence of a private citizen. This preliminary earthquake phase of volcanic excitement was succeeded by a catastrophe which stands out prominently as one of the great calamities of human history. On August 24, 79, the earthquakes, which had been growing more violent, culminated in a tremendous explosion of Vesuvius. A contemporary account of this event has been preserved in two letters of the younger Pliny to the historian Tacitus.

This eruption was attended with great destruction of life and property. Three towns are known to have been destroyed—Herculeum at the western base of the volcano, Pompeii on the southeast side, and Stabiae, still farther south on the site of the modern Castellammare. The exhumation of Herculeum and Pompeii in modern times has thrown much light upon the life of Roman citizens in the first century. There is no evidence that any lava was emitted during this eruption. But the abundant steam given off by the volcano seems to have condensed into copious rain, which, mixing with the light volcanic dust, gave rise to torrents of pasty mud, that flowed down the slopes and overwhelmed houses and villages. Herculeum is believed to have been destroyed by these "water lavas," and there is reason to suppose that similar materials filled the cellars and lower parts of Pompeii.

For nearly fifteen hundred years after the catastrophe of 79 Vesuvius remained in a condition of feeble activity. Occasional eruptions are mentioned, but none that was of importance, and their details are given with great vagueness by the authors who allude to them. By the end of the seventeenth century the mountain had resumed much the same general aspect as it presented before the eruption described by Pliny. Its crater-walls, some five miles in circumference, were hung with trees and brushwood, and at their base stretched a wide grassy plain, on which cattle grazed and where the wild boar lurked in the thickets. The central tract was a lower plain, covered with loose ashes and marked by a few pools of hot and saline water. At length, after a series of earthquakes lasting for six months and gradually increasing in violence, the volcano burst into renewed paroxysmal activity on December 16, 1631. Vast clouds of dust and stones, blown out of the crater and funnel of the volcano, were hurled into the air and carried for hundreds of miles, the finer particles falling to the earth even in the Adriatic and at Constantinople. The clouds of steam condensed into copious torrents, which, mingling with the fine ashes, produced muddy streams that swept far and wide over the plains, reaching even to the foot of the Apennines. Issuing from the flanks of the mountain, several streams of lava flowed down toward the west and south, and reached the sea at twelve or thirteen different points. Though the inhabitants had been warned by the earlier convulsions of the mountain, so swiftly did destruction come upon them that 18,000 are said to have lost their lives.

Since this great convulsion, which emptied the crater, Vesuvius has never again relapsed into a condition of total quiescence. At intervals, varying from a few weeks or months to a few years, it has broken out into eruption, sometimes emitting only steam, dust, and scoriæ, but frequently also streams of lava. The years 1766-67, 1779, 1794, and 1822 were marked by special activity, and the phenomena observed on each of these occasions have been fully described.

The modern cone of the mountain has been built up by successive discharges of lava and fragmentary mate-

rials round a vent of eruption, which lies a little south of the center of the prehistoric crater. The southern segment of the ancient cone, answering to the semicircular wall of Somma on the north side, has been almost concealed, but is still traceable among the younger accumulations. The numerous deep ravines that indented the sides of the prehistoric volcano, and which still form so marked a feature on the outer slopes of Somma, have on the south side served as channels to guide the currents of lava from the younger cone. On one of the ridges between these radiating valleys an observatory for watching the progress of the volcano was established many years ago by the Neapolitan Government, and is still supported as a national institution. A continuous record of each phase in the volcanic changes has been taken, and some progress has been made in the study of the phenomena of Vesuvius, and in prognosticating the occurrence and probable intensity of eruptions. A wire-rope railway (opened in the year 1880) carries visitors from the foot of the cone up to within 150 yards of the mouth of the crater.

VESZPRÉM, the chief town of a county of the same name in Hungary, lies between Lake Balaton and the forest of Bakony, about sixty-five miles southwest of Buda-Pesth. Veszprém is the seat of a Roman Catholic bishop, whose cathedral and palace, with the county hall and the gymnasium, form the chief features of the town. Its four annual fairs are much frequented from all parts of the trans-Danubian district, and the trade in grain, wine, and home industries generally is considerable. The place suffered much during the contentions between the Turks and the Hungarians and Austrians in the sixteenth and seventeenth centuries. The population numbers 14,800.

**VETERINARY SCIENCE.** This science comprises a knowledge of the conformation and structure of all the domesticated animals, especially the horse; their physiology and special racial and individual characteristics; their humane management and utilization; their protection from, and medical and surgical treatment in, the diseases and injuries to which they are exposed; their amelioration and improvement; their relations to the human family with regard to communicable disorders; and the supply of food and other products, more particularly those derived from them for the use of mankind.

There is evidence that the Egyptians practiced veterinary medicine and surgery in very remote times; but it is not until we turn to the Greeks that we obtain any very definite information with regard to the state of veterinary as well as human medicine in antiquity. The writings of Hippocrates (460-356 B.C.) afford evidence of excellent investigations in comparative pathology. Aristotle, too, wrote on physiology and comparative anatomy, and on the maladies of animals, while many other Greek writers on veterinary medicine are cited or copied from by Varro, Columella, and Galen.

Until after the conquest of Greece the Romans do not appear to have known much of veterinary medicine. Varro (116-28 B.C.) may be considered the first Roman writer who deals with animal medicine in a scientific spirit, in his *De Re Rustica*, in three books, which is largely derived from Greek writers. Celsus is supposed to have written on animal medicine. From the third century onward veterinary science had a literature of its own and regular practitioners, especially in the service of the Roman armies. Perhaps the most renowned veterinarian of the Roman empire was Apsyrus of Bithynia, who in 322 accompanied the expedition of Constantine against the Sarmatians in his professional capacity, and seems to have enjoyed a high and well-deserved reputation in his time.



It is unnecessary to dwell here on the progress of the veterinary art during the Middle Ages. Toward the close of the mediæval period the subject was much cultivated in the cavalry schools of Italy; and Spain also had an organized system of good practitioners in the fifteenth century, who have left many books still extant. Germany was far behind, and literature on the subject did not exist until the end of the fifteenth century. In the following century the influence of the Italian writers was becoming manifest, and the works of Fugger and Faysar mark the commencement of a new era. In Great Britain animal medicine was perhaps in a more advanced condition than in Germany, if we accept the evidence of the *Ancient Laws and Institutes of Wales* (London, 1841); yet it was largely made up of the grossest superstitions. Among the Celts the healer of horse diseases and the shoer were held in high esteem, as among the more civilized nations of Europe, and the court farrier enjoyed special privileges. The earliest known works in English appeared anonymously toward the commencement of the sixteenth century, namely, *Propertees and Medecynes for a horse and Maseal of Oxen, Horses, Sheepes, Hogges, Dogges*. English books of the seventeenth century exhibit a strong tendency toward the improvement of veterinary medicine and surgery, especially as regards the horse. This is even more notable in the writings of the eighteenth century. Veterinary anatomy was greatly advanced by the *Anatomy of an Horse* (1683) of Snape, farrier to Charles II., illustrated with copper plates, and by the still more complete and original work of Stubbs, the *Anatomy of the Horse* (1766), which decidedly marked a new era in this line of study. Of foreign works it may suffice mention that of Solleyse<sup>1</sup>, *Veritable Parfait Maréchal* (1664), which passed through many editions.

The most important era in the history of modern veterinary science commenced with the institution of veterinary schools. France was the first to take the great initiative step in this direction. Buffon had recommended the formation of veterinary schools, but his recommendations were not attended to. Bourgelat, an advocate at Lyons and a talented hippologist, through his influence with Bertin, prime minister under Louis XV., was the first to induce the government to establish a veterinary school and school of equitation at Lyons, in 1761. This school he himself directed for only a few years, during which the great benefits that had resulted from it justified an extension of its teaching to other parts of France. Bourgelat, therefore, founded (1766) at Alfort, near Paris, a second veterinary school, which soon became, and has remained to this day, one of the finest and most advanced veterinary schools in the world. Twenty years later the Alfort school added to its teaching staff several distinguished professors whose names still adorn the annals of science, such as Daubenton, who taught rural economy; Vic d'Azyr, who lectured on comparative anatomy; Fourcroy, who undertook instruction in chemistry; and Gilbert, one of its most brilliant pupils, who had veterinary medicine and surgery for his department.

Soon after the Alfort school was commenced a national school for Austria was established at Vienna by order of Maria Theresa; and this, remodeled and reorganized by Joseph II., is now the largest in the country. Prussia quickly followed suit; and soon government veterinary schools were founded in almost every other European country, except Great Britain, mostly on a municipal scale. Probably all, but especially those of France and Germany, were established as much with a view to training veterinary surgeons for the army as for the requirements of civil life.

In 1790 St. Bel (whose real name was Vial, St. Bel being a village near Lyons, where was his paternal estate), after studying at the Lyons school and teaching both at Alfort and Lyons, went to England and published proposals for founding a school in which to instruct pupils in veterinary medicine and surgery. The Agricultural Society of Odiham, which had been meditating sending two young men to the Alfort school, elected him an honorary member, and delegated a committee to consult with him respecting his scheme. Some time afterward this committee detached themselves from the Odiham Society and formed an institution styled the Veterinary College of London, of which St. Bel was appointed professor.

This veterinary school has been the parent of other schools in Great Britain, one of which, the first in Scotland, was founded by Professor Dick, a student of Coleman's and a man of great perseverance and ability.

In 1844 the Royal College of Veterinary Surgeons (to be carefully distinguished from the Royal Veterinary College) obtained its charter of incorporation. The functions of this body were, until a recent date, limited almost entirely to examining students taught in the veterinary schools, and bestowing diplomas of membership on those who successfully passed the examinations conducted by the boards which sat in London and Edinburgh.

The graduates of the Royal College of Veterinary Surgeons who have been registered since its foundation in 1844 probably number 4,000. In the British army there is a smaller mortality among the animals employed, and less loss from contagious diseases than in any other in Europe; this result, as well as the high efficiency of the horses, is largely due to the zeal, intelligence, and natural aptitude of the veterinary officers for their special duties. In no other army are they so severely tested, physically and professionally—more than one-half of their service being foreign; and in India their skill has to be exercised on elephants, camels, bullocks, cattle, and sheep, in addition to horses. During war the strain on army veterinary surgeons is very heavy; and, while surgeons are protected in the field by the Geneva Red Cross, being considered as non-belligerents, veterinary officers are regarded as combatants, and therefore run the risk of capture, imprisonment, or death at the hands of the enemy.

In the United States veterinary science has been an exotic of very slow growth. There are veterinary schools in New York, Minneapolis, and elsewhere, but these, like those in Great Britain, are private institutions. To the Cornell, Pennsylvania, and Harvard universities veterinary schools or chairs have been attached with competent teachers.

The veterinary literature of this period affords striking evidence of the progress made by the science: excellent text-books, manuals, and treatises on every subject belonging to it are very numerous, and are published in every language, while there is an abundance of periodical literature. The education—general and technical—of practitioners of veterinary medicine has, of course, been improving to a corresponding extent. The matriculation test for admission to the best veterinary schools and the fixed period for instruction in them vary but little from those of the medical schools. In Germany the veterinary schools at Berlin and Hanover have been raised to the position of universities.

One of the chief objects of the science is the treatment of disease in animals. Veterinary medicine has been far less exposed to the vagaries of theoretical doctrines and systems than human medicine. The explanation may perhaps be that the successful practice of this branch of medicine more clearly than in any



other depends upon the careful observation of facts and the rational deductions to be made therefrom. No special doctrines seem, in later times at least, to have been adopted, and the dominating sentiment in regard to disease and its treatment has been a medical eclecticism, based on practical experience and anatomicopathological investigation, rarely indeed on philosophical or abstract theories. In this way veterinary science has become preëminently a science of observation. At times indeed it has to some extent been influenced by the doctrines which have controlled the practice of human medicine—such as those of Broussais, Hahnemann, Brown, Rasori, Rademacher, and others—yet this has not been for long: experience of them when tested upon dumb unimaginative animals soon exposed their fallacies and compelled their discontinuance.

Of more moment than the cure of disease is its prevention, and this is now considered the most important object in connection with veterinary science. More especially is this the case with those serious disorders which depend for their existence and extension upon the presence of an infecting agent, and whose ravages for so many centuries are written largely in the history of civilization. Every advance made in medicine affects the progress of veterinary science, and the recent remarkable discoveries, some of which have been initiated by members of the veterinary profession, or developed by them, must in the end create as great a revolution in veterinary practice as in the medicine of man. In "preventive medicine" the benefits to be derived from the application of the germ theory will be immense; the sanitary police measures based on this knowledge are easily framed, and, if carried rigorously into operation, must eventually lead to the extinction of these disastrous disorders. The medicine of the lower animals differs from that of man in no particular so much, perhaps, as in the application it makes of utilitarian principles. The life of man is sacred; but in the case of animals, when there are doubts as to complete restoration to health and soundness, monetary considerations generally decide against the adoption of remedial measures. This feature in the medicine of the domesticated animals brings very prominently before us the value of the old adage that "prevention is better than cure."

For more than forty years most destructive plagues of animals have prevailed almost continuously in the British islands without any attempt, worthy of the name, having been made to check or extirpate them until within a very recent period. Two exotic bovine diseases alone (contagious pleuro-pneumonia or lung plague and foot-and-mouth disease) are estimated to have caused the death, during the first thirty years of their prevalence in the United Kingdom, of 5,549,780 cattle, while the invasion of cattle plague in 1865-66 was calculated to have caused a money loss of from \$25,000,000 to \$40,000,000. The depredations made in South Africa and Australia by the lung plague alone are appalling; and in India the loss brought about by contagious diseases among animals has been stated at not less than \$30,000,000 annually. The damage done by tuberculosis—a contagious disease of cattle, transmissible to several kinds of animals, and possibly also to man, by means of the flesh and milk of diseased beasts—cannot be even guessed at; but it must be enormous, when we learn how widely the malady is diffused. But that terrible pest of all ages, the cattle plague, has in its two recent invasions of England been promptly suppressed with comparatively trifling loss. The foot-and-mouth disease, which proved such a heavy infliction to British agriculture from its introduction in 1838, has been completely extirpated. Glanders, which annually caused the destruction of large numbers of cavalry

horses, is now unknown in the army, and is rapidly disappearing from civilian stables. Rabies would soon be included in the category of extinct diseases if the indications of veterinary science were followed; and so with the other contagious maladies of animals. As for such diseases as depend for their development upon germs derived from the soil or herbage upon which animals live, and which cannot be directly controlled by veterinary sanitary measures, the system of protective inoculation with cultivated virus introduced by Pasteur will probably bring about their extinction, or at any rate greatly mitigate their effects.

Every horseman should know something of the injuries, lamenesses, and diseases to which the horse is liable. Unfortunately not very much can be done in this direction by book instruction; indeed, there is generally too much doctoring and too little nursing of sick animals. Even in slight and favorable cases of illness recovery is often retarded by too zealous and injudicious medication; the object to be always kept in view in the treatment of animal patients is to place them in those conditions which allow nature to operate most freely in restoring health. This can best be rendered in the form of nursing, which sick animals greatly appreciate.

When a sick horse has lost his appetite, he should be tempted to eat by offering him such food as will be enticing to him. It should be given frequently and in small quantities, but should not be forced on him; food will often be taken if offered from the hand, when it will not be eaten out of the manger. Whether the animal be fed from a bucket or from a manger, any food that is left should be thrown away, and the receptacle well cleaned out after each meal. As a rule, during sickness a horse requires laxative food, in order to allay fever or inflammatory symptoms, while supporting the strength. For a bran and linseed mash, boil slowly for two or three hours one pound of linseed, so as to have about a couple of quarts of thick fluid, to which two pounds of bran and one ounce of salt may be added. The whole should be stirred up, covered over, and allowed to steam over a gentle fire. The thicker the mash the more readily will the horse eat it. Linseed tea is made by boiling one pound of linseed in a couple of gallons of water until the grains are quite soft. It may be economically made by using less water to cook the linseed, and afterward making up the quantity of water to about a gallon and a half. As a rule, a sick horse should have as much water as he likes to drink, though it may be necessary in certain cases to restrict the quantity, and to have the chill taken off; but it should never be warmer than 75° to 80°.

As little grooming as possible should be allowed when a horse is very weak; it should be limited to sponging about the mouth, nostrils, eyes, and forehead with clean water, to which a little vinegar may be added. Rub the legs and ears with the hand, take off the clothing, and shake or change it once a day, and if agreeable rub over the body with a soft cloth. Exercise is of course not required during sickness or injury, and the period at which it is allowed will depend upon circumstances. Care must be taken that it is not ordered too early, or carried too far at first.

Much care is required in administering medicines in the form of ball or bolus; and practice, as well as courage and tact, is needed in order to give it without danger to the administrator or the animal. The ball should be held between the fingers of the right hand, the tips of the first and fourth being brought together below the second and third, which are placed on the upper side of the ball; the right hand is thus made as small as possible, so as to admit of ready insertion into



the mouth. The left hand grasps the horse's tongue, gently pulls it out, and places it on that part of the right side of the lower jaw which is bare of teeth. With the right hand the ball is placed at the root of the tongue. The moment the right hand is withdrawn the tongue should be released. This causes the ball to be carried still further back. The operator then closes the mouth and watches the left side of the neck, to note the passage of the ball down the gullet. Many horses keep a ball in the mouth a considerable time before they will allow it to go down. A mouthful of water or a handful of food will generally make them swallow it readily. If this does not succeed, the nostrils should be grasped by the hand and held a few moments.

To administer a drink or drench requires as much care as giving a ball, in order to avoid choking the horse, though it is unattended with risk to the administrator. An ordinary glass or stone bottle may be used, provided there are no sharp points around the mouth; but either the usual drenching horn or a tin vessel with a narrow mouth or spout is safer. It is necessary to raise the horse's head, so that the nose may be a little higher than the horizontal line. If the horse is restless, his head must be elevated by a loop of cord inserted into the mouth over the upper jaw, the prong of a stable fork being passed through it, and the handle held steady by an assistant. The drink must be given by a person standing on the right side (the assistant being in front or on the left side of the horse), the side of the mouth being pulled out a little, to form a sack or funnel, into which the medicine is poured, a little at a time, allowing an interval now and again for the horse to swallow. If any of the fluid gets into the windpipe (which it is liable to do if the head is held too high), it will cause coughing, whereupon the head should be instantly lowered. Neither the tongue nor the nostrils should be interfered with. Powders may be given in a little mash or gruel, well stirred up.

If a wide surface is to be fomented (as the chest, abdomen, or loins), a blanket or other large woolen cloth should be dipped in water as hot as the hand can comfortably bear it, moderately wrung out, and applied to the part, the heat and moisture being retained by covering it with a waterproof sheet or dry rug. When it has lost some of its heat, it should be removed, dipped in warm water, and again applied. In cases of acute inflammation, it may be necessary to have the water a little hotter; and, to avoid the inconvenience of removing the blanket, or the danger of chill when it is removed, it may be secured round the body by skewers or twine, the hot water being poured on the outside of the top part of the blanket by any convenient vessel. To foment the feet, they should be placed in a bucket or tub (the latter with the bottom resting wholly on the ground) containing warm water; a quantity of moss litter put in the tub or bucket prevents splashing and retains the heat longer.

Enemata or clysters are given in fevers, inflammation, constipation, etc., to empty the posterior part of the bowels. They are administered by a large syringe capable of containing a quart or more of water, with a nozzle about twelve inches in length, with an ox's bladder tied to a pipe, or a large funnel, with a long nozzle at a right angle; but the syringe is best. Water alone is usually applied for enemata; it should be about the temperature of the body, not less, but perhaps a degree or two more. To administer an enema, one of the horse's fore-feet should be held up, while the operator pushes the end of the nozzle, smeared with a little lard or oil, very gently and steadily for a few inches into the intestine, and then presses out the water. The amount injected will depend upon the size of the animal;

two or three quarts would suffice for an ordinary-sized horse.

The epizootic diseases affecting the horse are not numerous, and may generally be considered as specific, or infectious and contagious, in their nature, circumstances of a favorable kind leading to their extension by propagation of the agent upon which their existence depends. This agent, in some of the maladies, has been proved to be a micro-organism, and there can be little doubt that it is so for all of them.

Glanders is one of the most serious diseases affecting horses, not only because it is incurable, but because it is very contagious. It is known in nearly every part of the world, except in Australasia. The virulent principle of glanders establishes itself most easily among horses kept in foul, badly-ventilated stables, or among such as are overworked, badly fed, or debilitated in any way. Glanders, however, has this in common with other contagious diseases, that it is never spontaneously developed, in the absence of the virulent agent. Carnivorous animals—as lions, tigers, dogs, and cats—have become infected through eating the flesh of glandered horses; and goats, sheep, swine, and rabbits have been successfully inoculated with the virus. Men who attend on diseased horses are liable to be infected, especially if they have any sores on the exposed parts of their bodies (see GLANDERS). Though infection through wounds is the readiest way of receiving the disease, the germ or bacillus may also obtain access through the lungs, stomach, and thin mucous membranes, such as that of the eyes, nose, and lips. Glanders is presented in two forms—one affecting the mucous membranes of the body, more particularly those of the air-passages (glanders proper), and the other attacking the skin and the superficial lymphatic vessels (farcy). Both forms are due to the same virus, and both may be acute or chronic. The acute form is the more contagious and virulent, and either destroys life quickly or becomes chronic.

Under influenza several diseases are sometimes included, and in different invasions it may (and doubtless does) assume varying forms. It may be said to be a specific fever of a low or asthenic type, associated with inflammation of the mucous membrane lining the air-passages, and also sometimes with that of other organs. At various times it has prevailed extensively over different parts of the world, more especially during the eighteenth and nineteenth centuries. Perhaps one of the most wide-spread outbreaks recorded was that of 1872, on the American continent. It usually radiates from the district in which it first appears. The symptoms have been enumerated as follows:—sudden attack, marked by extreme debility and stupor, with increased body-temperature, quick weak pulse, rigors, and cold extremities. The head is pendent, the eyelids swollen and half closed, eyes lusterless, and tears often flowing down the face. There is great disinclination to move; the body sways on the animal attempting to walk; and the limb-joints crack. The appetite is lost and the mouth is hot and dry; the bowels are constipated and the urine scanty and high-colored; there is nearly always a deep, painful, and harassing cough; on auscultation of the chest crepitation or harsh blowing sounds are audible; and the membrane lining the eyelids and nose assumes either a bright pink color or a dull leaden hue. A white, yellowish, or greenish-colored discharge flows from the nostrils. In a few days the fever and other symptoms subside, and convalescence rapidly sets in. In unfavorable cases the fever increases, as well as the prostration, the breathing becomes labored, the cough more painful and deep, the auscultation and percussion indicate that the lungs



are seriously involved, with perhaps the pleura or the heart. Clots sometimes form in the latter organ, and quickly bring about a fatal termination. When the lungs do not suffer, the bowels may, and with this complication there are, in addition to the stupor and torpor, tension and tenderness of the abdominal walls when pressed upon, manifestations of colic, great thirst, a coated tongue, yellowness of the membranes of nose and eyes, high-colored urine, constipation, and dry feces covered with mucus. Sometimes rheumatic swelling and tenderness take place in the muscles and joints of the limbs, which may persist for a long time, often shifting from leg to leg, and involving the sheaths of tendons. At other times acute inflammation of the eyes supervenes, or even paralysis.

In this disease good nursing is the chief factor in the treatment. Comfortable, clean, and airy stables or loose-boxes should be provided, and the warmth of the body and limbs maintained. Cold and damp, foul air and uncleanness, are as inimical to health and as antagonistic to recovery as in the case of mankind. In influenza it has been generally found that the less medicine the sick animal receives the more likely it is to recover.

Strangles is a specific contagious and infectious fever peculiar to ungulates, and is more especially incidental to young animals. It is particularly characterized by the formation of abscesses in the lymphatic glands, chiefly those between the branches of the lower jaw (submaxillary). Various causes are ascribed for its production, such as change of young horses from field to stable, from grass to dry feeding, from idleness to hard work, irritation of teething, and change of locality and climate. It is asserted that repeated attacks will occur in the same horse under the influence of the last-named cause. But the chief, if not the sole, cause is infection—the malady, in some of its features, closely resembling the “mumps” of the human species. Languor and feverishness, diminution of appetite, cough, redness of the nasal membrane, with discharge from the eyes and nose, and thirst are among the earliest symptoms. Then there is difficulty in swallowing, coincident with the development of swelling between the branches of the lower jaw, which often causes the water in drinking to be returned through the nose and the masticated food to be dropped from the mouth. The swelling is hot and tender, diffused, and uniformly rounded and smooth; at first it is hard, with soft, doughy margins; but later it becomes soft in the center, where an abscess is forming, and soon “points” and bursts, giving exit to a quantity of pus. Relief is now experienced by the animal; the symptoms subside; and recovery takes place. In some cases the swelling is so great or occurs so close to the larynx that the breathing is interfered with, and even rendered so difficult that suffocation is threatened. In other cases the disease assumes an irregular form, and the swelling, instead of softening in the center, remains hard for an indefinite time, or it may subside and abscesses form in various parts of the body, sometimes in vital organs, as the brains, lungs, liver, kidneys, etc., or in the bronchial or mesenteric glands, where they generally produce serious consequences. Not infrequently a pustular eruption accompanies the other symptoms. The malady may terminate in ten days or be protracted for months, often terminating fatally, especially when the animal is not well nursed and is kept in an unhealthy stable.

Good nursing is the chief part of the treatment. The strength should be maintained by soft nutritious food, and the body kept warm and comfortable; the stable or loose-box must have plenty of fresh air and be kept clean. The swelling may be fomented with warm

water and poulticed. The poultice may be a little bag containing bran and linseed meal mixed with hot water, and applied warm to the tumefaction, being retained there by a square piece of calico, with holes for the ears and eyes, tied down the middle of the face and behind the ears.

The diseases of the bovine species are not so numerous as those of the horse, and some of the more serious have been already alluded to (see MURRAIN). We will notice a few which have not been included among these.

Tuberculosis is a most formidable and widespread disorder of cattle; it is assuming greater proportions every year in those countries in which it is prevalent, in consequence of no steps being taken to check or suppress it. It is infectious and contagious, can be conveyed to other species of animals by ingestion of the flesh and milk, as well as of the tuberculous material, and by inoculation of these, or inhalation of dried discharges from the lungs; it can also be transmitted from the affected animal to the foetus in utero. Its infectious properties and ready communicability to other species render it a serious danger to mankind, through consumption as food of the flesh and milk of tuberculous cows. The disease owes its origin to a bacillus. The structures chiefly involved are the lymphatic glands and tissues—the characteristic tubercles or “grapes” varying in size from that of a millet seed to immense masses weighing many pounds; they are found in all parts of the body, but generally in the chest and on its lining membrane, as well as in the abdominal cavity. The symptoms resemble somewhat the contagious pleuro-pneumonia of cattle in its chronic form (see MURRAIN), though tubercles, sometimes in large numbers, are often found after death in the bodies of cattle which exhibited no sign of illness during life, and which when killed were in excellent condition. When the lungs are involved, there is a peculiar phthisical cough, low fever, wasting and debility, and often enlarged throat glands, less frequently enlarged joints. If the animal is not killed, it perishes in a state of marasmus, from the difficulty experienced in breathing, or the profuse fetid diarrhoea which ensues. Medical treatment is of little if any avail. Preventive measures are of the utmost importance. Animals free from the tuberculous taint should alone be bred from, and those discovered to be affected should be at once completely segregated, and if convenient destroyed. The milk of tuberculous cows should not be given to any animal as food, not at least unless well boiled. Neither should the flesh be eaten unless well cooked throughout.

Milk or parturient fever is a specific malady which appears after parturition, due to the absorption of septic matter from the interior of the uterus or vagina, producing what is known as “blood-poisoning” or septicæmia. The symptoms may be briefly summarized as follows:—high fever, restlessness, intense injection of the visible mucous membranes, tympanitis, fetid breath, stupor, swollen limbs, sanguinolent and perhaps purulent discharges from the vagina, foul-smelling diarrhoea, coma, and death. In the early stage treatment is generally successful. The uterine cavity should be thoroughly cleaned out by injections of warm water, and any adherent portions of placenta removed by hand. Then a weak solution of Condy's fluid (permanganate of potash) must be injected. Cleanliness is all-important. Diffusible stimulants in large quantity should be given, with doses of solution of sulphate of quinine, perchloride of iron, oil of turpentine, or carbolic acid.

There is now strong evidence that one form of abortion in cows is due to infection. Whenever a case of abortion occurs in a shed, either the cow should be at once removed from the others, if they are pregnant, and



cleaning and disinfection immediately resorted to; or, better still, the pregnant cows should be quickly moved out of the shed, and every care taken to keep them away from the sick cow and the discharges from it—these and the aborted foetus being burned or otherwise completely destroyed.

Cowpox is a contagious disease of much less frequent occurrence now than formerly, probably owing to improved hygienic management. In many localities the disease appears in all heifers which have recently calved on certain farms. There is usually a slight premonitory fever, which is generally overlooked; this is succeeded by some diminution in the quantity of the milk, with some increased coagulability, and by the appearance of the eruption or "pox" on the udder and teats. In well-observed cases the udder is hot and tender on manipulation for a day or two previous to the development of small pale-red nodules about the size of peas; these increase in dimensions to from three-fourths to one inch in diameter by the eighth or tenth day, when their contents have become fluid and they present a depressed center. This fluid, at first clear and limpid, becomes yellowish white as it changes to pus, and soon dries up, leaving a hard, button-shaped black crust, which gradually becomes detached. On the teats, owing to the handling of the milker or to the cow lying on the hard ground or on straw, the vesicles are early ruptured and sores are formed, which often prove troublesome and may cause inflammation of the udder.

Actinomycosis, though affecting man, horses, pigs, and other creatures, is far more common in the bovine species. The fungus (*Actinomyces*) may be found in characteristic nodules in various parts of the body, but it usually invades the bones of the jaws, upper and lower, or the soft parts in the neighborhood of these, as the tongue, cheeks, face, throat, and glands in its vicinity. About the head the disease appears to commence with slight sores on the gums or mucous membrane of the mouth or with ulcers alongside decaying teeth, and these extend slowly into the tissues. If the jaw is affected, a large rounded tumor grows from it, the dense outer bone becoming absorbed before the increasing soft growth within. Soon the whole becomes ulcerated and purulent discharges take place, in which are found the minute, hard, yellow granules which contain the fungus. When the tongue is affected, it becomes enlarged and rigid; hence the designation of "wooden" tongue given to it by the Germans.

The contagious diseases of the sheep are comparatively few, and two of the more serious have been described under MURRAIN.

The formidable disorder of sheep-pox is confined chiefly to the continent of Europe. It is extremely contagious and fatal, and in these and some other characteristics resembles human smallpox. From three to twelve days after being exposed to infection the sheep appears dull and listless, and eats little if anything; the temperature rises; there are frequent tremblings; tears flow from the eyes; and there is a nasal discharge. Red patches appear inside the limbs and under the abdomen; and on them, as well as on other parts where the skin is thin, dark red spots show themselves, which soon become papules, with a deep hard base. These are generally conical, and the apex quickly becomes white from the formation of pus. This eruption is characteristic and unmistakable; and the vesicles or pustules may remain isolated (discrete pox) or coalesce into large patches (confluent pox). The latter form of the disease is serious. In bad cases the eruption may develop on the eyes and in the respiratory and digestive passages. The course of the disease lasts about three

weeks or a month, and the eruption passes through the same stages as that of cowpox. The mortality may extend from 10 per cent. in mild outbreaks to 90 or 95 per cent. in very virulent ones. Diseased animals should be sheltered, and fed on nourishing food, especially gruels of oatmeal, flour, or linseed; acidulated water may be allowed. If there is sloughing of the skin or extensive sores, oxide of zinc ointment should be applied. But treatment should not be adopted unless there is general infection over a wide extent of country. All diseased animals should be destroyed, as well as those which have been in contact with them, and thorough disinfection resorted to.

The pig may become affected with foot-and-mouth disease (see MURRAIN), and it also has its own particular variola. But the disease special to it, and which causes enormous losses, is swine plague. This scourge, known in America as hog cholera, is a specific contagious fever, or fevers, for it is extremely probable that two diseases are included under this designation. It is generally very rapid in its course, death ensuing in a very few days; and when the animal survives recovery is protracted. After a period of three or four days to a fortnight from exposure to infection, the animal exhibits signs of illness by dullness, weakness, shiverings, burying itself under the litter, disinclination to move, staggering gait, great thirst, hot dry snout, sunken eyes, loss of appetite, and greatly increased pulse, respiration, and temperature. Red and brown patches appear on the skin; there is a hacking cough; nausea is followed by vomiting; pressure on the abdomen causes extreme pain; diarrhea ensues; the hind limbs become paralyzed; stupor sets in; and the animal perishes. Treatment should not be attempted when there is danger of the infection extending to other pigs. If treatment be used, nursing ought to be the chief element; sloppy food, in which small doses of carbolie acid and oil of turpentine have been mixed, should be given, and these should be followed by tonics when convalescence sets in. To suppress the disease, kill all affected pigs, and if necessary those which have been in contact with them; burn or bury deeply the carcasses and litter; and disinfect everything likely to have been contaminated by the virus.

The contagious diseases of the dog are likewise very few, but the one which attracts most attention is common and generally serious. This is what is popularly known as distemper. It is peculiar to the canine species, for there is no evidence that it can be conveyed to other animals, though the different families of *Carnivora* appear each to be liable to a similar disease. Distemper is a specific fever which most frequently attacks young dogs, its effects being primarily developed in the respiratory passages, though the brain, spinal cord, and abdominal organs may subsequently be involved. Highly bred and pet dogs suffer more severely than the commoner and hardier kinds. It is a most infectious disease, and there is much evidence to prove that it owes its existence and prevalence solely to its virulence. One attack confers immunity from another. The symptoms are rigors, sneezing, dullness, loss of appetite, desire for warmth, and increased temperature, respiration, and pulse. The eyes are red, and the nose, at first dry and harsh, becomes smeared with the discharge which soon begins to flow from the nostrils. Suppuration also begins at the eyes; vision is more or less impaired by the mucus and pus, and often the cornea becomes ulcerated, and even perforated. There is a cough, which in some cases is so violent as to induce vomiting. Debility rapidly ensues, and emaciation is soon apparent; diarrhea in the majority of cases sets in; the body emits an unpleasant odor; ulceration of the mouth is noticed; the nostrils become obstructed by the discharge



from them; convulsions generally come on; signs of bronchitis, pneumonia, jaundice, or other complications manifest themselves; and in some instances there is a pustular or vesicular eruption on the skin. In fatal cases the animal dies in a state of marasmus. Many which recover are affected with chorea for a long time afterward. Here, again, good nursing is all-important. Comfort and cleanliness, with plenty of fresh air, must be insured. Debility being the most serious feature of the disease, the strength should be maintained or restored until the fever has run its course. Light broth, beef tea, or bread and milk, or these alternately, may be allowed as diet. Preparations of quinine, given from the commencement of the attack in a little wine, such as sherry, have proved very beneficial. Often a mild laxative is required. Complications should be treated as they arise. The disease being extremely infectious, precautions should be adopted with regard to other dogs.

The formidable affliction known as *RABIES (q.v.)* has been treated of under that name.

**VETO.** By this expression (Lat. *veto*, "I forbid") is understood in public law the constitutional right of the competent authority, or in republics of the whole people in their primary assembly, to protest against a legislative or administrative act, and to prevent wholly, or for the time being, the validation or execution of the same.

It is generally stated that this right was called into existence in the Roman republic by the *tribunicia potestas*, because by this authority decisions of the senate, and of the consuls and other magistrates, could be declared inoperative. Such a statement must, however, be qualified by reference to the facts that *interdictio*, *interdicimus* were the expressions used, and, in general, that in ancient Rome every holder of a magistracy could check a negotiation set on foot by a colleague, his equal in rank, by his opposition and intervention. This was a consequence of the position that each of the colleagues possessed the whole power of the magistracy, and this right of intervention must have come into existence with the introduction of colleague authorities, *i.e.*, with the commencement of the republic. In the Roman magistracy a twofold power must be distinguished—the positive management of the affairs of the state intrusted to each individual and the power of restraining the acts of magistrates of equal or inferior rank by his protest. As the *tribuni plebis* possessed this latter negative competence to a great extent, it is customary to attribute to them the origin of the veto.

In the former kingdom of Poland the precedent first set in 1652 was established by law as a constant right, that in the imperial diet a single deputy by his protest "Nie pozwalam," *i.e.*, "I do not permit it," could invalidate the decision sanctioned by the other members. The king of France received the right of a suspensory veto at the commencement of the French Revolution, from the national assembly sitting at Versailles in 1789, with regard to the decrees of the latter, which was only to be valid for the time being against the decisions come to, and during the following national assembly, but during the period of the third session it was to lose its power if the assembly persisted in its resolution. Similarly the Spanish constitution of 1812 prescribed that the king might twice refuse his sanction to bills laid twice before him by two sessions of the cortes, but if the third session repeated the same he could no longer exercise the power of veto. The same is the case in the Norwegian constitution of 1814.

In the present French republic the president has no veto, except against decisions of the general councilors (*conseils généraux des départements*), just as the prefect

possesses the same power against decisions of the communal councilors. The king or queen of England has the right to withhold sanction from a bill passed by both houses of parliament. This royal prerogative has not been exercised since 1692 and may now be considered obsolete. The governor of an English colony has the power of veto against a bill passed by the legislative body of a colony, *e.g.*, Canada. In this case the bill is finally lost, just as a bill would be which had been rejected by the colonial council, or as a bill passed by the English houses of parliament would be if the crown were to exert the prerogative of refusing the royal assent.

The constitution of the United States contains in art. i., sect. 7, § 2, the following order:

"Every bill which shall have passed the House of Representatives and the Senate shall, before it becomes a law, be presented to the president of the United States; if he approve, he shall sign it; if not, he shall return it with his objections to that house in which it shall have originated, who shall enter the objections at large on their journal and proceed to reconsider it. If, after such reconsideration, two-thirds of that house shall agree to pass the bill, it shall be sent, together with the objections, to the other house, by which it shall likewise be reconsidered, and if approved by two-thirds of that house, it shall become a law. Every order, resolution, or vote to which the concurrence of the Senate and House of Representatives may be necessary (except on a question of adjournment) shall be presented to the president of the United States, and, before the same shall take effect, shall be approved by him, or, being disapproved by him, shall be re-passed by two-thirds of the Senate and House of Representatives, according to the rules and limitations prescribed in the case of a bill."

In most States of the Union the governors, in the same manner or to a modified extent, possess the right of protesting against the laws and decisions of the legislature. Here, therefore, we have again a suspensory veto which is frequently exercised. According to the official report for 1886, the president of the United States exercised his right of veto in that year 115 times against bills, resolutions, and orders of the most different kinds. Between 1840 and 1850 the Whigs agitated for the total abolition of the power of veto. Of late an agitation has begun in the opposite direction.

According to the constitution of the German empire of 1871, the imperial legislation is executed by the federal council and imperial diet; the emperor is not mentioned. In the federal council the simple majority of votes decides. But in the case of bills concerning the army, the navy, and certain specially noted taxes, as well as in the case of decisions concerning the alteration of orders for the administration, and arrangements for the execution of the laws of customs and taxes, the proposal of the federal council is only accepted if the Prussian votes are on the side of the majority in favor of the same (art. 7, sect. 3). Prussia presides in the federal council. The state of things is therefore in fact as follows: it is not the German emperor, but the same monarch as king of Prussia, who has the right of veto against bills and decisions of the federal council, and therefore can prevent the passing of an imperial law. The superior power of the presidential vote obtains, it is true, its due influence only in one legislative body, but in reality it has the same effect as the veto of the head of the empire.

The Swiss federal constitution grants the president of the Confederation no superior position at all; neither he nor the federal council possesses the power of veto against laws or decisions of the federal assembly. But



in some cantons, viz., St. Gall (1831), Basel (1832), and Lucerne (1841), the veto was introduced as a right of the people. An attempt to introduce the veto in Zurich in 1847 failed. Thurgau and Schaffhausen accepted it later. Meanwhile another arrangement has quite driven it out of the field. For of late years the so-called "referendum"—properly speaking, direct legislation by the people—has been introduced into most of the Swiss cantons. Formerly in all cantons—with the exception of the small mountainous districts of Uri, Schwyz, Unterwalden, Zug, Glarus, and Appenzell—it was not a pure democracy, but a representative constitution that prevailed: the great councilors or cantonal councilors periodically chosen by the people were the possessors of the sovereign power, and after deliberating twice passed the bills definitively. Now they have only to discuss the bills, which are printed and sent to all voters with an explanatory message; then the people on a certain day vote for the acceptance or rejection of the law by writing "yes" or "no" on a printed voting-paper, which is placed in an urn under official control. In some cantons important financial resolutions involving large state expenses are also submitted to the decision of the people. In the revised federal constitution of 1874, under certain suppositions which have no further interest for us at present, a facultative referendum (*i.e.*, the possibility of demanding a plebiscite under exceptional circumstances) has been introduced for federal laws. Since that period it has often been employed and has operated like a veto. It is evident that by the compulsory referendum in the cantons the mere veto is rendered superfluous.

VIAREGGIO, a coast town of Italy, in the province of Lucca, thirteen miles by rail north-northwest from Pisa, has a population of 10,190 (commune 12,735). The principal industry is fishing, and the place is also a favorite sea-bathing resort.

VIATICUM. This word, which in classical Latin means "provision for a journey" (Gr. *τὰ ἐφοδία*), is often used by early Christian writers to denote the sacrament of the Eucharist, and sometimes even is applied to baptism. Ultimately it came to be employed in a restricted sense to denote the last communion given to the dying. The thirteenth canon of the council of Nice is to the effect that "none, even of the lapsed, shall be deprived of the last and most necessary viaticum (*ἐφοδιον*)," and that the bishop, on examination, is to give the oblation to all who desire to partake of the Eucharist on the point of death. The same principle still rules the canon law, it being of course understood that penitential discipline, which in ordinary circumstances would have been due for their offense, is to be undergone by lapsed persons who have thus received the viaticum, in the event of recovery. In extreme cases it is lawful to administer the viaticum to persons not fasting.

VIATKA. See VYATKA.

VIAU, or VIAUD, THÉOPHILE DE, more commonly called both in his own time and since simply THÉOPHILE, a poet of unfortunate life and of great but misused powers, was born at Clairac near Agen in 1590. He went to the capital in his twentieth year and ingratiated himself with at least one patron, the ill-fated duke of Montmorency, who was always constant to him. He also became acquainted with most of the literary men of the time, and in 1617 composed and produced with success the tragedy of *Pyrame et Thisbé*. Only two years after the success of *Pyrame* he was accused of blasphemous and indecent writings, and was exiled to England. Returning in 1621 and joining the Roman Church (he had been a Huguenot), he served in two campaigns. But he was, rightly or wrongly, associated

with the publication of the *Parnasse Satirique*, a collection of poems of the same character as those which had formerly got him into trouble, and in 1623 was tried, condemned in his absence to death, arrested, and imprisoned in the conciergerie. At length the sentence of death which hung over him was reduced to banishment, and the influence of Montmorency enabled him to hide himself in Paris till his death on September 25, 1626.

VIBORG, or WIBORG (Finnish, *Viipuri*), capital of a province or län of the same name in Finland, is situated at the head of the Bay of Viborg in the Gulf of Finland, at the mouth of the Saima canal and on the railway which connects St. Petersburg with Helsingfors. The population (of province [1898], 394,412) consists of three elements—Finnish, Swedish, and Russian (see FINLAND). There is a strong Russian garrison. Several industrial establishments, including a foundry for the construction of steam-engines, an iron-works, and several candle-works, match factories, and saw-mills, have risen of late at Viborg and in its neighborhood; but the place owes its chief importance to its export trade, in which timber is the chief item. The coasting trade is also considerable.

VICAR, in ecclesiastical law, is, in the words of Blackstone, "a curate, deputy, or vicegerent of the appropriator, and therefore called *vicarius* or vicar." When a benefice had become appropriated before the dissolution of the religious houses to a spiritual corporation, usually with the authority of a license from the Chancery, the vicar was the person appointed by the appropriators for the cure of souls in the parish. He was at first generally a member of the corporation. After the dissolution in the reign of Henry VIII. these appropriated benefices became—as indeed they had been in the church in general up to the Lateran council of 1179—vested in lay impropricators, but the legal position of the vicar remained the same. He was not a parson in the proper sense of the word (in fact parson and vicar are often distinguished in old statutes), and his stipend was at the discretion of the impropriator. Where he had the enjoyment of tithes, they were in most cases, apart from prescription, the small as distinguished from the great tithes, that is, such as the impropriator found it most difficult to collect. There was, however, no consistent rule in the matter: what were rectorial tithes in some parishes might be vicarial in others.

VICAR (Latin, *vicarius*, from *vicem*, *i.e.*, *gerens*, acting in the place of another), the title given to the substitute, either temporary or permanent, employed to act in the place of certain ecclesiastical officials, whether individuals or corporations; as of a pope, a bishop, a chapter, a parish priest, etc. Vicars take different names from these various considerations. Vicars of the pope are called "vicar-apostolic," and they are generally invested with episcopal authority in some place where there is no canonical bishop. Vicars of a bishop are either "vicars-general," who have the full authority of a bishop all over his diocese, or "vicars-forane" (Lat. *foraneus*, from *foris*, abroad), whose authority is confined to a particular district, and generally otherwise limited. A vicar capitular is a person elected by the chapter of a diocese, during the vacancy of the see, to hold the place of the bishop, and to exercise all the authority necessary for the government of the diocese. Parochial vicars are either perpetual, as in parishes, or temporary, whose appointment may be recalled at pleasure, or after a fixed time. The name, in this sense, is sometimes given, especially in the Roman Catholic Church, to the assistant priest, or, as he is called in England, the curate in a parish.

VICE-CONSUL, a subordinate officer to whom func-



tions are delegated in some particular part of a district already under the supervision of a consul. The vice consul is appointed by the president and confirmed by the Senate. A consul is not at liberty to dismiss a vice-consul acting within his district without the sanction of the home government; but if of the opinion that sufficient grounds for the dismissal exist, his duty is to give the information to the secretary of state suspending the vice-consul in the meantime, if the circumstances be urgent; and in all cases awaiting the decision of the home government before taking ulterior steps.

VICENTE, GIL, Portuguese dramatist, with an honorable position also in the history of Spanish literature, was born, most probably in Lisbon, about the year 1470. He was of good family, and, after studying law at the then university of Lisbon, became attached to the royal court, in what capacity is unknown. In June, 1502, he produced and took the leading part in the performance of his first piece, a kind of dramatic pastoral, after the manner of Juan de la Encina, on occasion of the birth of an heir to the throne (John III). So successful was this appearance that he soon became the recognized provider of such entertainments at court, during the reign both of Emmanuel and of John. The time and place of his death are alike uncertain; most probably it occurred at Evora not much later than 1530.

VICENZA, a town of Italy, capital of the province of Vicenza, lies at the northern base of the Monti Berici, on both sides of the Bacchiglione, immediately below its confluence with the Retrone, and forty-two miles by rail to the west of Venice. The most important manufacture is that of silk, which employs a large proportion of the inhabitants. Great numbers of mulberry trees are grown in the neighborhood. Woolen and linen cloth, leather, earthenware, paper, and articles in gold and silver are also made in Vicenza, and a considerable trade in these articles, as well as in grain and wine, is carried on. The population of the town in 1901 was 44,261, or, including the suburbs, 47,694.

VICEROY (Lat. *vice*, in place of, and Fr. *Roi*, king). The title popularly given to any officer who is delegated by a sovereign to exercise regal authority in his name in a dependency, as the lord lieutenant of Ireland,—who, however, is never officially so styled. It was the proper official designation of the governors of Naples, Spain, and Peru, under the old Spanish monarchy.

VICH, a town of Spain, in the province of Barcelona, thirty-eight miles by rail to the north of that town, lies in a small side valley of the Ter, about 1,500 feet above sea-level. The industries include tanning and the weaving of linen and woolen fabrics; and sausages are a specialty of the place. There are mines of copper and coal in the neighborhood. The population within the municipal boundaries in 1897 was 14,478.

VICHY, a town of France, in the department of Allier, is situated on the right bank of the Allier, 227 miles by rail south-southeast from Paris and 6 south of St. Germain-de-Fossés, where the railway lines to Lyons and Nîmes separate. The population in 1881 was 8,322, and in 1901, 13,072.

Vichy owes its importance to its mineral waters, which were celebrated in the time of the Romans. Within the town or in its immediate vicinity there are twenty-one springs, twelve of which are state property (four of these obtained by boring). The waters of those which are outside the town are brought in by means of aqueducts. The most celebrated and frequented are the Grand Grille, L'Hopital, the Célestins, and Lardy. The most copious of all, the Puits Carré, is reserved for the baths. All these, whether cold or hot (maximum temperature, 113° Fahr.), are largely

charged with bicarbonate of soda (see MINERAL WATERS); some also are chalybeate and tonic. The waters, which are limpid, have an alkaline taste and emit a slight odor of sulphuretted hydrogen. They are recommended in cases of stomachic and liver complaint, also for diabetes, gravel, and gout.

VICKSBURG, the county seat of Warren county, Miss., the largest and most important city in the State, stands on the bluffs, on the east bank of the Mississippi, about one mile below the mouth of the Yazoo, and four hundred miles above New Orleans. The city is the center of the most productive cotton territory in the State, also a port of entry and the receiving and distributing point for the surrounding country. Large invoices of cotton are annually handled here or shipped by rail and river to the seaboard and Europe. It is located on the Louisville, New Orleans and Texas and on the Cincinnati, New Orleans and Texas Pacific railroads, the transportation facilities also including daily communication by river with St. Louis, Memphis, Natchez and New Orleans, and points on the Arkansas and White rivers. Its site is elevated and uneven, a series of hills rising from the river bank and extending some distance into the interior. During the Civil war they were utilized for defensive purposes, and made the foundations of a line of almost impregnable fortifications—bomb proofs, etc. After repeated attacks by the Union forces, General Grant besieged the city, and on July 4, 1863, compelled its surrender by General Pemberton with a force of several thousand men. Since the close of the war the city has increased in population, wealth and importance, a condition of affairs that is still maintained.

It now contains two national banks with a total capital of \$250,000, one savings bank and one State bank, three daily papers, ten churches, four of which are under the direction of colored residents, a high school, four grammar schools, and some manufacturing enterprises, including car works, cotton seed oil and planing mills, machine shops and electric light works. Street railways are operated and efficient fire and police departments are provided by municipal authority. The population of the city, which was 11,814 in 1880, was returned at 14,834 in 1900.

VICKSBURG, THE SIEGE OF. General Grant, in his retrospect of the campaign which terminated with the surrender of Vicksburg, declares that it was suggested and developed by circumstances. The elections of 1862, he continues, had gone against the prosecution of the war, and a forward movement to a decisive victory was necessary. Immediately after the battle of Shiloh, General Halleck assumed command in the field of the armies of the Ohio, Mississippi, and Tennessee, and began preparations for the capture of Corinth, located at the intersection of the Mobile and Ohio and Memphis and Charleston railroads, in Alcorn county, Miss. As will be remembered, Corinth was evacuated during May, 1862; Memphis was captured by the Union forces in June of the same year, and one month later Halleck was recalled to Washington. During that summer engagements between the opposing forces were frequent, including that at Iuka and the repulse of Van Dorn at Corinth. Soon after the latter event General Grant, who, meanwhile, had been placed in command of the Department of Tennessee, suggested to General Halleck that an advance be made southwardly along the Mississippi river with Vicksburg as the objective point. The location of that city, he suggested, then as now one of the most important in the South, together with its value to the enemy as a receiving and distributing point, and as an obstacle to the navigation of the Mississippi, made its capture indispensable to the destruction of Confederate



supremacy in the Gulf States, as also necessary to the restoration of confidence at the North in the perpetuity of the Union. General Grant, realizing this condition of affairs, formulated plans for "a forward movement to a decisive victory," with results that have become part of the record of events in the nation's history.

Active operations preliminary to the Vicksburg campaign began on November 2, 1862, the union forces aggregating between thirty and forty thousand men under the command of General Grant, with Generals Sherman, McPherson and Hamilton as his immediate subordinates. The Confederates, forty thousand in number, were attached to the command of Gen. J. C. Pemberton and encamped at various points in Grenada, Tallahatchie and Marshall counties, Miss. Holly Springs was captured on November 13th, and made the base of supplies for the union forces; and on December 8th, of the same year, General Sherman was ordered to take command of the troops at Memphis, together with those composing General Curtis' command east of the Mississippi, and proceed to Vicksburg, where, in conjunction with the gun-boat fleet stationed in the vicinity under the command of Admiral Porter, he was to undertake the reduction of that city. Two weeks later, or about December 20th, General Van Dorn recaptured Holly Springs, and for more than a week communication with the North was interrupted. Meanwhile General Sherman, with an army of 32,000 men, arrived at Milliken's Bend, and Pemberton's forces, having retreated from the Tallahatchie country, were concentrated at Vicksburg, and throughout the country immediately surrounding. On November 29th an attack by General Sherman upon Haines Bluff, a strongly fortified point on the Yazoo river eleven miles north of Vicksburg, was repulsed with severe loss to the Union troops. Early in January, 1863, Gen. J. A. McClernand, of Illinois, took command of the army in the Yazoo country, and Sherman, after a hotly contested fight continuing three days, effected the capture of Arkansas Post, on the Arkansas river, and 5,000 Confederate soldiers with their arms, equipments, and stores. Immediately after this event General Grant, who had established his headquarters at Memphis, visited General McClernand. After a conference, the latter was ordered to Young's Point and Milliken's Bend, where General Grant arrived on January 29th, and, assuming command of the Union forces, commenced, as he tell us, "the real work of the campaign." At that time a large portion of the country between Vicksburg and Skipwith's Landing and Vicksburg and Grand Gulf was more or less submerged, and the movements of the army were thereby materially obstructed. In addition to this, the approaches to Vicksburg were strongly fortified and an assault upon the city would only be attended with disastrous consequences. In this emergency, the capture of the place was a problem apparently impossible of solution. To reach the high ground to the rear of the city and prosecute the siege from that direction was the only feasible plan which suggested itself. This could be accomplished, it was thought, either by widening and deepening the canal cut by General Thomas Williams early in 1862, across the peninsula from Young's Point to the river below; by marching the Union forces down the west bank of the river, crossing over and attacking Vicksburg from the south, or turning the channel of the Mississippi at Lake Providence, La. Work on the latter as also on the canal was commenced, but in March a heavy rise in the river, together with the insurmountable obstructions encountered, caused their total abandonment, while the plan to attack Vicksburg from the south, owing to the high water which would have prevented the proposed march down the west

bank of the river, was deemed impracticable. An expedition, commanded by General Ross, to open a way through Moon Lake, Yazoo Pass, the Tallahatchie and Vallahusha to the Yazoo river, encountered defeat at Fort Pemberton, as also did the movement by way of Steele's Bayou to the same objective point. Finally, General Grant determined to run the batteries with the gun-boat fleet, which at the same time was to serve as an escort for the supply boats and transports, to convey his army through the swamps and bayous west of the river from Milliken's Bend, via Bayou Vidal to New Carthage and Hard Times (the latter being opposite Grand Gulf), ferry it across the river and inaugurate an attempt for the capture or reduction of Vicksburg from that direction. McClernand's corps reached New Carthage during the first week in April, and at 10 o'clock in the night of April 16th the gun-boat fleet, led by the *Benton*, Admiral Porter's flag-ship, passed the batteries commanding the river approaches to the city without having sustained serious damage or loss of life. One week later a fleet of supply boats successfully performed the same feat. The army was next moved forward to Hard Times, and on April 29th an attack was made upon Grand Gulf by the gun-boats but without results. The same night Porter ran the batteries erected for the defense of Grand Gulf, while the troops marched across a peninsula extending into the river from Louisiana, and by daylight the following morning the army and navy occupied De Shroon, La., proceeding thence to Bruinsburg, a point on the river west of Port Gibson, Miss. That same night Sherman, who remained above Vicksburg, made a feint in the direction of Haines Bluff to divert the attention of Pemberton's army. In this he was successful, and on May 1st he retired from before the Bluff in obedience to orders and proceeded to rejoin the main army. The same day General Grant defeated the Confederates under General Bowen and captured Port Gibson.

At this time General Grant's army aggregated about 33,000 men, opposed to which were Confederates approximating 60,000 in number, well equipped and commanded by men of large experience. On May 3d Grand Gulf fell into the hands of the Union forces. General Grant originally intended to make that place a base of supplies, but on reaching there he ascertained that General Banks, upon whom he relied for large reinforcements, would be unable to furnish them for several days, and he accordingly abandoned the idea, deciding to move on to Vicksburg with such supplies as were on hand and "make the country furnish the balance." On May 6th General Sherman reached Grand Gulf and on the day following the movement forward was begun. On the afternoon of May 12th General McPherson was confronted by a considerable Confederate force at Raymond, supported by two batteries of artillery. In the battle which followed, the enemy was defeated with a total loss of 820, including killed, wounded, and missing, the Union loss being 442. Two days later Jackson, the capital of and most important railway center in the State, the command and defense of which Gen. Joseph E. Johnston had assumed on the previous evening, was captured with a loss of 845 to the enemy and 280 to the Union forces.

Immediately after the retreat of the Confederates Johnston ordered Pemberton to make an attack upon Sherman at or near Clinton. Pemberton undertook to comply. General Grant states in his *Memoirs* that the force accompanying Pemberton upon this occasion "numbered in all about 25,000 men." The opposing armies met at Champion Hills on the morning of May 16th, and the fighting continued until the middle of the afternoon. Pemberton was defeated with a total loss



of over 6,000. The Union loss was 410 killed, 1,844 wounded, and 187 missing. The retreating army attempted to make a stand on the Big Black, but was again put to flight, the march toward Vicksburg was resumed, and by May 19th that city was completely invested by the victorious army. During the ensuing week repeated assaults were made upon the city's defenses, but without results advantageous to the Union army, and on May 23d the siege began. From this date reinforcements and supplies were rapidly forwarded to General Grant, and by the middle of June his army numbered 71,000 men, variously distributed throughout the immediate vicinity of Vicksburg—his armament consisting of 220 field-guns, which were trained upon the city, together with half-a-dozen thirty-two pounders and eight heavy guns furnished by Admiral Porter. The siege was conducted and continued with uninterrupted vigor, notwithstanding the threatening appearance of Johnston's army in the rear of the Union forces, and every means known to the art of war that would work to the advantage of the besiegers or besieged was employed by the opposing generals during the progress of this, the closing struggle of the campaign. Mines and counter-mines were pushed in all directions, charged and exploded, but without the accomplishment of any advantage to either side. On July 2d the Union army had advanced to within a short distance of the enemy's lines, and preparations for an assault to be made four days later were completed. On July 3d, however, General Pemberton communicated with General Grant asking for an armistice "with the view to arranging terms for the capitulation of Vicksburg." To this General Grant replied that "the useless effusion of blood" could "be ended at any time by the unconditional surrender of the city and garrison." These terms were, after some further discussion, accepted, provision being also made for paroling the prisoners, the privates to retain their clothing, the field officers their clothing and side arms, and the field staff and cavalry officers one horse each. At ten o'clock on the morning of July 4, 1863, the Confederate soldiers marched from behind their works, and, stacking arms retired. The same day General Logan's command took possession of the "stronghold of the great river" and the campaign for its possession was concluded. Prisoners to the number of 31,600, with 172 cannon, 60,000 muskets and other equipments, were among the fruits of the victory. Five days later General Gardner surrendered Port Hudson, La., with 6,000 prisoners, 51 guns, many small arms and other stores, and the war for the possession of the Mississippi was at an end. The Union loss during the campaign was estimated in round numbers at 8,900; that of the Confederates at nearly 60,000.

VICO, GIOVAN BATTISTA, Italian jurist and philosopher, was the son of Antonio Vico, a small bookseller, and was born at Naples on June 23, 1668. At the age of seven he had a serious fall and severely injured his head, which produced in him "the melancholy and sour temper suited to men of talent." Afterward he applied himself to the study of scholastic philosophy.

In 1708 he published his *De ratione studiorum*, in 1710 *De antiquissima Italorum sapientia*, in 1720 *De universi juris uno principio et fine uno*, and in 1721 *De constantia jurisprudentis*. On the strength of these works he offered himself as a candidate for the university chair of jurisprudence then vacant, with a yearly stipend of 600 ducats. But he was rejected by the examiners, although all his competitors have remained

unknown to fame. Without any sense of discouragement he returned to his favorite studies, and in 1725 published the first edition of the work that forms the basis of his renown, *Principii d'una Scienza Nuova*. In 1730 he produced a second edition of the *Scienza Nuova*, so much altered in style and with so many substantial additions that it was practically a new work. In 1735 Charles III. of Naples marked his recognition of Vico's merits by appointing him historiographer-royal, with a yearly stipend of 100 ducats. But the philosopher derived little enjoyment from his new post. Attacked by a cruel malady, mind and memory failed. But during frequent intervals of lucidity he resumed his pen and made new corrections in his great work, of which a third edition appeared in 1744, prefaced by a letter of dedication to Cardinal Trojano Acquaviva. Vico expired on January 20th of the same year.

VICTOR I., Sr., bishop of Rome from about 190 to 202, succeeded Eleutherus and was followed by Zephyrinus. His name is chiefly associated with a display of intolerance toward the bishops of Asia Minor for the view they took in the Quartodeciman controversy; he also excommunicated Theodotus of Byzantium on account of his doctrine as to the Person of Christ.

VICTOR II., one of the series of German popes and the successor of Leo IX., was consecrated in St. Peter's, Rome, on April 13, 1055. At the instance of Gebhard, bishop of Ratisbon, uncle of the emperor Henry III., he had been appointed while still a young man to the see of Eichstätt; in this position his great talents soon enabled him to render important services to Henry, whose chief adviser he ultimately became. As guardian of Henry's infant son, and adviser of the empress Agnes, Victor now wielded enormous power, which he began to use with much tact for the maintenance of peace throughout the empire and for strengthening the papacy against the aggressions of the barons. He died shortly after his return to Italy, at Arezzo, on July 28, 1057. His successor was Stephen IX. (Frederick of Lorraine).

VICTOR III., pope from May 24, 1086, to September 16, 1087, was the successor of Pope Gregory VII. Son of Landolfo V., prince of Benevento, he was born in 1027; in his thirtieth year he entered the cloister at Monte Cassino, changing his name of Dauferius into Desiderius. He soon became abbot of the monastery, and in 1059 Nicolas II. raised him to the cardinalate. He was elected Pope, May 24, 1086, but showed genuine reluctance to accept the embarrassing honor thus thrust upon him, and after his tardy consecration, which did not take place till May 9, 1087, he withdrew at once to Monte Cassino, where he died September 16, 1087. His successor was Urban II.

VICTOR IV. Two antipopes have claimed this name:—(1) Cardinal Gregorio Conti, who was chosen by a party in succession to the antipope Anacletus II. in 1138, but through the influence of Bernard of Clairvaux was induced two months afterward to make his submission to Innocent II.; and (2) Cardinal Octavianus, the Ghibelline antipope, elected in 1159, and countenanced by the emperor Frederick Barbarossa. He died at Lucca April 20, 1164.

VICTOR, CLAUDE PERRIN, duke of Belluno, marshal of France, was born at La Marche (Vosges) on December 7, 1764. In 1781 he entered the army as a common soldier, and after ten years' service he received his discharge and settled at Valence. Soon afterward he joined the local volunteers and in less than a year had risen to the command of a battalion. He greatly distinguished himself on the Italian frontier, and for his bravery at the siege of Toulon in 1793 he was raised to the rank of brigadier-general. He afterward served for some time with the army of the eastern Pyrenees and



in the Italian campaign of 1795-97 he so acquitted himself at Mondovi, Roveredo, Porto Legnago, and many other places, that he was promoted to be general of a division. After the peace of Campo Formio he for some time commanded the forces in the department of La Vendée; but in 1798 he was again in Italy and in the battle of Marengo especially took a very important part. In 1803 he became commander-in-chief of the Batavian army, and after the peace of Amiens he acted for eighteen months as French plenipotentiary at Copenhagen. On the outbreak of hostilities with Prussia he joined the fifth army corps as chief of the general staff; at the battle of Friedland he commanded the first corps in such a manner that Napoleon made him marshal of the empire on the field. After the peace of Tilsit he became governor of Prussia, and in 1808 he was created duke of Belluno. He took an active part in the wars of 1813-14, till in February of the latter year he had the misfortune to arrive too late at Montereau-sur-Yonne. The result was a scene of violent recrimination and his deprivation by the emperor, who transferred his command to Gérard. Thus wounded in his *amour propre*, Victor now transferred his allegiance to the Bourbon dynasty, and in December, 1814, received from Louis XVIII. the command of the second military division. In 1815 he accompanied the king to Ghent, and on the second restoration he was made a peer of France and major-general of the royal guard. In 1821 he was appointed war minister and held this office for two years. After the revolution of 1830 he retired altogether into private life. His death took place at Paris on March 3, 1841.

VICTOR, SEXTUS AURELIUS. A person of this name was made prefect of Pannonia by Julian about 360 (Amm. Marc. xxi. 10), and may be identical with the man who was consul along with Valentinian in 373 and with the prefect of the city of the same name who is mentioned in an inscription of the time of Theodosius. Four small historical works have been ascribed to him on more or less doubtful grounds—(1) *Origo Gentis Romani*, (2) *De Viribus Illustribus Romæ*, (3) *De Caesaribus*, (4) *De Vita et Moribus Imperatorum Romanorum excerpta ex Libris Sex. Aur. Victoris*. The four have generally been published together under the name *Historia Romana*, but the fourth piece is a *réchauffé* of the third; and, though all are late, there is no sufficient reason to think that they are by one hand.

VICTOR AMADEUS, the name of three dukes of Savoy. See SAVOY.

VICTOR EMMANUEL, king of Italy, born at Turin on March 14, 1820, was the son of Charles Albert, prince of Carignano, who in 1831 became king of Sardinia. After the Austrian occupation of Ferrara in 1847 he was among those who pressed for an immediate declaration of war; and, when a year later hostilities broke out, he threw himself into the struggle heart and soul. At Goito, where he was wounded, his reckless bravery turned the tide of battle, and in every encounter he was to be seen in the thickest of the fight. During the armistice that followed the defeat of Custozza (July 25th) he was engaged in the reorganization of the Sardinian army. The abdication of his father on the evening of the battle of Novara (March 23, 1849) made him king of a ruined state. From Radetzky he obtained some mitigation of the hard terms at first demanded by the conqueror, especially in the withdrawal of the Austrian claim that the Sardinian constitution should be abolished. It was the maintenance of this constitution, at a time when reaction swept away every other vestige of representative government in Italy, that gained for Victor Emmanuel the title of the honest king (*re galantuomo*) and won

for him the confidence of the Italian nation, and ultimately the Italian crown. In the bitter days that followed Novara, the king, culminated, misunderstood, and charged like his father with treachery, showed a noble forbearance and a self-mastery that could hardly have been expected from his passionate, uncultured nature. Though in D'Azeglio and Balbo he had excellent friends and advisers, it was not till 1852 that the accession of CAVOUR (*q.v.*) to power gave him a man of great political genius for his guide. From that time the career of Victor Emmanuel became what Cavour made it.

At the end of 1855, while the allied troops were still in the East, Victor Emmanuel visited Paris and London. In 1859 Cavour's object was attained and France united with Sardinia against Austria, the king, sorely against his will, giving his daughter Clotilde in marriage to Jerome Napoleon. Victor Emmanuel met Napoleon III. at Genoa on May 13th, and on the 30th fought at the head of a body of Sardinians and Zouaves at the battle of Palestro. After the victory of Magenta (June 4th) the allied monarchs entered Milan, where Victor Emmanuel for the first time saw Garibaldi. In the crowning victory of June 24th, while the French were engaged at Solferino, the king with his Italians carried the village of San Martino. The peace of Villafranca left Venetia and the Quadrilateral to Austria. The extraordinary events of the next year united all Italy, with the exception of Rome and of what still remained to Austria, under the patriot king, who was now excommunicated by the pope (see ITALY). A scene of great violence had passed between the king and Cavour when the peace of Villafranca was accepted by the former; but their old friendship was soon restored, and the death of Cavour in 1861 plunged Victor Emmanuel in the deepest grief. The Prussian alliance of 1866 incorporated Venetia with Italy. The personal desire of the king to assist Napoleon III. in the war of 1870 gave way before the wiser counsels of his ministers; and the entry of his troops into Rome, after the disasters of the French army and the withdrawal of the French garrison, completed Victor Emmanuel's task and the union of Italy. He lived for eight years more, reigning always as a constitutional king, and preserving amid the splendors of a great court the simple tastes of his early life. He died at Rome of a fever on January 9, 1878, and lies entombed in the Pantheon.

VICTORIA, a British colony occupying the south-eastern corner of Australia; its western boundary is the 141st meridian; on the east it runs out to a point at Cape Howe, in 150° E. longitude, being thus rudely triangular in shape; the river Murray constitutes nearly the whole of the northern boundary, its most northerly point being in 34° S. latitude; the southern boundary is the coast-line of the Southern Ocean and of Bass Strait; the most southerly point is Wilson's Promontory in 39° S. latitude. The greatest length east and west is about 480 miles; the greatest width, in the west, is about 250 miles. The area is officially stated to be 87,884 square miles.

Victoria enjoys an exceptionally fine climate. Roughly speaking, about one-half of the days in the year present a bright, cloudless sky, with a bracing and dry atmosphere, pleasantly warm but not relaxing. These days are mainly in the autumn and spring. During the last twenty years there have been on an average 131 days annually on which rain has fallen more or less (chiefly in winter), but heavy rains do not exceed thirty in the year. The average yearly rainfall is about 26 inches. The disagreeable feature of the Victorian climate is the occurrence of north winds, which blow on an average about sixty days in the year. In winter they are cold



and dry, and have a slightly depressing effect. But in summer they are hot and dry, and generally bring with them disagreeable clouds of dust. The winds themselves blow for periods of two or three days at a time, and if the summer has six or eight such periods it becomes relaxing and produces languor. These winds cease with extraordinary suddenness, being replaced in a minute or two by a cool and bracing breeze from the south. The temperature often falls  $40^{\circ}$  or  $50^{\circ}$  Fahr. in an hour. The maximum temperature occurs in February, averaging  $105.6^{\circ}$  Fahr. in the shade. The minimum is in July, when the thermometer registers as low as  $30^{\circ}$ . The mean for the whole year is  $57.3^{\circ}$ . The temperature never falls below freezing-point, except for an hour or two before sunrise in the coldest month. Snow has twice been known to fall in Melbourne for a few minutes, in 1849 and 1882. It is common enough, however, on the plateau; Ballarat, which is over 1,000 feet high, always has a few snow storms, and the roads to Omeo among the Australian Alps lie under several feet of snow in the winter. The general healthiness of the climate is shown by the fact that the average death-rate for the last five years has been only 14.37 per thousand of the population. The rainfall of the colony varies considerably. On the table-land it averages about forty inches, at Melbourne 25.44 inches, along the Murray basin twenty inches, and in the "Wimmera" or north-west corner not more than fifteen inches.

During 1886 665,196 ounces of gold were obtained of the value of \$13,000,000. The total yield from 1851 to 1886 was 54,393,182 ounces, of the value of about \$1,000,000,000. The number of miners is about 26,000, of whom nearly 5,000 are Chinese. These devote themselves in nearly equal proportions to alluvial mining and quartz mining. But little is now done in the way of merely surface alluvial digging. The shafts are carried down to the beds of ancient rivers, where the layers of what are called "wash dirt" vary in thickness from one to twelve feet, yielding from a half to three ounces per cubic yard. Quartz mining is rapidly increasing in extent, though the total quantity of gold obtained is steadily decreasing and the expense of getting it is increasing, for the shafts are becoming of excessive depth. One at Stawell penetrates 2,409 feet below the surface; two others exceed 2,000; and there are in all seventeen shafts each over 1,000 feet in depth. The average yield of this quartz has been of late about ten pennyweights to the ton. About one-third of the area of Victoria is supposed to be auriferous, but only 1,300 square miles have as yet been worked. Besides gold, Victoria produces a little tin, copper, and antimony, and, in still smaller quantities, zinc, lead, cobalt, bismuth, and manganese. Iron ore is being smelted, but the industry has not yet reached a paying condition. Great efforts are being made to discover coalfields or to open up those that are known to exist. The total value of the gold raised in the colony up to date (1900) is estimated at \$1,285,000,000; the number of miners at the gold-fields in 1900 was 29,035.

The native trees belong chiefly to the *Myrtaceæ*, being largely composed of *Eucalypti* or gum trees. There are several hundred species, the most notable being *Eucalyptus amygdalina*, a tree with tall white stem, smooth as a marble column, and without branches for sixty or seventy feet from the ground. It is singularly beautiful when seen in groves, for these have all the appearance of lofty pillared cathedrals. These trees are among the tallest in the world, averaging in some districts about 300 feet. The longest ever measured was found prostrate on the Black Spur; it measured 470 feet in length; it was 81 feet in girth near the root.

*Eucalyptus globulus* or blue gum has broad green leaves, which yield the eucalyptus oil of the pharmacopœia. *Eucalyptus rostrata* is extensively used in the colony as a timber, being popularly known as red gum or hard wood. It is quite unaffected by weather, and almost indestructible when used as piles for piers or wharves. Smaller species of eucalyptus form the common "bush." Melaleucas, also of *Myrtaceæ* kind, are prominent objects along all the coasts, where they grow densely on the sandhills, forming "ti-tree" scrub. *Eucalyptus dumosa* is a species which grows only six to twelve feet high, but with a straight stem; the trees grow so close together that it is difficult to penetrate the scrub formed by them. Eleven and a half million acres of the Wimmera district are covered with this "mallee scrub," as it is called.

The indigenous animals belong almost wholly to the *Marsupialia*. Kangaroos are tolerably abundant on the grassy plains, but the process of settlement is causing their extermination. A smaller species of almost identical appearance called the wallaby is still numerous in the forest lands. Kangaroo rats, opossums, wombats, native bears, bandicoots, and native cats all belong to the same class. The wombat forms extensive burrows in some districts. The native bear is a frugivorous little animal, and very harmless. Bats are numerous, the largest species being the flying fox, very abundant in some districts. Eagles, hawks, turkeys, pigeons, ducks, quail, snipe, and plover are common; but the characteristic denizens of the forest are vast flocks of parrots, parakeets, and cockatoos, with sulphur-colored or crimson crests. The laughing jackass (giant kingfisher) is heard in all the country parts, and magpies are numerous everywhere. Snakes are numerous; but less than one-fourth of the species are venomous, and they are all very shy. The deaths from snake-bite do not average two per annum. A great change is rapidly taking place in the fauna of the country, owing to cultivation and acclimatization. Dingoes have nearly disappeared, and rabbits, which were introduced only a few years ago, now abound in such numbers as to be a positive nuisance. Deer are also rapidly becoming numerous. Sparrows and swallows are as common as in England. The trout, which has also been acclimatized, is taking full possession of some of the streams.

Victorian sheep (12,700,000) give an exceptionally large yield of wool, and their fleeces obtain a higher price than any other grown in Australia. The colony had 1,783,000 cattle, 437,000 horses, and about 283,000 pigs, in 1899.

There were (1901) 39,831 cultivated holdings in colony, containing over 2,417,157 acres of land actually cultivated; in almost all farms there is much land that is not actually tilled. Every year, however, a larger and larger proportion is brought under the plow. The average produce per acre of wheat crop was  $11\frac{1}{2}$  bushels; the average per acre of oats, 23 bushels; of barley, 22 bushels; of potatoes,  $3\frac{1}{2}$  tons. There are 10,300 acres of vineyards, producing 986,041 gallons of wine, and this industry is fast increasing. The hop plantations in 1887 yielded 5,023 hundredweights of hops. The following crops are being more or less experimented with: Arrowroot, beetroot, flax, mangel wurzel, mustard, olives, poppies, oranges, and some other fruits. In the same year there were produced 12,008 hundredweights of tobacco. Almost every fruit is grown more or less, but the banana and orange cannot be considered commercially successful. Apples, pears, peaches, grapes, loquats, mulberries, plums, gooseberries, strawberries, melons, apricots, raspberries, cherries, currants, quinces, almonds, figs, walnuts, all grow well and are in common use. Bananas, pine-apples, oranges and passion fruit



are cheap, but they come from the northern colonies. Tomatoes are plentiful and cheap, being easily grown in all parts of the colony.

The central half of Victoria is well supplied with a close network of railways, while several long lines branch out into the less settled districts east and west. A line parallel to the coast, joining Melbourne to Bairnsdale, is sufficient for the Gippsland traffic. From Sale a number of short lines are being constructed for the convenience of the surrounding district. To the west there is a line 270 miles long joining Melbourne to Portland, giving off short branches on both sides. Three lines are being steadily pushed forward to the northwest into the Wimmera district. In 1889 there was a total length of 1,880 miles open for traffic.

The well-settled parts of the colony are excellently supplied with macadamized roads, which are constructed and repaired by shire councils, whose chief function it is to raise revenues, each from its own district, to support the roads in that district. The less settled districts have tracks on which riding or driving is excellent after fine weather, but not after much rain.

Victoria has 420 telegraph stations, connected by 4,096 miles of line. Melbourne is connected with every town or borough in Australia, Tasmania, and New Zealand. It is also joined with London, the length of line being 13,695 miles. The shortest recorded time for the transmission of a message along this line is thirty-two minutes; the average time is about three hours. There are about 1,300 telephone wires in use in the colony, chiefly in Melbourne.

Victoria enjoys almost absolute autonomy. The practical government of the country rests with the parliament, consisting of two houses. The legislative council contains forty-two members elected by fourteen electoral provinces. Each member holds his seat for six years, a third of them retiring every two years but being eligible for reelection. To be eligible for election a candidate must be over thirty years of age and possessed of freehold property to the extent of \$500 per annum. The electoral body consists of all citizens over twenty-one years of age, either possessing property of the yearly value of \$50 or paying rates on property of not less than \$125 annual value. To these are added all graduates of universities and all members of the learned professions. Members of the legislative council receive no payment. They form a sort of court of revision of the work done in the lower house. The legislative assembly consists of eighty-six members elected by fifty-five electoral districts; they are paid at the rate of \$1,500 a year. A general election must take place every three years. In all other respects it resembles very closely the British House of Commons. Every man of the full age of twenty-one years who has taken out his elector's right, has a vote for the election of a member for the district in which he resides. All voting is by ballot. The governor is appointed by the sovereign of the British empire. He has the power of assenting to or rejecting bills sent up to him from parliament, except eight classes, which he is bound to refer to the sovereign, who can disallow all bills by signifying disapproval of them within two years of their being passed by the legislature. The governor is assisted by an executive council consisting of the ministers and ex-ministers of the crown. The cabinet consists of treasurer, chief secretary, minister of public instruction, commissioner of trade and customs, minister of mines, postmaster-general, minister of lands, minister of public works, minister of agriculture, solicitor-general, attorney-general, and minister of defense. The civil service of Victoria is under the control of three commissioners, who are appointed for a term of three

years by government, but are then wholly independent. Their business is to make all appointments, determine all promotions, and watch over the administration of the Civil Service Act. Their existence has effectually abolished the evils of political patronage.

Victoria possesses a most efficiently organized system of state schools, where the education given is free, secular, and compulsory.

The population in 1901 was 1,200,914 (603,901 males and 597,013 females), of whom about one-half were born in the colony and rather less than a third in the British Isles. The estimated population at the end of 1889 was 1,200,000. In religion a third are Episcopalians, a fourth Catholics, a sixth Presbyterians, and an eighth Wesleyans.

VICTORIA, capital of British Columbia and the principal town of Vancouver Island, in the southeast corner of which it is finely situated (48° 25' 20" N. latitude, 123° 22' 24" W. longitude), on a small arm of the sea, its harbor, however, only admitting vessels drawing eighteen feet. Till 1858 Victoria was a post of the Hudson Bay Company. The city was incorporated in 1862; and, according to the census of 1901, the population was 20,816, including Chinese and Indians, spread over an area of four square miles.

VICTORIA, a city of Brazil, capital of the province of Espirito Santo, 270 miles northeast from Rio de Janeiro, in 20° 18' S. latitude and 40° 20' W. longitude. Victoria, which has a white, negro, and mixed population (1899) of 13,500, stands on the west side of an island at the head of the Bay of Espirito Santo, the entrance of which is defended by five forts, and also rendered difficult of access by several other islets and reefs rising little above high-water mark. The town is regularly laid out and well-built, with some good streets, two or three fine churches, a substantial governor's residence, and a few other conspicuous buildings. The surrounding district grows much rice, sugar, and manioc, which, with other produce, are here shipped, chiefly for the neighboring coast towns.

VICTORIA, the capital of Victoria county, Texas, is situated on the east bank of the Guadalupe river, a short distance from the Gulf of Mexico by way of Lavaca Bay, 37 miles from Indianola and 100 miles east of San Antonio. The surrounding country is highly fertile, producing large crops of cereals, cotton, sugar cane, etc., and adding largely to the business development of the place. Victoria is also the principal shipping point for vast herds of cattle, raised in that part of Texas, the river being navigable at all seasons of the year and the railway accommodations being so complete as to afford superior inducements for prompt service and rapid transit. Victoria, as a consequence, is growing rapidly and is one of the many promising towns in the southwestern part of the State. It contains one national and one private bank with a total cash capital of \$375,000, two weekly newspapers, between seven and ten churches, a convent, a well-organized school system, three hotels, two lumber mills, one or more flour-mills, many stores, also suitable buildings for the transaction of business incident to its position as county seat. The population, which was stated at 2,534 in 1880, was, in 1900, estimated at 4,010.

VIDA, MARCO GIROLAMO, one of the most eminent Latin poets and scholars of the age of Leo X., was born at Cremona, shortly before the year 1490. During his early manhood he acquired considerable fame by the composition of two didactic poems in the Latin tongue, on the *Game of Chess* and on the *Silkworm*. This reputation induced him to seek the papal court in Rome, which was rapidly becoming the headquarters of polite learning, the place where students might expect advance



ment through their literary talents. Vida reached Rome in the last years of the pontificate of Julius II. Leo. X., on succeeding to the papal chair (1513), treated him with marked favor, bestowed on him the priory of St. Sylvester at Frascati, and bade him compose a heroic Latin poem on the life of Christ. Such was the origin of the *Christiad*, Vida's most celebrated, if not his best, performance. It did not, however, see the light in Leo's lifetime. Between the years 1520 and 1527 Vida produced the second of his masterpieces in Latin hexameters, a didactic poem on the *Art of Poetry*. Among his other writings should be mentioned three eloquent orations in defense of Cremona, against Pavia, composed upon the occasion of some dispute as to precedence between those two cities. Vida died at Alba on September 27, 1566.

VIDOCQ, FRANÇOIS JULES, the typical French detective of the sensational novel, was born in July, 1775, and spent the first thirty years of his life in every kind of villainy from petty larceny to manslaughter, probably as a preparation for the work of detecting thieves, which was to occupy the remainder of his life. About 1804, after having served eight years in the galleys, he decided to make his living in future as a spy; to betray thieves instead of assisting them. The Napoleonic Government was not very scrupulous about the means which it used so long as the work was done. Accordingly a Bureau of Surêté was organized, of which Vidocq was made chief. He held this position for thirteen years, when he was suspended owing to the belief that he was the organizer of most of the robberies which he professed to discover. He published what purported to be a true history of his life in 1844, and he died in Belgium in the year 1850.

VIEN, JOSEPH MARIE, French painter, was not only the master but the forerunner of David, and the author of the classic movement which, inaugurated under Louis XVI., ran itself out under the first empire. He was born at Montpellier, June 18, 1716. When in 1776, at the height of his established reputation, he became director of the school of France, at Rome, he took David with him among his pupils. Bonaparte acknowledged his merit by making him a senator. He died at Paris on March 27, 1809, leaving behind him several brilliant pupils, among whom were Vincent, Regnault, Suvée, Ménageot, Taillasson, and others of high merit.

VIENNA (Germ. *Wien*), the capital and largest city of the Austrian-Hungarian empire, is situated on the right bank of the Danube, in 48° 13' N. latitude and 16° 23' E. longitude, at the height of about 550 feet above the level of the sea. Vienna is the principal residence of the emperor, the see of an archbishop, the seat of the imperial and Cisleithan (Austrian) ministries, the meeting place of the Austrian diet, and also the meeting place, alternately with Buda-Pesth, of the delegations. Vienna is now officially divided into the following ten municipal districts:—the inner town (Innere Stadt) or old city of Vienna, Leopoldstadt, Landstrasse, Wieden, Margarethen, Mariahilf, Neubau, Josefstadt, Alsergrund, and Favoriten. The inner town, which lies almost exactly in the center of the others, is, unlike the older parts of most European towns, still the most aristocratic quarter, containing the palaces of the emperor and of many of the nobility, the government offices, many of the embassies and legations, the opera house, and the principal hotels. Leopoldstadt, which is the only district on the left bank of the Danube canal, is the chief commercial quarter, and is inhabited to a great extent by Jews. Mariahilf, Neubau, and Margarethen are the chief seats of manufacturing industry. Landstrasse may be described as the district of officialism; there too are the British and German embassies.

Alsergrund, with the enormous general hospital, the military hospital, and the municipal asylum for the insane, is the medical quarter.

In the number of its large and handsome modern buildings Vienna can hold its own with any European capital. Most of these are found in or adjoining the Ring-Strasse, which certainly ranks as one of the most imposing achievements of recent street architecture.

Vienna is the intellectual as well as the material capital of Austria—emphatically so in regard to the German part of the empire. Its university, established in 1365, is now attended by nearly 2,030 students, and the medical faculty enjoys a world-wide reputation. Besides an adequate supply of elementary and secondary schools, the other educational institutions include a large polytechnic, an agricultural academy, a military school, Roman Catholic and Protestant theological seminaries, a conservatorium of music, a training school for aspirants to a diplomatic career, a commercial college, and numerous technical and special schools. Its scientific institutions are headed by the Academy of Science. The Academy of Art was founded in 1707. Few European capitals possess more valuable art collections than Vienna. The picture gallery in the Belvedere Palace, formerly the residence of Prince Eugene, is unsurpassed for its specimens of Rubens, Dürer, and the Venetian masters. The Lower Belvedere, at the other end of the garden, contains the famous Ambras collection of armor, curiosities, and antiquities. The private picture galleries of Prince Liechtenstein, Count Harrach, and Count Czernin are of great extent and importance; and the collection of drawings and engravings known as the "Albertina," in the palace of the archduke Albert, is familiar to all connoisseurs. The collections of the various museums, etc., which are not unworthy of the handsome buildings in which they are exhibited, and the extensive military collections of the arsenal must also be mentioned.

In 1901 the population of Vienna proper, *i.e.*, the ten municipal districts, amounted to 1,505,402, a number which gave it the fourth place among the cities of Europe. Including the suburbs, the total population rose to 1,674,957. The above figures are exclusive of the garrison of 20,700 men. The overwhelming majority of the inhabitants are Roman Catholics; the Jews number about 75,000, and the Protestants 26,500.

VIENNE, a department of France, formed in 1790 out of Poitou (four-fifths of its present area), Touraine (one-seventh), and Berry, lies between 46° 3' and 47° 10' N. latitude, and 0° 6' W. and 1° 12' E. longitude, and is bounded by Deux-Sèvres on the west, Charente on the south, Haute-Vienne on the southeast, Indre on the east, Indre-et-Loire on the northeast and north, and Maine-et-Loire on the northwest.

Of the total area of 1,722,478 acres, arable land occupies 1,119,675, grass 76,899, vines 90,750, woods 193,322, and heath, pasture, and uncultivated land 146,971. The principal crops are wheat, meslin, rye, barley, oats, buckwheat, maize, potatoes, beetroot, colza seed, hemp, flax, hay, clover, lucerne, sainfoin, wine. Oak, ash, alder, and birch are the principal forest trees, and among the fruit-trees are the chestnut, walnut, and almond. Iron and manganese occur, and there are numerous quarries of building and lithographic stones, lime, limestone, millstones, marl, and a sort of pebbles which are cut into "Châtellerault diamonds." There are sulphur and iron mineral springs. The most important industrial establishments are the national arms manufactory and the cutlery works at Châtellerault; in other parts of the department are forges, blast furnaces, wool-spinning mills (580 spindles), hemp-spinning mills



(4,000 spindles, of which only 1,500 are in use, and 28 looms), manufactories of serges and coarse cloth, vinegar, candles, leather, tiles and pottery, paper-works, breweries, distilleries, rope-yards, lime-kilns, and numerous plaster and flour-mills. Corn, wine, brandy, vegetables, fruit, chestnuts, fodder, cattle, cutlery, and dressed hides are exported; butcher's meat, colonial produce, and coals are imported. The population, in 1881, was 340,295, and, in 1901, 333,896, an increase of 101,795 since 1801. Vienne forms part of the diocese of Poitiers, has its court of appeal and academy at Poitiers, and belongs to the Tours army corps district. The chef-lieu is Poitiers (population 34,628 in 1886), and the department is divided for purposes of administration into 5 arrondissements (Poitiers Châtelleraut, population of town 14,498 in 1886; Civray, 2,464; Loudun, 4,041; Montmorillon, 4,155), 31 cantons, and 300 communes.

VIENNE, a town of France, chef-lieu of an arrondissement in the department of Isère, historically and industrially the first, and by population the second, city of Dauphiné, is situated on the left bank of the Rhone, at the point where it is joined by the Gère, nineteen miles south of Lyons by the railway to Marseilles. The Gère supplies the motive power to numerous factories. About one million yards of cloth are annually produced, and from 8,000 to 9,000 hides are dressed. The other industrial establishments include a paper-mill, an iron and copper foundry (400 men), iron-works, foundries, lapidaries' workshops, glass-works, brick-works, and calcining and refining furnaces in connection with the lead and zinc mines in the neighborhood. Grain is an important article of commerce. A suspension bridge connects Vienne with the right bank of the Rhone, where the village of St. Colombe occupies part of the site of the ancient town. Near St. Romain-en-Gal is a tower built by Philip of Valois to defend the right, or French, bank, as distinguished from the left, which belonged to the empire. The population in 1881 was 22,740 (commune 26,060), and in 1901, 25,500 (commune 25,480).

VIENNE, HAUTE-, a department of France, formed in 1790 out of Limousin (three-fifths), La Marche (one-fourth), Poitou, and Berry, and formerly known as Haut-Limousin, lies between 45° 26' and 46° 23' N. latitude and 0° 38' and 1° 54' E. longitude, and is bounded by the Indre on the north, Creuse on the east, Corrèze on the southeast, Dordogne on the southwest, Charente on the west, and Vienne on the northwest.

The department is on the whole unproductive. The chestnut is here characteristic, as the apple in Normandy, and with the potato and turnip it forms the chief food of the people. The brooks are fringed by fine meadows, and the hills are covered with heaths or forests of beech, hornbeam, oak, birch, and chestnut. The mineral wealth consists of iron, copper, tin, wolfram, antimony, serpentine, fine-grained granite, gneiss, garnets, emeralds, and a kind of porphyry, which takes a fine polish. There are inexhaustible supplies of china clay, in which an export trade is carried on with Russia and America. Five thousand eight hundred workmen are employed in porcelain manufactories, 650 in paper and pasteboard mills, 560 in wool and cotton spinning mills and manufactories of flannel, druggets, woolen cloaks, and carpets, 600 in shoe-making, 600 in manufactories of sabots, 340 in glove manufactories, 370 in tan-yards, 325 in leather-dressing works, 130 in coach-building and wheelwrights' shops, 125 in cabinet workshops, 325 in printing works, and 100 in distilleries. There are forges, foundries, copper-works, and manufactories of agricultural and other implements. Porcelain, china clay, woven goods, boots and shoes,

sabots, gloves, leather, cattle, horses, wood, chestnuts, hemp, and paper are exported; corn, wine, coal, raw materials, and various manufactured articles are imported. The population in 1881 was 349,332 and in 1901, 374,212, an increase of 117,982 since 1801. Limoges is the chef-lieu.

VIERZON, a town of France, in the department of Cher, 124 miles by rail to the south of Paris. The Cher and the Yèvre unite at the foot of the hill on which lie the communes of Vierzon-Ville (population 12,514 in 1901) and Vierzon-Village (6,995); Vierzon-Bourgneuf (1,498) is on the left bank of the Cher. The three communes together have a population of 19,007. Vierzon has several large manufactories for the production of agricultural machines, also foundries, porcelain and earthenware works and glass-works. A very fine technical school has just been opened.

VIETA, or VIÈTE, FRANÇOIS, SEIGNEUR DE LA BIGOTIÈRE, more generally known as FRANCISCUS VIETA, mathematician, was born in 1540 at Fontenay-le-Comte, in Poitou. On the completion of his studies in law at Poitiers, Vieta began his career as an advocate in his native town. This he left about 1567, and somewhat later we find him at Rennes as a counselor of the *parlement* of Brittany. The religious troubles drove him thence, and Rohan, the well-known chief of the Huguenots, took him under his special protection. He recommended him in 1580 as a "maître des requêtes" (master of requests); and Henry of Navarre, at the instance of Rohan, addressed two letters to Henry III. of France on March 3d and April 26, 1585, to obtain Vieta's restoration to his former office, but without result. After the accession of Henry of Navarre to the throne of France, Vieta filled in 1589 the position of counselor of the *parlement* at Tours. He afterward became a royal privy counselor, and remained so till his death, which took place suddenly at Paris in February, 1603, but in what manner we do not know; Anderson, the editor of his scientific remains, speaks only of a "præcept et immaturum auctoris fatum."

VIGEVANO, a town of Italy, in the province of Pavia, on the right bank of the Ticino, twenty-four miles southwest from Milan and about the same distance northwest from Pavia. It is a mediæval walled town, with an arcaded market-place, a cathedral, and a castle of the Sforza family, dating from the fourteenth century and adorned with a loggia by Bramante. It is a place of some importance in the silk trade, and also produces excellent macaroni. The population in 1901 was 16,794 (commune, 20,096).

VIGIL, in its ecclesiastical sense, means the day preceding a festival. In the liturgy of the Roman Catholic Church there are special offices for the vigils of the greater feasts, and the vigil is regarded as more or less of a fast day. In the early church there was a widespread practice of celebrating festivals, of martyrs especially, by actual vigils (*Vigilia* or *pernoctationes*, *παραυχίδες*) in the churches; but this led to such serious evils that the custom had to be discouraged, and now survives, if at all, only in rare, unauthorized, and considerably disguised forms. In some of the stricter religious orders the daily office is recited at various hours of the night as well as during the day; but, if these nocturnal services are spoken of as vigils, it is only in the popular meaning of that word.

VIGILANTIUS, presbyter, celebrated as the author of a work, no longer extant, against superstitious practices, which called forth one of the most violent and scurrilous of Jerome's polemical treatises, was born about 370 at Calagurris in Aquitania (the modern Saint Bertrand de Comminges in the department of Haute-Garonne), where his father kept a "statio" or inn on



the great Roman road from Aquitania to Spain. While still a youth his talent became known to Sulpicius Severus, who had estates in that neighborhood, and in 395 Sulpicius, who probably baptized him, sent him with letters to Paulinus of Nola, where he met with a friendly reception. On his return to Severus in Gaul he was ordained; and, having soon afterward inherited means through the death of his father, he set out for Palestine, where he was received with great respect by Jerome at Bethlehem. The stay of Vigilantius lasted for some time; but, as was almost inevitable, he was dragged into the dispute then raging about Origen, in which he did not see fit wholly to adopt Jerome's attitude. On his return to the west he was the bearer of a letter from Jerome to Paulinus, and at various places where he stopped on the way he appears to have expressed himself about Jerome in a manner that when reported gave great offense to that father, and provoked him to write a reply (*Ep.*, 61). Vigilantius now settled for some time in Gaul, and is said by one authority (Gennadius) to have afterward held a charge in the diocese of Barcelona. About 403, some years after his return from the east, Vigilantius wrote his celebrated work against superstitious practices. The year of his death is unknown.

VIGILIUS, pope from 537 to 555, succeeded Silverius and was followed by Pelagius I. He was ordained by order of Belisarius while SILVERIUS (*q.v.*) was still alive; his elevation was due to Theodora. He died, most probably, in the beginning of 555.

VIGNA, PIETRO DE LA, or PETRUS DE VINEA, the emperor Frederick II.'s minister, was born at Capua, probably about 1190. In 1232 he was at Rome on a mission to Gregory IX., and in 1234-35 he was in England negotiating the marriage of his master with Henry III.'s sister Isabella. In 1247 he was at the very height of his power and regarded as the emperor's *alter ego*. But from this height of prosperity Peter suddenly fell very early in 1249, and all kinds of stories have been invented to explain an event that puzzled his contemporaries as well as succeeding ages. He was thrown into prison and blinded, after which he was led about from place to place as a public example, "the master-councilor of the emperor, who was lord of his law and betrayed him to the pope." His death must have taken place about April, 1249.

VIGNETTE (Fr. little vine, a tendril; Lat. *viticula*), a term originally applied to the flourishes in the form of vine tendril, branches and leaves with which the capitals in ancient manuscripts were surrounded. Similar decorations were introduced into printed books, and all kinds of printers' ornaments, such as head and tail pieces, came to be designated as vignettes. More recently the name has been applied to any small engraving (as on the title page of a book), design, or even photograph, which is not circumscribed by a definite border.

VIGNOLA. See BAROCCHIO.

VIGNY, ALFRED DE, a French poet of exceptionally refined and original faculty, which was kept from voluminous production by a fastidiousness perhaps verging on affectation, was born at Loches (Indre-et-Loire) March 27, 1799. For generations the ancestors of Alfred de Vigny had been soldiers, and he himself joined the army at the age of sixteen. But the Revolutionary and Napoleonic wars were over, and after twelve years of life in barracks he retired, preserving, however, a very high estimate of the duties and career of the soldier. While still serving he had made his mark by the publication in 1822 of a volume of poems, and in 1826 by another, together with the famous prose romance of *Cinq-Mars*. It so happens that some of his most celebrated books—

*Eloa*, *Dolorida*, *Motse*—appeared before the work of younger members of the Romantic school whose productions strongly resemble these poems. It is quite certain that the other Alfred—Alfred de Musset—felt the influence of his elder namesake, and an impartial critic might discern no insignificant marks of the same effect in the work of Hugo himself. Even Lamartine, considerably Vigny's elder and his predecessor in poetry, seems rather to have been guided by Vigny than Vigny by him.

In the year before the revolution of July he produced at the Théâtre Français a translation or rather paraphrase of *Othello*, and an original piece, *Maréchal d'Ancre*. In 1832 he published the curious book *Stello*, and in 1835 he brought out his drama of *Chatterton*, which shocked French taste even after five years of Romantic education, by the hero's suicide, but had a considerable success. The same year saw the publication of *Servitude et grandeur Militaires*, a singular collection of sketches rather than a connected work, in which Vigny's military experience, his idea of the soldier's duties, and his rather poetical views of history were all worked in. In 1842 Alfred de Vigny was elected to the Academy, whose meetings he frequented with an assiduity rather surprising in a man of such retired habits and (according to Sainte-Beuve) rather troublesome to his colleagues. But he produced nothing save a few scraps; and, beyond the work already enumerated, little has to be added except his *Journal d'un Poète* and the poems called *Les Destinées*, edited, with a few fragments, by M. Louis Ratisbonne immediately after his death. Among his dramatic work, however, should be mentioned *Quitte pour la Peur* and an adaptation of the *Merchant of Venice* called *Shylock*. *Les Destinées* excited no great admiration in France, but they contain some exceedingly beautiful poetry of an austere kind, such as the magnificent speech of Nature in "La Maison du Berger" and the remarkable poem entitled "La Colère de Samson." Vigny died at Paris September 17, 1863.

VIGO, a town of Spain, in the province of Pontevedra, 486 miles by rail northwest from Madrid, is picturesquely situated on the side of a hill (Castelo) which slopes down to the southern shore of the Ria de Vigo. There are some fisheries at Vigo; but the manufactures of the place are insignificant. Its activity is entirely due to its magnificent anchorage; it is a regular port of call for several international lines of steamers, and has a very important trade; the chief imports are cotton and woolen fabrics, sugar, hides, etc., while cattle, sardines, grain, and eggs are exported. The population within the municipal limits in 1898 was 17,000.

VIKING (plural, vikings), a name given to the piratical Northmen who infested the coasts of the British Islands and of France in the eighth, ninth, and tenth centuries. This word is quite unconnected with "king," being derived from the Scandinavian vik, a bay; and this class of marauders were so called because their ships put off, not like the king's ships, from the lawful harbor, but from the bay.

VILKOMIR, or WILKOMIERZ, a district town of Russia, in the government of Kovno, forty-four miles northeast of the capital of the province, is one of the oldest cities in that part of western Russia. Founded as early as 1025, it suffered much from the attacks of the Teutonic Knights, as well as from internal wars. It flourished in the sixteenth century under "Magdeburg law," but soon came upon adverse times again during the wars between Poland, Russia, and Sweden. It was annexed to Russia in 1796. Its position on the principal highway from St. Petersburg to Kovno gave it some trade in flax, but this is now declining. Its population



increased from 7,300 in 1860, to 18,240 in 1898. Vilkomir has a fine church dating from the fourteenth century.

VILLA, a term now applied to a detached suburban residence with one acre or less of ground attached to it. In the time of the Romans villas were a cluster of buildings in the country, forming a sort of a private town, and containing in one the residence of the proprietor, farmer and servants, and all the necessary offices and accommodations for the cattle, the gardens, the pleasure grounds, etc. These villas were sometimes of enormous size, but they do not seem to have been built on any regular architectural plan, so as to produce an effect commensurate with their extent. Villas were divided into several parts according to their uses; first, the villa Urbana was the portion in which the proprietor resided, and was laid out, as the name indicates, in the manner very similar to that of a town-house. The size and style of this part depended of course on the pleasure or quality of the master. It contained the eating rooms, bed-chambers, baths, covered porticoes, walks, and terraces. The villa Rustica was set apart for the servants, stabling, etc., and the accommodation of the cattle. Its extent depended upon the size of the farm and the number of cattle. The number of servants accommodated in a villa was very great. The livery servants, along with the gardeners for the pleasure grounds, comedians, musicians, etc., belonged to the villa Urbana. The villicus presided over the others, including the servants for tilling the land, the herdsmen, shepherds, goatherds, swineherds, etc.

VILLA DE CONTAS, a town of Brazil, in the province of Bahia, 230 miles southwest from the city of Bahia, on the Brumado (Contas Pequeno), a head-stream of the Rio de Contas (Jussiapé), which rises on the east slope of the neighboring Serra das Almas, and flows thence to the coast at Barra do Rio Contas. This town, which has a mixed population (1895) of 12,200 whites, negroes, half-castes, and Indians, lies in a fertile district, producing much cotton, sugar, and tobacco. Villa de Contas is the capital of the department of the same name, which was detached in 1833 from the old department of Jacobina.

VILLA DO RIO PARDO, a town of Brazil, in the province of Rio Grande do Sul, on the left bank of the Jacuhy at its confluence with the Pardo, about eighty miles due west from Porto Alegre, in 30° S. latitude and 52° W. longitude, is one of the most flourishing towns in the province, with a total population (1895) of 12,500, including 6,000 whites, 4,500 negroes and colored, and about 1,000 civilized Indians. The district is fertile and well-watered, and grows an excellent flax, which supplies a number of local hand-loom. A considerable export trade is carried on by the river craft, which here ship maté (Paraguay tea), jerked meat, linen, and other products for the coast towns.

VILLANI, GIOVANNI, Italian chronicler, was the son of Villano di Stoldo, and was born at Florence in the second half of the thirteenth century; the precise year is unknown. He was of good burgher extraction, and, following the traditions of his family, applied himself to commerce. In 1328 a terrible famine visited many provinces of Italy, including Tuscany, and Villani was appointed to guard Florence from the worst effects of that distressing period. He has left a record of what was done in a chapter of his *Chronicle*, which still remains a monument to the economic wisdom in which the mediæval Florentines were often so greatly in advance of their age. He was present in Florence during the unhappy period that elapsed between the entry of the duke of Athens and his expulsion by the Florentines. Involved through no fault of his own in the failure of the

commercial company of the Bonaccorsi, which in its turn had been drawn into the failure of the company of the Bardi (1345), Villani toward the end of his life suffered much privation and for some time was kept in prison. In 1348 he fell a victim to the plague described by Boccaccio.

VILLARS, CLAUDE LOUIS HECTOR, DUKE OF, French general, was born at Moulins on May 8, 1653. After spending some time at the college of Juilly, he became a page of the *grand écurie*, and then entered the army as a volunteer. He first saw service in Holland under Louis XIV., and later under Condé, Turenne, and Luxembourg in Germany, where in 1674 he obtained the command of a troop of horse. In 1712 Villars, at the head of an army raised with great difficulty by the French, defeated the Austrians under Albemarle in a brilliant action at Denain, compelled Prince Eugene to raise the siege of Landrecies, and took several fortresses and towns. This brilliant campaign raised again the almost desperate fortunes of France and led to the treaty of Utrecht (1713) and the peace of Rastadt (1714). For many years after this Villars exerted great influence at court, until he was finally supplanted by Fleury. In 1733 the war with Austria again broke out, and in the following year Villars, although over eighty years of age, was sent to take command in Italy. But after some successes he demanded his recall, either in consequence of his increasing infirmities or of disgust at the conduct of his ally, the king of Sardinia; he died on his way back to France, at Turin, on June 17, 1734.

VILLEFRANCHE DE ROERGUE, a town of France, chef-lieu of an arrondissement in the department of Aveyron, is situated 390 miles south of Paris by the railway to Toulouse, on the right bank of the Aveyron. The population in 1901 was 10,433 (commune 10,366), and in 1886 8,092 (commune 9,836).

VILLEFRANCHE-SUR-SAÔNE, a commercial and manufacturing town of France, chef-lieu of an arrondissement in the department of Rhone, is situated on the Morgon, near its junction with the Saône, eighteen miles by rail nearly north of Lyons. The chief industrial establishments are factories of coarse woven goods, cotton, fustian, "molletons," prints, and blankets, tan-yards, puddling-works, spinning-mills, distilleries, foundries, and a saw-mill. The wines of Beaujolais, hemp, cloth, linen, cottons, drapery goods, and cattle are the principal articles of trade. The population 12,032 (commune 13,074) in 1881, was 14,157 (commune 12,518) in 1901.

VILLEHARDOUIN, GEOFFROY DE, the first vernacular historian of France, and perhaps of modern Europe, who possessed literary merit, is rather supposed than known to have been born at the château from which he took his name, near Troyes in Champagne, about the year 1160. Not merely his literary and historical importance, but almost all that is known about him, comes from his chronicle of the fifth crusade, or *Conquête de Constantinople*. Nothing is positively known of his ancestry. He is supposed to have died in 1213.

VILLEINAGE. See COPYHOLD and SLAVERY.

VILLEMAIN, ABEL FRANÇOIS, historian of French literature, was born at Paris on June 11, 1790. He was educated at the lycée Louis-le-Grand, and was only twenty when he was appointed to an assistant-mastership at the lycée Charlemagne. This appointment was shortly exchanged for a post at the École Normale. He early devoted himself to the composition of the Academic prize essays which have founded the fortune of so many French men of letters, and in 1812 he gained the prize with an *éloge* on Montaigne.



which was followed by other successful attempts. His second successful essay, *On Criticism*, had the honor of being read by the author before the Academy and the allied sovereigns who were then (April, 1814) in Paris. Under the restoration he was appointed, first, assistant professor of modern history and then professor of French eloquence at the Sorbonne. Here he began and continued for about ten years a series of literary lectures which had an extraordinary effect on his younger contemporaries. In 1819 he published a book on *Cromwell*, remarkable for a Frenchman of his day, and two years later he was elected to the Academy.

For more than the last twenty years of his life he took no open part in public affairs, though his literary activity continued to be considerable, the books which he published being in part workings-up of his brilliant Sorbonne courses. His death took place at Paris, on May 8, 1867.

VILLENA, a town of Spain, in the province of Alicante, is situated thirty-seven miles by rail to the northwest of that town, on the right bank of the little river Vinalapo. The slopes of the surrounding hills are clothed with vines, and there are also some extensive salt lagoons. The annual fair of Villena (September 29th–October 5th), dealing in the produce of the neighborhood, is still of considerable importance. The industries (soap-making, weaving, distilling) are not extensive. The population within the municipal boundaries in 1897 was 12,424.

VILLENEUVE-SUR-LOT, a town of France, chef-lieu of an arrondissement in the department of Lot-et-Garonne, is built on both sides of the river Lot, twenty-two miles north of Agen by a line which branches at Penne from the Agen and Périgueux railway. Important markets of cattle, horses, wines, and Agen plums are held. Boots and shoes, sausages, tinned foods, and buttons are made, and there are marble works and large mills. The population in 1881 was 9,520 (commune 14,560) and in 1901, 10,780 (commune 14,603). Of these 1,102 were prisoners at Eysses.

VILLIERS, GEORGE. See BUCKINGHAM, DUKE OF.

VILLON, FRANCIS, whose real surname is a matter of much dispute, so that he is also called Corbueil, Corbier, De Montcorbier, and Des Loges, though in literature Villon is the sole term used, was born in 1431, and, as it seems, certainly at Paris. The mixture of the real and the ironical in the singular poems called *Testaments*, which form his chief, if not his only certain, work, make it very unsafe to speak positively as to such details of his life as depend upon them. He appears to have derived his surname from a friend and benefactor named Guillaume de Villon, an ecclesiastic and a person of some property and position. The poet, either by his assistance or in some other way, became a student, and took the degree of bachelor in 1450 and that of master in 1452. Between this year and 1455 nothing positive is known of him, except that nothing was known against him.

On June 4, 1455, the first important incident of his life that is known occurred. Being in the company of a priest named Giles and a girl named Isabeau, he met a certain Breton, a master of arts, who was also in the company of a priest, Philippe Chermoye or Sermoise or Sermaise. A scuffle ensued; daggers were drawn; and Sermaise, who is accused of having attacked Villon and drawn the first blood, not only received a dagger thrust in return, but a blow from a stone which struck him down. Sermaise died of his wounds. Villon fled, and was sentenced to banishment—a sentence which was remitted in January, 1456, the formal pardon being extant strangely enough in two different documents. A year later he was again in trouble. Indeed, Villon's

serious troubles were only beginning, for hitherto he had been rather injured than guilty. He left Paris for Angers in the very early spring of 1456–57, and shortly afterward (in March) the chapel of the College of Navarre was broken open and five hundred gold crowns stolen. The inquiries set on foot discovered a gang of student robbers, one of whom, Guy Tabarie, turned king's evidence and accused Villon, who was then absent, of being the ringleader. He escaped, however, by appealing from the bishop's court, where as a clerk he had been tried, to the parliament of Paris, by which body his sentence was commuted to banishment—that is, of course, banishment from the capital. Where he went and what he did for the next four years we do not know. But at his next certain appearance he is again in trouble. He tells us that he had spent the summer of 1461 in the bishop's prison (bishops were fatal to Villon) of Meung. His crime is not known; but his enemy, or at least, judge, was Thibault d'Ausigny, who held the see of Orleans. Villon owed his release to a general jail delivery at the accession of Louis XI., and became a free man again on October 2d. It was now that he wrote the *Grand Testament*, and this, the work which has immortalized him, is the last certain fact which is known of his life. He is said to have died about 1461.

The obscurity, the unhappiness, and the evil repute of Villon's life would not in themselves be a reason for the minute investigation to which the events of that life have been subjected. But his poetical work, scanty as the certainly genuine part of it is, is of such extraordinary interest, and marks such an epoch in the history of European literature, that he has been at all times an interesting figure.

VILNA, or WILNO, a Lithuanian government of West Russia, has the Polish province of Suwalki on the west, Kovno and Vitebsk on the north and east, and Minsk and Grodno on the east and south. Its area is 16,421 square miles. Vilna lies on the broad, marshy swelling, dotted with lakes, which separates POLAND (*q.v.*) from East Prussia and stretches east-northeast toward the Valdai Plateau.

In spite of the unfruitful soil, sufficient cereals are grown for the needs of the population and to supply the distilleries. Apart from finer breeds kept by a few landowners, the cattle of the peasantry belong to inferior varieties. More than one-third of the area is covered with forests, whence a considerable quantity of timber is exported, partly to Germany, for shipbuilding. A variety of petty trades are carried on in the villages of the forest region—sledges, cars, wheels, and woodenware being made by the peasants. Tar, pitch, and potash are exported. The manufactures have only begun to develop of late. An active trade in timber, corn, and flax (exported) and in manufactured goods (imported) is carried on. Vilna is divided into seven districts, the chief towns of which (with their populations in 1898) are—Vilna (see below), Vileika (3,905), Disna (8,030), Lidy or Lida (7,940), Oshmiany (4,470). The pop. (1898) of the province was 1,591,912.

VILNA, or WILNO, capital of the above government, is situated 436 miles to the southwest of St. Petersburg, at the junction of the Vilna with the Vileika, and at the intersection of two great railway lines, one from St. Petersburg to Warsaw, the other from Libau to the mouth of the Don. The scientific societies of Vilna, especially the medical and archæological, are well known. In spite of the war of 1812 and the Polish risings of 1831 and 1863, the population has of late increased rapidly. In 1898 it numbered 154,532. The inhabitants are chiefly Roman Catholics in religion and Poles by nationality. The Jews are steadily increasing



in numbers and now make more than one-third of the population. The town has an important trade in timber (with Prussia), as also in grain.

VINCENNES, a town of France in the department of Seine, four miles east of Paris, with which it is connected by a railway and two tramways. The castle was begun by Louis VII. in 1164, and rebuilt by Philip Augustus. Napoleon altered the castle into a vast magazine of war materials. Louis XVIII. added an armory; and under Louis Philippe numerous casemates and a new fort on the east side were constructed. The population of Vincennes was 30,336 in 1901.

VINCENNES, the capital of Knox county, Ind., and the oldest town in the State, is situated on the left bank of the Wabash river, 116 miles south of Indianapolis, 148 miles east of St. Louis, 58 miles south of Terre Haute, and 51 miles north of the Ohio river. It was first settled in 1740 by French Canadians, who established an Indian trading post, and from 1800 to 1814 was the capital of Indiana Territory. The city's growth has been gradual but permanent and substantial, and it has long been known as the center of a populous and wealthy district. Its railway conveniences are exceptionally comprehensive, embracing the Cairo division of the Cleveland, Cincinnati, Chicago and St. Louis, Ohio and Mississippi, Evansville and Terre Haute, and the Indianapolis and Vincennes roads, while the Wabash river affords a navigable route to the Ohio and other southern waterways. The city is finely built, and includes among its improvements many structures, both public and private, architecturally and otherwise superior. It contains a court house, two high-schools, three national banks with a total capital of \$300,000, nine Protestant churches, a Catholic cathedral, three daily and four weekly papers, several packing houses, flour and woolen mills, breweries, manufactures of plumbers' supplies, agricultural implements, carriages, furniture, brick and tile, etc. The city is lighted with gas and electric lights, and is in all particulars a prosperous and progressive municipality. Its population, which was 7,080 in 1880, in 1900 was returned at 10,249.

VINCENT, or VINCENTIUS, St., deacon and martyr, according to the Roman *Breviary*, was born of noble parents at Huesca (Osca) in Spain, and was educated by Valerius, bishop of Zaragoza, who in due time ordained him to the diaconate. Under the persecution of Diocletian he was arrested and taken to Valencia. Having stood firm in his profession before Dacianus, the governor, he was subjected to excruciating tortures and thrown into prison, where angels visited him, lighting up his dungeon with celestial light, relieving his pains, loosening his bonds, and mingling their voices with his in psalms of praise. His warders, having seen these wonders through the chinks of the wall, forthwith became Christians. He was afterward brought out and laid upon a soft mattress that he might regain sufficient strength for new torments; but, while Dacianus was vainly meditating punishment, the saint gently breathed his last, as a crowd of bystanders kissed his feet and treasured up his blood in napkins. The tyrant exposed the body to wild beasts, but a raven miraculously descended and protected it; it was then thrown into the sea, but could not be hid, and finally received decent burial. The date assigned to his martyrdom is 304; he is commemorated on January 22d.

VINCENT, GEORGE, English landscape and marine painter, was born at Norwich in June, 1796. He studied art under "Old" Crome, and at the age of fifteen began to contribute to the Norwich exhibition. From 1814 till 1823 he exhibited occasionally at the Royal Academy, and also in the Water-Color Exhibition and

the British Institution. In 1819 he removed from Norwich to London, and he was a contributor to the Suffolk Street gallery from its foundation in 1824 till 1830. He possessed great artistic abilities; but unfortunately he fell into dissipation, and his works became slight and hastily executed. Finally he dropped out of sight, and he is believed to have died about 1831.

VINCENT OF BEAUVAIS, or VINCENTIUS BELLOVACENSIS, the encyclopædist of the Middle Ages, was probably a native of Beauvais. The exact dates of his birth and death are unknown. A tolerably old tradition, preserved by Louis a Valloletti (c. 1413), gives the latter as 1264, but Tholomæus de Luca, Vincent's younger contemporary (*ob.* 1321), seems to reckon him as living during the pontificate of Gregory X. (1272-1276). If we assume 1264 as the year of his death, the immense volume of his works forbids us to think he could have been born much later than 1190. Very little is known of his career. It is certain, however, that he at one time held the post of "reader" at the monastery of Royaumont (*Mons Regalis*), not far from Paris, on the Oise, founded by St. Louis between 1228 and 1235. St. Louis read the books that he compiled, and supplied the funds for procuring copies of such authors as he required for his compilations. Queen Margaret, her son Philip, and her son-in-law Theobald V. of Champagne and Navarre are also named among those who urged him to the composition of his "little works," especially the *De Institutione Principum*. Though Vincent may well have been summoned to Royaumont even before 1240, there is no actual proof that he lived there before the return of Louis IX. and his wife from the Holy Land, early in the summer of 1254. But it is evident that he must have written his work *De Eruditione Filiorum Regalium* (where he styles himself as "Vincentius Belvacensis, de ordine prædicatorum, qualiscumque lector in monasterio de Regali Monte") after this date and yet before January, 1260, the approximate date of his *Tractatus Consolatorius*. When he wrote the latter work he must have left Royaumont, as he speaks of returning from the funeral of Prince Louis (January 15, 1260) "ad nostram domum," a phrase which can hardly be explained otherwise than as referring to his own Dominican house, whether at Beauvais or elsewhere.

VINCENT OF LERINS, St., an ecclesiastical writer of the Western Church, of whose personal history hardly anything is known, except that he was a native of Gaul, possibly brother of St. Loup, bishop of Troyes, that he became a monk and priest in the monastery of Lerinum (island of St. Honorat opposite Cannes), and that he died in or about 450.

VINCENT DE PAUL, St., founder of the "Congregation of Priests of the Mission," usually known as LAZARITES (*q.v.*), was born on April 24, 1576, at Pouy near Dax (Landes). After passing through the school at Dax he studied at Toulouse, and was ordained to the priesthood in 1600. Some time afterward, while on board a felucca off Marseilles, he had the misfortune to be captured by Barbary pirates, who took him to Tunis and sold him as a slave. His third master, who happened to be a renegade Italian, he succeeded in converting, and both managed to make their escape, landing at Aigues-Mortes near Marseilles in June, 1607. After short stays at Avignon and Rome, Vincent found his way to Paris, where he became favorably known to Monsieur (afterward Cardinal) de Béruille, who was then engaged in founding the congregation of the French Oratory. In 1617 he accepted the curacy of Châtillon-lès-Dombes (or sur-Chalaronne), and it was here that he received from the countess of Joigny the means by which he was enabled to found his first "confrérie." The subsequent history



of the priests of the mission will be found in the article LAZARITES. St. Vincent de Paul died September 27, 1660.

VINCENT FERRER, St., a great Spanish Dominican preacher, was born of respectable parentage at Valencia on January 23, 1355. In February, 1374, he took the Dominican habit, and after spending some years in teaching, and in completing his theological studies, he was licensed to preach. He graduated as doctor of theology at Lerida in 1374, and his sermons in the cathedral of Valencia from 1385 onward soon became famous. He died at Vannes on April 5, 1419, and was canonized by Calixtus III. in 1455, his festival (duplex) being observed on April 5th.

VINCI. See LEONARDO DA VINCI.

VINDELICIA, or the country of the Vindelici, is a name of the Roman province which was also called Rætia Secunda. (See RHETIA.)

VINE. Of the grape vines (*Vitis* *V. vinifera* is the species best known and longest cultivated; but of ten species that grow wild in the United States four (*V. rotundifolia*, *V. Labrusca*, *V. æstivalis* and *V. cordifolia*) according to Engelmänn, are cultivated and have given origin to numerous derivatives used for wine-making purposes. Some of the American varieties have been introduced into France and other countries infested with *Phylloxera*, to serve as stocks on which to graft the better kinds of European vines, because their roots, though perhaps equally subject to the attacks of the insects, do not suffer so much injury from them as the European species. American vines should not, however, be introduced for grafting or other purposes into a vine-growing country hitherto free from *Phylloxera*, but only into those in which the insect has already spread.

Although the genus *Vitis* comprises, according to Bentham and Hooker, more than two hundred species, mostly natives of tropical or subtropical regions, yet less than half-a-dozen species have any economic value, while the great interest centers in four or five only.

The conformation of the vine stem has elicited a vast amount of explanatory comment. The most generally accepted explanation is the "sympodial" one. According to this, the shoot of the vine is a "sympode," consisting of a number of "podia" placed one over the other in longitudinal series. Each podium consists of a portion of the stem bearing one or more leaves, each with an axillary bud or buds, and terminating in a tendril or an inflorescence. In *V. Labrusca* there is a tendril opposite to each leaf, so that the podium bears only a single leaf. In other species there is a definite arrangement of the leaves, some with and others without tendrils opposite to them, the numerical order remaining constant or nearly so. These arrangements have doubtless some reference to climatic phenomena, continuity of growth being arrested by cold and promoted by warmth. In any case it is obvious that these facts might be turned to practical ends in cultivation.

Practically the tendrils assist the plant in its native state to scramble over rocks or trees. As in the case of similar formations generally, they are endowed with a sensitiveness to touch which enables them to grasp and coil themselves round any suitable object which comes in their way, and thus to support the plant. The tendrils of the Virginian creeper (*Vitis* or *Ampelopsis hederacea*; the *Parthenocissus quinquefolia* of Planchon) are branched, each branch terminating in a little sucker-like expansion by means of which it adheres firmly to walls or rocks. This is especially noticeable in the Japanese species now so commonly grown against walls under the name of *Ampelopsis Veitchii* (the *Parthenocissus tricuspidata* of Planchon). The extremities of these tendrils

turn away from the light, and by this means they are enabled to enter crevices, inside which they expand and fix themselves, just as the lewis or key, used by stone-masons, is fixed into blocks of stone. The anomalous position of the stamens in front of the petals is explained by the abortion or non-development of an outer row of stamens, indications of which are sometimes seen on the hypogynous disk encircling the ovary. The seeds or grape stones are somewhat club-shaped, with a narrow neck-like portion beneath, which expands into a rounded and thickened portion above. On the inner or central side of the seed is a ridge bounded on either side by a shallow groove. This ridge indicates the point of union of the "raphe" or seed-stalk with the seed; it serves to distinguish the varieties of *V. vinifera* from those of other species. In the true vines the neck of the seed is much longer than in the American vines, and the ridge or "chalaza" occupies the upper half of the seed, not the middle portion, as in the American kinds. In endeavoring to trace the filiation and affinities of the vine, the characteristics afforded by the seed are specially valuable, because they have not been wittingly interfered with by human agency. Characteristics derived from the size, color, or flavor of the berry are of less value for historical or genealogical purposes than those which are the outcome of purely natural conditions.

The native country of the European vine is considered to be the region south of the Caspian. From this presumed center it has spread eastward into Central Asia and westward to both sides of the Mediterranean, Central Europe, and as far north as Belgium (Planchon).

The vine requires a high summer temperature and a prolonged period in which to ripen its fruit. Where these are forthcoming, it can be profitably cultivated, even though the winter temperature be very low. Tchihatchef mentions that at Erivan in Russian Armenia the mean winter temperature is 7.1° C. and falls in January to -30° C., and at Bokhara the mean temperature of January is 4° C. and the minimum -22° C., and yet at both places the vine is grown with success. In the Alps it is profitably cultivated up to an altitude of 1,870 feet, and in the north of Piedmont as high as 3,180 feet. At the present time the limit of profitable cultivation in Europe passes from Brittany, latitude 47° 30', to beyond the Rhine by Liège and through Thuringia to Silesia in latitude 51° 55' (Grisebach). In former centuries vines were cultivated to the north of this region, as, for instance, in Holland, in Belgium largely, and in England, where they might still be grown. Indeed, experiments have lately been made in this direction near Cardiff in South Wales. The yield is satisfactory and the wine made, the variety known as Gamay noir, is described as being like still champagne. In the Middle Ages, owing to various causes, the better wines of France and Germany could not be obtained in England except at prohibitive prices; but, when this state of things ceased and foreign wines could be imported, the English consumers would no longer tolerate the inferior productions of their own vineyards. It is also probable that the English mixed sugar or honey with the wine and thus supplied artificially that sweetness which the English sun denied. It is a curious fact that at the present day much or even most of the wine of finest quality is made at or near the northern limits of possible cultivation with profit. This circumstance is probably explained by the greater care and attention bestowed both on the cultivation of the vine and on the manufacture of the wine in northern countries than in those where the climate is more propitious. The relative inferiority of the wines made at the Cape of Good Hope and in Australia is partly due to variations of climate,



the vine not yet having adapted itself to the new conditions, and partly to the deficient skill of the manufacturers. That such inferiority may be expected to disappear is suggested by the success of vine-culture in Madeira and the Canary Islands.

The development of other species of *Vitis*, such as the curious succulent species of Soudan and other parts of equatorial Africa, or the numerous kinds in India and Cochin China, is of course possible under suitable conditions; but it is obvious that an extremely long period must elapse before they can successfully compete with the product of many centuries.

For currants and raisins, both produced by varieties of the grapevine, see the respective articles.

Apart from their economic value, vines are often cultivated for purely ornamental purposes, owing to the elegance of their foliage, the rich coloration they assume, the shade they afford, and their hardihood.

**DISEASES OF VINES.**—The organic diseases which affect the vine may be divided into two categories, those caused by insects and those caused by parasitic fungi.

**Diseases Caused by Insects.**—Kaltenbach in 1874 enumerated thirty-two species of insects which injure the vine; and since then others have been added to the list. We here deal only with the most important. Among those which attack the leaves and young buds a small beetle, *Anomala vitis*, one of the *Scarabæide*, does great harm in some parts of southern Europe by devouring the soft tissue of the leaves. A genus of weevils, *Otiorynchus*, contains several species which are injurious to the vine, chiefly by the adult beetle devouring the buds. *O. raucus*, *hirticornis*, *picipes*, *nigritus*, *ligustici*, and *sulcatus* are all reported from various places as doing much damage; the larvæ of the last mentioned species attack the root of the vine, causing the shoots to be small and ultimately bringing about the death of the plant. Fortunately the members of this genus have no wings, so that the damage they cause is to a great extent localized. The same kind of injury is caused by a small Chrysomelous beetle, *Eumolpus vitis*. The larvæ of several *Lepidoptera* attack the vine in the same way, destroying the young buds. Among these *Nenia typica*, *Agrotis tritici* and *A. pronuba* may be mentioned. The larvæ of *Tortrix pilleriana* in the early spring weave the young vine leaves together, and, inclosed in this nest, devour the soft tissue at leisure. The imago emerges from the chrysalis in July, and shortly after lays its eggs upon the upper surface of the vine leaf. After a few weeks the caterpillars emerge and continue their work of destruction. *Lethrus cephalotes*, one of the *Scarabæide*, is very injurious in vineyards which have a dry sandy soil. The beetles live in pairs in holes in the ground; during the summer the beetle bites off the small young shoots and drags them away to its hole, where it is believed they serve as food for the larvæ. In this way very serious damage is caused to the vine plants. *Rhynchites betuleti*, a weevil, also does much damage to the young shoots and leaves. The grapes are attacked by the caterpillar of a moth, *Conchyliis ambiguella*, which lays its egg in the young fruit; and in a similar way the larva of *Graptolitha* (*Conchyliis botrana*) attacks the flowers and fruit. The larva of the cockchafer, *Melolontha vulgaris*, also does much damage by biting through and devouring the roots. *Coccus vitis* is a small scale insect of reddish brown color, with irregular black spots in the female, which lives in the bark of old or neglected vines and weakens the tree.

By far the most destructive of all insect pests which attack the cultivated vine is *Phylloxera vastatrix*. This much-dreaded insect belongs to the family *Aphidæ* or plant lice of the order *Hemiptera*. The genus con-

tains several species which live upon oak trees. Their proper home is in North America; but they have been found in English vineries since 1863. The symptoms of the disease first appeared in France about the same time, in the neighborhood of Tarascon. From the department of Gard the infection spread south to the sea, and east, west, and north, till the southeastern corner of France was thoroughly infected. Another center of infection arose a few years later near Bordeaux in Gironde, whence the disease spread till the whole of the southern half of France was more or less severely attacked. The parasite was first discovered in France in the year 1868. The *Phylloxera* has spread to Corsica; it has appeared here and there among the vineyards of the Rhine and Switzerland; it is found in Spain and Portugal, Austria, Hungary, Italy, and Greece; and in 1885 its presence was discovered in Australia (Victoria), at the Cape of Good Hope, and in Algeria. Hence it is no exaggeration to say that with very few exceptions its distribution is co-extensive with that of the cultivated grape-vine.

The symptoms of the disease, by means of which an infected spot may be readily recognized, are these: The vines are stunted and bear few leaves, and those small ones. When the disease reaches an advanced stage, the leaves are discolored, yellow, or reddish, with their edges turned back, and withered. The grapes are arrested in their growth and their skin is wrinkled. If the roots are examined, numerous fusiform swellings are found upon the smaller rootlets. These are at first yellowish in color and fleshy; but as they grow older they become rotten and assume a brown or black color. If the roots on which these swellings occur be examined with a lens, a number of minute insects of a yellowish brown color are observed; these are the root-forms (*radicola*) of *Phylloxera*.

The natural enemies of the *Phylloxera* are few in number: they include some mites,—*Hoplophora aretata* *Thyroglyphus phylloxera*,—and the millepede *Polycenus lagurus*, which devours the subterranean forms. Innumerable artifices have been proposed to combat the terrible disease caused by this minute insect, but none of them seem to be completely successful. As a rule the means suggested are to render the soil uninhabitable for the root forms by injecting certain chemical poisons. Since the importance of the winter egg in the life-history of the insect was demonstrated by Balbiani, attempts have been made to destroy these eggs by rubbing the branches with a chain armor glove, or some such contrivance for removing the outer layers of the bark, which should be burnt. Again, certain varieties of American vines, which have the reputation of being *Phylloxera* proof, have been grafted on European stocks; but this has proved to be only a doubtful success as regards the *Phylloxera*, while the wine made from such vines has undoubtedly deteriorated. The treatment which has been most successful is periodically to submerge the vineyard for a period of not less than forty days. Where this plan has been tried it has been most successful; unfortunately the majority of vineyards are planted on hillsides and other places where this method of treatment is impracticable. The root-dwelling forms do not thrive in a sandy soil; hence vines grown in a district where such soil is found usually escape the disease.

**Fungoid Diseases.**—The most destructive form of fungoid disease which attacks the vine is caused by a Pyrenomycetous fungus, *Oidium* (*Erysiphe*) *Tuckeri*. The disease was first noticed in England in 1845; in 1848 it appeared at Versailles; by 1851 it had spread through all the wine-producing countries of Europe,



being especially virulent in the lands bordering on the Mediterranean; and in the following year it made its appearance in Madeira. There is little doubt that, like the *Phylloxera*, the *Oidium* is in its origin American. The disease is characterized by the appearance of a white mycelium on the young leaves; this spreads quickly and attacks the older leaves and branches, and ultimately reaches the grapes. At first these are marked only by small brown spots; but the spots spread and fuse together, the skin of the grape is destroyed, and the flesh decays, the seed only remaining apparently untouched. The disease spreads by the mycelium growing over the epidermis of the plant. The hyphæ composing the mycelium are provided with haustoria, which project into the cells of the affected part. Some of the hyphæ which project from the leaf bear conidia, which are constricted off one at a time, and it is by their means that the fungus spreads. The perithecia have not yet been discovered in Europe. But it is not impossible that this stage of the life-history of *Oidium* exists in the United States in the form of *Uncinula spiralis*, which causes a widely spread disease among the American vines. The *Oidium* is in its turn attacked by a fungus of the same tribe, *Cicinnobolus Cesatii*, De By, which lives parasitically within the hyphæ of its host, and at times even succeeds in destroying it. The means which have proved most efficacious, both as a remedy and a preventive of this disease, is to scatter flowers of sulphur over the vines, before the morning dew has evaporated. Another method is to boil one part of lime with three parts of sulphur, and to sprinkle the mixture over the affected plants.

Another fungus which attacks vines, especially those of America, is *Peronospora viticola*. The mycelium spreads through the green parts of the plant, attacking the leaves, twigs, and unripe grapes. On the upper side of the leaf, where it is first visible, it forms pale green, irregular spots, which become darker in color. On the under side of the leaf these patches are white and are composed of the spore-bearing hyphæ. The leaf ultimately becomes dried up and brittle. The grapes which are attacked cease to grow, turn brown or white, and ultimately dry up and fall off. This disease has been successfully treated with a spray of copper sulphate and lime, or sulphate of iron; solutions of these salts prevent the conidia from germinating.

Anthraxnose is the name usually given to a disease which was formerly known as "charbon," "pech," or "brenner." This disease is caused by the parasitism of *Sphaceloma ampelinum*, one of the *Pyrenomycetous* fungi. The fungus assails all the green parts of the vine, and injures the leaves and young shoots as much as it does the grape itself. The first sign of its presence is the appearance of a minute spot, which is grayish in the center, with a brown border, and which increases in size; in the stalks it assumes an oval shape, with its long axis parallel to the stalk, while in the leaves and grapes it is more or less circular in outline. The center of the spots on the grapes becomes darker as the disease advances, and a red line appears dividing the dark brown border into an outer and an inner rim and giving a very characteristic appearance to the diseased plant. The berries do not shrivel up as those do that are affected by the black rot. The mycelium of *Sphaceloma* grows just beneath the cuticle of the vine, through which it soon bursts, giving rise to a number of minute hyphæ, which bear conidia. These are minute, oval, colorless spores, which serve to spread the disease over the vineyard and from place to place. The complete life-history of this form is at present unknown; and information as to where the fungus passes the winter, and

in what form, would probably afford some useful indications as to the method that should be adopted to combat the disease. Anthracnose has been known in Europe for many years, but has only been observed in America since 1881, whither it was probably imported from the Old World. As a preventive to its attacks a solution (50 per cent.) of iron sulphate has been found very useful, as well as care in planting on well-drained soil that does not lie too low, the disease seldom appearing in dry, well-exposed vineyards.

The black rot, like the *Oidium* and *P. viticola*, is American in its origin. It has been known and observed there since 1848, but appeared for the first time in France in 1885. The disease is caused by a fungus, *Phyalospora Bidwellii*, Sacc. (*Phoma uvicola*), one of the *Pyrenomyces*, and by some authorities it has been considered to be a further stage in the life-history of *Sphaceloma*. The fungus confines its attacks to the grapes, the leaves and stems being rarely if ever affected. The grapes are not assailed until nearly full-grown, when a brownish spot appears, which spreads over the whole grape. The latter at first retains its plumpness, but on the appearance of little black pustules, which first occur on the part first affected, the grape begins to shrivel. This continues until the grape is reduced to a black, hard mass, with the folds of skin pressed closely against the seed. The disease does not spread from grape to grape, so that as a rule only a certain number of grapes in a bunch are destroyed. The hyphæ of the mycelium of this fungus are separate, with numerous short branches. The pustules on the surface are due to fructifications, pycnidia, and spermatogonia. The presence of conidia has also been recently demonstrated. The fungus passes the winter in the withered grapes which fall to the ground; hence every care should be taken to collect these and burn them. The use of the solutions mentioned above may also be recommended as a preventive.

Among the other fungi which infest the vine may be mentioned *Phyllosticta viticola* and *Ph. Labruscæ*, which, when the attack is severe, cause the destruction of the leaves, the only part they assail. These, like the foregoing, are members of the *Pyrenomyces*. To the same class belongs also *Cercospora vitis* (*Cladosporium viticolum*), which has club-shaped spores of a green-brown color. This also attacks the leaves; but, unless the season is extremely unfavorable, it does little harm.

A very disastrous root-disease of the vine is due to the ravages of the fungus *Dematophora necatrix*, which forms subterranean strings of mycelium—so-called rhizomorphs—the fructification of which is as yet not known; it forms conidia and sclerotia, however, and presents certain analogies to the *Discomycetes*. The diseased roots have been confounded with those attacked by *Phylloxera*. The only mode of combating the malady seems to be to uproot the plants and burn them. Isolation of the diseased areas by means of trenches has also been practiced. This fungus has extended its ravages considerably in southern France and Switzerland within the last ten years.

VINEA. See VIGNA.

VINEGAR is a dilute form of acetic acid, having a flavor that varies according to the source from which it is obtained. Vinegar has been known from the earliest historical period, and its power of acting on and dissolving mineral substances rendered it an important agent in the hands of the alchemists. They were, however, unacquainted with pure acetic acid; the most concentrated solution they possessed, called *spiritus veneris*, was obtained by distillation from cupric acetate (verdigris). The nature of acetous fermentation, and the rationale of the processes by which



vinegar is prepared, are explained under FERMENTATION; and the acetic acid, obtained by the destructive distillation of wood, is dealt with under TAR. Here we have to do only with the various kinds of vinegar used for table, medicinal, and other household purposes. Malt, wine, and beetroot vinegars are made by the slow process, while for the quick method dilute brandy or other spirit is most largely employed.

*Cider Vinegar.*—The form preferred in this country is made by crushing apples, and expressing their juice, and allowing it to ferment to a point at which fermentation ceases. It will then be converted into vinegar, which is said to be superior to any other.

*Malt vinegar* is the preparation commonly manufactured in the United Kingdom, the high alcoholic duties ther: excluding the use of spirits in the industry. A fermented wort is prepared, as in brewing, which is run into casks laid on their side, bung-hole upwards, till they are three-fourths filled. These casks have a hole bored in each end near the top, and between the three holes a constant circulation of air is secured over the surface of the liquid. The casks are disposed in low-roofed vaults, artificially heated, in which free circulation of air is kept up; but sometimes the process is carried on in the open air in what is termed a vinegar field. According to the temperature (which should be about 70° Fahr.) and other conditions, the acetification of the wort may occupy from weeks to months. From the casks the vinegar is transferred to large tuns provided with false bottoms, over which a thick layer of stalks and skins of grapes and raisins, etc., termed rapes, is strewn. Through this the vinegar is filtered from one tun into another, whereby it is cleared from mucilaginous matter and the last traces of alcohol are thoroughly oxidized. *Wine vinegar* is made in France and other vine-cultivating countries from wine lees and inferior wines. The finest vinegar is yielded by white wines, the product being purer, pleasanter, and generally stronger than ordinary malt vinegar. Vinegar is also largely prepared from beetroot, from the juice of other saccharine vegetables and fruits, and from sugar; and indeed all sources of alcohol may be regarded as possible materials for making vinegar. *Quick method vinegar* is made, principally in Germany, from dilute spirit (about one of proof spirit to six of water), to which are added small proportions of sugar, honey, or malt extract. The standard liquor used by different manufacturers varies considerably. The process is also used to some extent in England for converting fermented and clarified malt wort into vinegar. Commercial vinegar varies much in strength. What is termed "proof" vinegar contains 4.6 per cent. of real acetic acid; and, as it requires twenty-four grains of anhydrous carbonate of soda to neutralize each fluid ounce, it is also known as No. 24. In the same way weaker qualities are known as No. 22, No. 20, etc., these figures indicating the grains of carbonate of soda which neutralize a fluid ounce.

Vinegar is extensively consumed in the preparation of pickles and sauces, and as a table condiment, especially with salad vegetables and fish. For many culinary purposes it is flavored with aromatic herbs and spices. Aromatic vinegar, made from glacial acetic acid and perfumes, possesses a refreshing stimulating pungency, as is familiarly known by its use in vinaigrettes. Marseilles vinegar, or thieves' vinegar, is an aromatic preparation used as a prophylactic and masker of evil odors. Vinegar is also a menstruum for several medicinal agents; and in a concentrated condition it is a valuable rubefacient and external stimulant.

VINELAND, a post-town located and established in Cumberland county, N. J., during 1861, has since

that date annually grown in wealth, population, and importance. It is situated on the West Jersey railroad at its intersection with the Vineland road, 35 miles from Philadelphia and 115 from New York city, being also within easy distance of the leading cities of the State. Fruit-growing and farming are extensively engaged in throughout the surrounding country, for which Vineland is the receiving and distributing center, at the same time conducting large and varied lines of manufacturing industries. Among these are foundries and machine shops, boot and shoe, clothing and glove factories, saw-mills, edge-tool works, incubators, brass novelties, buttons, glass, rugs, patent medicines, bake-pans, band-saws, wine, brick, hardware, etc., all of which are steadily adding to the volume of business transacted each season. The city contains two banks, one daily and two weekly papers, also one semi-monthly and two monthly publications, eleven churches, a high school, several large hotels, four public halls, and many stores and other trade resorts. The fruit, including peaches, grapes, etc., shipped from Vineland to the Philadelphia, New York, and other markets of supply, enjoy an enviable reputation. The population of Vineland has increased from 3,000 in 1880 to 4,370 in 1900.

VINET, ALEXANDRE RODOLPHE, a French critic, though not a Frenchman, was born near Lausanne, on June 17, 1797. Vinet's *Chrestomathie Française* (1829) his *Études sur la Littérature Française au XIXème Siècle* and his *Histoire de la Littérature Française au XVIIIème Siècle*, together with his *Études sur Pascal*, *Études sur les Moralistes des XVIème et XVIIème Siècles*, *Histoire de la Prédication pendant les Réformes*, and other books gave evidence of a wide knowledge of literature, a sober and acute literary judgment, and a very considerable faculty of appreciation. On the whole he belongs to the academic school of critics rather than to the romantic-impressionist school. Vinet died on May 15, 1847, at Clarens (Vaud). A considerable part of his works was not printed until after his death.

VINNITSKA, a district town of Russia, in the government of Podolia, is situated on the Bug, 137 miles to the northeast of Kamenets-Podolsk, and 29 by rail from the Zhmerinka junction on the railway from Odessa to Lemberg. It was founded in the fourteenth century, but nothing now remains of its two stone forts. Its old Jesuit college is now a gymnasium. Owing to the great fertility of the neighborhood, there are a number of distilleries; and the Vinnitsa merchants, mostly Jews, carry on trade in grain and spirits. The population in 1895 was 28,995.

VIOL. See VIOLIN.

VIOLET. The violets comprise a genus of at least 100, some say 200, species, found principally in temperate regions of the northern hemisphere; a few also occur in mountainous districts of South America, while the genus is not wholly without representatives in Australia. The species are mostly low-growing herbs with alternate leaves provided with large leafy stipules. The flowers are solitary, or rarely in pairs, at the end of slender axillary flower-stalks. The flowers themselves are very irregular in form, with five sepals prolonged at the base, and five petals, the lowest one larger than the others and provided with a spur.

*V. odorata* is highly prized for its fragrance, and in cultivation numerous varieties have originated. The garden pansies or heartseases are derivatives from *V. tricolor*, a cornfield weed, *V. altaica*, and *V. grandiflora*. They are reputed to have been first raised, about 1810, by Lady Mary Bennet, with the assistance of her gardener, Mr. Richardson, the term pansy, a



*pensee* having been long attributed to *V. tricolor*. The variety and richness of coloring in these flowers are very remarkable. "Bedding violas," which differ from pansies in some slight technical details, have been raised by crossing *V. lutea* with *V. calcarata*. The violas are credited with powerful emetic and diuretic properties, on which account they have been admitted into some of the pharmacopœias; but they are now very little used.

**VIOLIN**, a stringed instrument employed in orchestral and chamber music. The body is a resonant box, composed of a belly, back, and six ribs, all shaped out of thin wood to various curves, the belly and back being scooped out of solid slabs, and the ribs planed and bent. The whole is glued together upon six internal blocks. Pine is used for the belly, maple for the other parts. The external surface is covered with a fine hard varnish of a brown, red, orange, or yellow color, which renders the box more resonant. To this box is glued a solid neck or handle, slightly inclined to the plane of the box, and along the whole instrument four gut strings are stretched by means of as many pegs and a tail-piece. They are tuned in fifths, and set in vibration with a bow, strung with horsehair well rubbed with rosin, which is held in the right hand, the scale being completed by stopping the strings with the fingers of the left hand, in which the instrument is held, on an ebony finger-board glued to the handle, and projecting over the body of the fiddle. The movable bridge, across which the strings are strained, forms the spring or mechanical center of the violin, and answers to the reed in wood wind instruments. It has two feet, of which the treble or right hand one rests firmly on that part of the belly which is supported by a sound-post resting on the back, thus forming a rigid center of vibration, while the bass or left-hand foot, resting on the freely-vibrating part of the belly, communicates to it, and through it to the air in the box, the vibrations which the bow excites in the strings. The belly is strengthened, and its vibration regulated and increased, by a longitudinal bar glued inside it exactly under the bass foot of the bridge. Two incisions in the belly, called sound-holes, from their letting out the sound, also facilitate and modify the vibration. The middle pair of ribs on each side have an inward curvature, to afford the bow better access to the strings. The superficial area of the belly is divided by the bridge into two approximately equal parts, for an obvious acoustical reason; but the upper half is longer and narrower than the lower, which is relatively short and broad. This device gives greater length to the vibrating portion of the strings, and hence greater compass to the instrument. It also brings the bowing place on the strings nearer to the player.

The viol is an instrument, or rather a family of instruments, of merit and interest, though now superseded by the violin, with the exception of the double bass, which still survives as a practical instrument. The following are the points in which the viol differs from the violin:

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|--|---|
| The Viol has—  | The Violin has—                                 |
| 1. A flat back of joiner's work.   | 1. A scooped-out back, modelled like the belly. |
| 2. Shoulders with a contrary flexure in the pattern, and an oblique slope in the back. | 2. Square shoulders, and a top like the bottom. |
| 3. A high bridge mounted on legs.  | 3. A low bridge with feet only.                 |
| 4. C-shaped, sometimes "flaming sword," sound holes.                                   | 4. f-shaped sound holes.                        |
| 5. A thin broad handle.  | 5. A thick narrow handle.                       |
| 6. Six or seven strings, tuned by fourths and a third.                                 | 6. Four strings tuned by fifths.                |
| 7. Square or obtuse corners.   | 7. Acute corners.                               |
| 8. Deep ribs.  | 8. Shallow ribs.                                |
| 9. A soft penetrating tone.  | 9. A ringing brilliant tone.                    |

In the matter of 4 and 7 a few viols, made after the

violin had been perfected, and chiefly Italian, follow the violin. The modern double bass also follows the violin in these points and in 5. The viol was made in three main kinds—discant, tenor and base—answering to the cantus, medius, and bassus of vocal music. Each of these three kinds admitted of some variation in dimensions, especially the bass, of which three distinct sizes ultimately came to be made—(1) the largest, called the concert bass viol; (2) the division or solo bass viol, usually known by its Italian name of *viola da gamba*; and (3) the *lyra* or *tablature* bass viol. The normal tuning of the viols, as laid down in the earliest books, was adapted from the lute to the bass viol, and repeated in higher intervals in the rest. The fundamental idea, as in the lute, was that the outermost strings should be two octaves apart—hence the intervals of fourths with a third in the middle.

The violin, as the name imports, is a modified form of the viol, an instrument constructed on exactly similar principles, though different in every detail. It dates from the middle of the sixteenth century; the viol was perfected somewhat earlier.

The earliest use of the viols was to double the parts of vocal concerted music; they were next employed in special compositions for the viol trio written in the same compass. Many such works in the form of "fantasies" or "fancies," and preludes with suites in dance form, by the masters of the end of the sixteenth and seventeenth centuries, exist in manuscript; a set by Orlando Gibbons, which are good specimens, has been published by the English Musical Antiquarian Society. Later, the viols, especially the bass, were employed as solo instruments, the methods of composition and execution being based on those of the lute.

The violin was produced by applying to the viol certain principles borrowed from its smaller predecessors. It would be equally correct to say that it was produced by applying to the geige other principles borrowed from the viol. Tradition indicates one of the Tieffenbrückers, a German family whose members for more than a century were famous lute-makers in Venetia and Lombardy, as the inventor. The earliest instrument of the violin type known is a tenor made by Fr. Linaroli of Bergamo, at Venice, in 1563; and the earliest makers whose authentic works have descended to us in considerable numbers are Gaspar da Salò and Maggini, both of Brescia.

The early Italian school is chiefly represented by the Brescian makers, Gaspar da Salò, Giovanni Paolo Maggini, Giovita Rodiani, and the two Zanettos (1580–1630). It is, however, misleading to denominate it the Brescian school, for its characteristics are shared by the earliest makers of Cremona and Venice. To eyes familiar with the geometrical curves of the later Cremona school most of the violins of these makers, like the early violins of England and Germany, have a rude and uncouth appearance. The height of the model varies; the pattern is attenuated; the f-holes share the general rudeness of design, and are set high in the pattern. Andreas Amati of Cremona, the eldest maker of that name, effected some improvements on this primitive model; but the violin owes most to his sons, Antonio and Geronimo, who were partners. Nicholas, son of Geronimo, and Antonio Stradivari, the pupil of Nicholas, each did something to perfect the model; but the substantial improvements which converted the Brescian violin into the modern instrument were the work of Antonio and Geronimo. These improvements, which were, in fact, of an artistic rather than a scientific nature, consisted in modeling the instrument in all its outlines and surfaces to regular curves. Painting and inlaying had long been employed in the decorat-



tion of stringed instruments; but the brothers Amati were the first who applied to the violin the fundamental law of decorative art, that the decorative and constructive elements should be blended in their inception; in other words, the construction should be itself decorative and the decoration itself constructive. The nature of the instrument suggested the application of this law, for all extraneous additions to the varnished wood of which it consists tend to damp the tone. Nicholas Amati (1596-1684) made some slight improvements in the Cremona model, and Antonio Stradivari (1649-1737) finally settled the typical Cremona pattern, which has been generally followed; for the majority of violins since made, whether by good or bad makers, are copies of Stradivari. Besides the last named, the following makers worked generally on the Amati model—Cappa, Gobetti, the Grancino family, Andreas Guarneri, and his son Giuseppe, the Ruggieri family, and Serafin of Venice. Balestrieri, the Bergonzi family, Alessandro Gagliano, the earlier members of the Guadagnini family, Montagnana, and Panormo were pupils or followers of Stradivari. Landolfi, Storioni, and Carlo Giuseppe Testore, a pupil of Giovanni Grancino, leaned to the model of Giuseppe Guarneri del Gesù. Some resemblances, especially in the matter of the varnish, are traceable between the works of makers who lived contemporaneously in the same town, *e.g.*, in Naples, Milan, and Venice.

The Amati method was adapted to the higher model by Jacob Stainer of Absam, near Hall in Tyrol, whose well-known pattern was chiefly followed by the makers of England, Tyrol, and Germany, down to the middle of the eighteenth century. It thenceforward fell into disuse, owing to the superior musical qualities of the Cremona violin and to improved means of communication, which enabled the violin-makers of other countries to procure wood sufficiently soft and tenacious to be worked to the flat model. The school of Stainer is represented among many others by Albani, Hornsteiner, the Klotz family (who made large numbers of instruments excellent in their kind), Schorn of Salzburg, and Withalm of Nuremberg. The English makers may be divided into three successive groups: 1. an antique English school, having a character of its own (Rayman, Urquhart, Pamphilon, Barak Norman, Duke of Oxford, etc.); 2. imitators of Stainer, at the head of whom stands Peter Wamsley (Smith, Barrett, Cross, Hill, Aireton, Norris, etc.); 3. a later school who leaned to the Cremona model (Banks, Duke of Holborn, Betts, the Forsters, Gilkes, Carter, Fendt, Parker, Harris, Matthew Hardie of Edinburgh, etc.) The early French makers have little merit or interest (Bocquay, Gaviniès, Pierray, Guersan, etc.); but the later copyists of the Cremona models (Lupot, Aldric, Chanot, the elder, Nicholas, Pique, Silvestre, Vuillaume, etc.) produced admirable instruments, some of which rank next in merit to the first-rate makers of Cremona.

The tenor violin, in compass a fifth lower than the treble violin, appears to have preceded the latter; and from existing specimens we know that the bass violin, now termed the violoncello, with a tuning an octave below the tenor, appeared very shortly afterward. A double bass violin, tuned a fourth below the violoncello and usually known as the *basso da camera*, completed the set of instruments in violin shape; but from the difficulty attending its manipulation it never came into general use. The celebrated double bass player, Dragonetti, occasionally used the *basso da camera*, and an English player named Hancock, who dispensed with the highest or E string, is still remembered for his performances on this unusual instrument.

The tenor and violoncello are made on the same general model and principles as the violin, with certain modifications. Both are relatively to their pitch made smaller than the violin, because, if they were so constructed as to have the same relation to the pitch and tension of the strings as the violin, they would not only have an overpowering tone but would be unmanageable from their size.

It is commonly said that an old violin is better than a new one. Other things being equal, and supposing the older to be in fair preservation, this is true; it is also true that of old violins the best, as a rule, have survived. Good violins, however, have been continuously made, and are still being made, though since the middle of the eighteenth century the cheapness of the "trade" fiddle, made by the hundred by divided labor, has much circumscribed the business of the higher-class workman. The best workmen of different countries differ little in merit; but it is seldom that any maker out of Italy is successful in varnishing his work so as to impart to it the superior resonance which characterizes the best Italian violins. The varnish, originally merely ornamental and preservative, has become an essential part of the work, from its intimate connection with the tone. The secret of making varnish is not lost, as is sometimes stated; the difficulty consists in applying and drying it with reference to the climate where the operation takes place. In moist climates, oil varnish, which is the best, dries too slowly; hence the use of spirit varnish, which is more manageable, but has not the effect of permeating the superficial tissues of the wood so as to increase and perpetuate its elasticity. Many well-made modern violins, notably those of some French makers, have proved failures, because they have, under a mistaken belief, been made out of old and dry wood. After a few years pine begins to lose its elasticity; the old makers used wood that was only just sufficiently seasoned, and they preserved its elasticity by applying their varnish at once.

It is also commonly said that a flat violin is preferable to a high-modeled one. This must be accepted with some modification. Instruments which are excessively flat should be avoided, for reasons above stated. A moderate height, rather less than the medium, is most favorable to vibration; what is really essential is that the sound-holes should be in horizontal planes, not in planes inclined at a considerable angle to the transverse section of the instrument. Such sound-holes, as may be proved at once by the ear, have the property of immediately letting out the vibrations of the small mass of air which lies directly under the bridge, and thus rob the great mass of air in the body of the fiddle of the impulse necessary to set it properly in vibration; hence the tone, though quickly yielded and not feeble to the ear of the player, is found at a short distance to be deficient in force and flexibility. The violins most in request are the larger specimens of the Amati family, of Stradivari and his best pupils, and of the two cousins Giuseppe Guarneri—the instruments of Giuseppe called "del Gesù," from his use of the sacred monogram on his tickets, being by some players preferred to those of Stradivari. For old instruments of the best class purchasers must be prepared to pay from \$1,000 to \$3,000, according to their quality and state of preservation. Second-class old Italian instruments, and first-rate specimens of the best school of French copyists, can usually be bought for smaller sums down to \$100. The chief seats of the wholesale violin manufacture are Mirecourt in France and Markneukirchen in Saxony.

The violin bow, which is made of Brazil wood, was reduced to its present admirable shape about 1780 by Francois Tourte of Paris (1747-1835), whose bows are



still esteemed above all others. A fair Tourte bow is generally worth \$50; but a fine one has been sold for \$150; and one of his best violoncello bows, which are rarities, was recently sold in Paris for \$220. Bows, however, which leave little to be desired are made in great numbers by English, French, and German makers. A good bow is of more importance to a player than a good violin; something may be done with an indifferent instrument, but no one can play with a bad bow.

The best strings have always been made in Italy; the climate of northern Europe is unsuitable for the manufacture. Good strings are essential to the player, and they should be frequently changed, as they only retain their shape at the place where the bow touches them, and their elasticity, for a limited period.

**VIOLLET-LE-DUC**, EUGÈNE EMMANUEL, French architect and writer on archaeology, was born at Paris January 27, 1814. From 1845 to 1856 he was occupied on the restoration of Notre Dame in Paris in conjunction with Lassus, and also with that of the abbey of St. Denis. In 1849 he began the restoration of the fortifications of Carcassonne and of Amiens cathedral; and in later years he restored Laon cathedral, the château of Pierrefonds, and many other important buildings. He was an intimate friend of Napoleon III., and during the siege of Paris (1871) gave valuable help as an engineer to the beleaguered army. He held many important offices, both artistic and political, and was for many years inspector-general of the ancient buildings throughout a large part of France. His last work was the general scheme for the Paris exhibition buildings in 1878. He died September 17, 1879.

**VIOLONCELLO**. See **VIOLIN**.

**VIOTTI**, GIOVANNI BATTISTA, violinist and musical composer, was born at Fontanetto in Piedmont, March 23, 1753.

Viotti's playing was distinguished by an extreme purity of style, a magnificent tone, and an endless variety of poetical and imaginative expression. He was undoubtedly the best violinist of the age, and the best composer for his instrument. Among his works are twenty-nine violin concertos, a series of symphonies concertantes for two violins, forty-five duos, eighteen trios, and twenty-one quartettes, and a great number of sonatas, nocturnes, and other instrumental works. His school was worthily perpetuated by his pupil Rode. He died in London March 10, 1824.

**VIPER**. The vipers constitute a family (*Viperidae*) of Old-World, poisonous, viviparous snakes, which have a single movable poison fang on either side of the upper jaw, without any excavation or pit between the eye and the nostril—thus differing from the *Crotalidae*. They have a post-frontal and a maxillary bone, which latter is swollen and upright, articulating with the pre-frontal by a ginglymus, and short—not reaching the premaxilla. Vipers are mostly more or less thick-bodied and short-tailed, the head being entirely covered above with small scales, except in a single species. The nose is often recurved, and some scales of the head are elongated so as to form "horns" in several species.

The common viper (*V. berus*) is easily distinguished from the harmless ring-snake by the black and white (or yellow) band behind the head, which is generally conspicuous in the latter animal. It is also distinguishable (apart from individual varieties) from the snake *Coronella*, by having a dark V-shaped mark on its head and a dark zig-zag line down the back. It is this viper which has the top of the head covered by shields (which may be regular or irregular in outline) instead of small scales only. It is one of the most widely distributed of snakes, being found from northern Spain eastward to the island of Sardinia, and from the northern boundary

of Persia to beyond the Arctic Circle in Scandinavia, though it is not found in Ireland. It inhabits all sorts of situations, though it prefers a dry soil, and it may be met with at an elevation of 9,000 feet above the sea. It seeks its prey at night, and penetrating the burrows of mice will eat their nestlings. Its bite is sometimes fatal to large dogs, and occasionally to weakly children. It brings forth in April and May from five to fourteen young, which are hatched as they are born.

The other European vipers are *V. aspis*, *V. ammodytes*, and *V. latastii*. *V. aspis* is very like the common viper, save as to the scales on the head, and the fact that its snout is somewhat turned up. It inhabits France, Switzerland and Italy. *V. ammodytes* is a somewhat larger species, with a singular pointed process extending upward from the snout end. It is found in Egypt, Syria, Asia Minor, Turkey, Greece, Southern Austria, and Italy. *V. latastii* is a species intermediate between *V. aspis* and *V. ammodytes*. It inhabits Spain, Portugal, Morocco and Algiers. Thus of the four European vipers, two are also found in Africa and one in both Africa and Asia. There are three exclusively Indian vipers—*V. xanthina*, *V. persica* and *V. russellii*. *V. xanthina* is an animal about two and one-half feet long. As in all the other non-European vipers, the body scales are strongly keeled. It is found in Asia Minor, Syria, and Persia. *V. persica* is, as its name implies, a Persian animal. The scales above each eye are so modified as to form a horn. *V. russellii* is hornless, but very large; it is said to attain a length of more than six feet. It is widely distributed, inhabiting India, Burmah, Siam, Ceylon, Sumatra, and Java. Two vipers are common to Asia and Africa. One of these, *V. mauritanica*, extends from Algiers to Persia. It may be nearly five feet long. The other species, *V. cerastes*, is a much smaller snake, never being much more than twenty inches in length. It is remarkable for two long pointed horns (which stand up over either eye), and is widely distributed in North Africa and Arabia. All the other species of the genus *Vipera* are exclusively African, and only one is found north of the Sahara. This is *V. arietana*. It has no horns, and only attains a length of about sixteen inches. *V. supercilii* is also a small snake, but it has a large rugose supraorbital plate. It comes from Mozambique. The puff-adder (*V. arietans*) is a large thick snake, which may be four feet long. It is a very deadly animal, and is widely distributed over southern and central Africa, extending to both the east and west coast of that continent. It is without horns. *V. nasicornis* is a beautifully colored, large and bulky snake, which may be upward of six feet long. Two horns project obliquely forward from just in front of either nostril. It inhabits southern Africa. It is a very venomous animal. *V. rhinoceros* is another large snake, which comes from both the east and west coasts. It has a pair of horns upstanding between its nostrils, each clothed with but a single shield. *V. cornuta* has scaly prominences, which are hardly "horns," and which consist each of a group of four or five large upright distinct scales placed above one of the eyes. It is a small snake hardly ever more than twenty inches long. It inhabits western, southern and eastern Africa. *V. caudalis* is a still smaller snake, which has a single scale extending upward over either eye. It comes from southern Africa, as also does *V. schneideri*, which is like the last species, save that it has nothing at all representing horns. *V. inornata* is also hornless, though it has the supraorbital region somewhat elevated. It is a very small snake, only about fifteen inches long. It is a South African species, as also are *V. atropos* and *V. atropoides*, which are both hornless and are about two feet long.



VIRGIL (P. VERGILIUS MARO) enjoyed in ancient times an unquestioned supremacy among Roman poets. His preëminence in poetry was as distinctly recognized as that of Cicero in prose. Virgil is the only complete representative of the deepest sentiment and highest mood of his countrymen and of his time. In his pastoral and didactic poems he gives a living voice to the whole charm of Italy, in the *Æneid* to the whole glory of Rome. He was in the maturity of his powers at the most critical epoch of the national life, one of the most critical epochs in the history of the world. Keeping aloof from the trivial daily life of his contemporaries, he was moved more profoundly than any of them by the deeper currents of emotion in the sphere of government, religion, morals, and human feeling which were then changing the world; and in uttering the enthusiasm of the hour, and all the new sensibilities that were stirring in his own heart and imagination, he had, in the words of Sainte-Beuve, "divined at a decisive hour of the world what the future would love." He was also by universal acknowledgment the greatest literary artist whom Rome produced.

The great work which he accomplished was the result of the steady devotion of his genius, undistracted by pleasure or business, to his appointed task. For the first half of his life he prepared himself to be the great poet of his time and country with a high ambition and unresting industry, equaled only by the ambition and industry with which Cicero prepared himself to be the greatest orator and the most accomplished exponent of philosophy among his contemporaries and countrymen. The second half of his career was a religious consecration of all his powers of heart, mind, and spirit to his high office. He was born October 19th in the year 70 B.C., in a farm on the banks of the Mincio, in the district of Andes, not far from the town of Mantua.

The scenery familiar to his childhood, which he recalls with affection both in the *Eclogues* and the *Georgics*, was that of the green banks and slow windings of the Mincio and the rich pastures in its neighborhood. Like his friend and contemporary Horace, and unlike the poets of the preceding generation, who were members either of the aristocracy or of the class closely associated with it, he sprung from the class of yeomen, whose state he pronounces the happiest allotted to man and most conducive to virtue and piety.

After studying under a rhetorician, who was, probably about the same time, the teacher of the future emperor, he proceeded to the study of philosophy under Siron the Epicurean, who, in common with other teachers of that sect, appears to have had the gift of inspiring enthusiasm for his subject and affection for himself.

Our next knowledge of him is derived from allusions to his circumstances and state of feeling contained in the *Eclogues*, and belongs to a period nine or ten years later. Of what happened to him in the interval, during which the first civil war took place and Julius Cæsar was assassinated, we have no indication from ancient testimony or from his own writings. We might conjecture that this was a time of studious leisure passed in his father's house in the country, as the life of Milton was passed after leaving Cambridge. In 42 B.C., the year of the battle of Philippi, when he was in his twenty-eighth year, we find him leading such a life, "cultivating his woodland Muse," and enjoying the protection of Asinius Pollio, the governor of the district north of the Po.

Soon afterward we hear of him living in Rome, enjoying, in addition to the patronage of Pollio, the favor of Mæcenæ, intimate with Varius, who was at first regarded as the rising poet of the new era, and soon afterward with Horace, who had just returned from his un-

fortunate adventure with the army of Brutus. Soon afterward he withdrew from habitual residence in Rome and lived chiefly in Campania, either at Naples or in a country house in the neighborhood of Nola. He resided also for some time in Sicily; and there is in the fourth *Georgic* distinct evidence of his familiarity with the neighborhood of Tarentum. He was one of the companions of Horace in the famous journey to Brundisium; and it seems not unlikely that, sometime before 23 B.C., he made the voyage to Athens which forms the subject of the third ode of the first book of the *Odes* of Horace.

The seven years from 37 to 30 B.C. were devoted to the composition of the *Georgics*. In the following year he read the poem to Augustus, on his return from Asia. The remaining years of his life were spent on the composition of the *Æneid*. In the course of its composition, in 23 B.C., the year of the death of the young Marcellus, he read three books, the 2nd, 4th, and 6th, to the emperor and the members of the imperial family. In 19 B.C., after the *Æneid* was finished, but not finally corrected, he set out for Athens, intending to pass three years in Greece and Asia, and to devote that time to perfecting the workmanship of the poem. At Athens he met Augustus and was persuaded by him to return with him to Italy. While visiting Megara under a burning sun, he was seized with illness, and, as he continued his voyage without interruption, he grew rapidly worse, and died on September 21st, in his fifty-first year, a few days after landing at Brundisium. In his last illness he called for the cases containing his manuscripts, with the intention of burning the *Æneid*. He had previously left directions in his will that his literary executors Varius and Tucca, should publish nothing of his which had not already been given to the world by himself. This pathetic desire that the work to which he had given so much care, and of which such great expectations were formed, should not survive him, has been used as an argument to prove his own dissatisfaction with the poem.

He was buried at Naples, where his tomb was long regarded with religious veneration, and visited as a temple. That veneration was a survival of the feeling with which he was regarded in his lifetime, and is greater than what we find attaching to the actual memory of any other ancient poet, though the mystery connected with the personality of Homer excited a greater curiosity. The feeling which his countrymen and contemporaries entertained toward him seems justified by the personal impression which he produces on modern readers—an impression of sanctity, as of one who habitually lived in a higher and sener sphere than that of this world. The reverential love inspired by him, is something distinct from the affection felt for Horace as a familiar friend, a wise counselor, and genial companion, sharing the ordinary interests and pleasures of life, liable to the same weaknesses and endeared by the same social charm as those who are best liked in the intercourse of our own day.

VIRGIL (POLYDORE), author of the *Historia Anglica*, otherwise known as P. V. CASTELLENSIS, was a kinsman of Cardinal Hadrian Castellensis, a native of Castro in Etruria, and was born about 1470. His father's name is said to have been George Virgil; his great-grandfather, Anthony Virgil, "a man well skilled in medicine and astrology," had professed philosophy at Paris, as did Polydore's own brother and protégé, John Matthew Virgil, at Pavia, in 1517. A third brother was a London merchant in 1511. Polydore is said to have been educated at Bologna, and was probably in the service of Guido Ubaldo, duke of Urbino, before 1498, as in the dedication of his first work, *Liber Proverborum*



(April, 1498), he styles himself this prince's client. Polydore's second book, *De Inventoribus Rerum*, is dedicated to Guido's tutor, Ludovicus Odaxius, from Urbino, in August, 1499. After being chamberlain to Alexander VI. he came to England in 1501 as deputy collector of Peter's pence for the cardinal. As Hadrian's proxy, he was enthroned bishop of Bath and Wells in October, 1504. It was at Henry VII.'s instance that he commenced his *Historia Anglica*—a work which, though seemingly begun as early as 1505, was not completed till August, 1533, the date of its dedication to Henry VIII., nor published till 1534. In May, 1514, he and his patron, the cardinal, are found supporting Wolsey's claims to the cardinalship, but he had lost the great minister's favor before the year was out. In 1525 he published the first edition of Gildas, dedicating the work to Tainstall, bishop of London. Next year appeared his *Liber de Prodigis*, dedicated from London (July) to Francesco Maria, duke of Urbino. Somewhere about 1538 he left England, and remained in Italy for some time. Ill-health, he tells us, forbade him on his return to continue his custom of making daily notes on contemporary events. About the end of 1551 he went home to Urbino, where he appears to have died in 1555. He had been naturalized in October, 1510, and had held several clerical appointments in England. In 1508 he was appointed archdeacon of Wells, and in 1513 prebendary of Oxgate in St. Paul's Cathedral, both of which offices he held after his return to Urbino.

**VIRGINAL.** See PIANOFORTE.

**VIRGINIA**, one of the original thirteen States of the North American Union, extends from  $36^{\circ} 31'$  to  $39^{\circ} 27'$  N. latitude, and from  $75^{\circ} 13'$  to  $83^{\circ} 37'$  W. longitude. It is rudely triangular in form—its southern boundary, the base of the triangle, a nearly east to west line, being 440 miles long, the northwestern 565, the northern and northeastern 230 and the eastern 125 miles. On the south it is bounded by North Carolina and Tennessee, on the west and northwest by Kentucky and West Virginia, on the north and northeast by Maryland, and on the east by the Virginian Sea of the Atlantic Ocean. Its greatest length from east to west is 476 miles, its greatest breadth from north to south 192 miles. It is subdivided into 100 counties. The area is variously stated at 42,330 and 40,125 (land area) square miles; the latter is that given at the census of 1900. Of the 1,854,184 inhabitants of Virginia (925,897 males, and 928,287 females), in 1900, 494,240 were engaged in gainful occupations—254,099, or over 50 per cent., in agriculture, 30,418 in trade and transportation, and 63,959 in manufactures and mining and mechanical industries; but now (in 1902) a very much larger proportion of the industrial population is engaged in mining, manufacturing, trade, and transportation, in consequence of the opening of mines, the erection of blast-furnaces, coke ovens, and various manufacturing establishments since 1880.

Speaking broadly, Virginia may be divided into a lowland and a highland country. Its southeastern part—over 23,000 square miles, or more than half of the whole—has the aspect of a broadly undulating plain, that, with but few marked variations of relief, rises from the sea-level to from 400 to 800 feet above it. The northwestern portion is a region composed of approximately parallel mountain ranges, running entirely across the State from northeast to southwest, separated by nearly parallel valleys—the whole presenting all the varieties of relief peculiar to the Appalachian country between the levels of 800 and 5,700 feet. To speak more accurately, the State is naturally divided into seven grand divisions or belts, each with marked characteristics of relief and

geological structure, and each succeeding the other, somewhat as a more or less ascending stairway, from the sea to the northwest.

1. Tidewater Virginia is the marine plain of Quaternary and Tertiary structure, 10,850 square miles in area, that extends westward, for nearly 100 miles, from the Atlantic border to "The Ridge," the granitic escarpment which by its rise determines the tidal limit in the great rivers of the State.

2. Midland Virginia is the triangular area (12,470 square miles) which, 25 miles wide along the Potomac and 100 wide along the North Carolina line, extends from the Tidewater escarpment westward to the eastern base of the Atlantic coast range, the broken eastern range of the Appalachian Mountains.

3. Piedmont Virginia is the area (6,680 square miles) of greatly diversified country, some 250 miles in length and 20 to 30 miles in width, that stretches between the Blue Ridge and the Coast Range mountains, including all of the latter and the eastward spurs and slopes of the former.

4. Blue Ridge Virginia is the Virginian portion (300 miles in length) of the great mountain chain of that name, with its numerous tablelands—especially the Floyd-Carroll-Grayson plateau (1,230 square miles) in the southwest, having an altitude of from 916 to 5,700 feet.

5. The valley of Virginia is the Virginian portion (300 miles) of the length of the great limestone or Appalachian valley of the Atlantic highlands, one that, made up of numerous subordinate valleys, extends with unbroken continuity from Canada to Alabama, and has for its whole length, with varying local names, the Blue Ridge on its eastern and the Kittatinny or Great North Mountain on its western border.

6. Appalachia (4,500 square miles), a region of alternating "rich" and "poor" valleys (according as they are carved from the lime-abounding or from the slaty sandstone rocks of the Silurian or the Devonian groups), is Virginia's portion of the Appalachian Mountains region proper, the one that lies between the Great Valley on the east and the great Carboniferous escarpment of the Trans-Appalachia plateau.

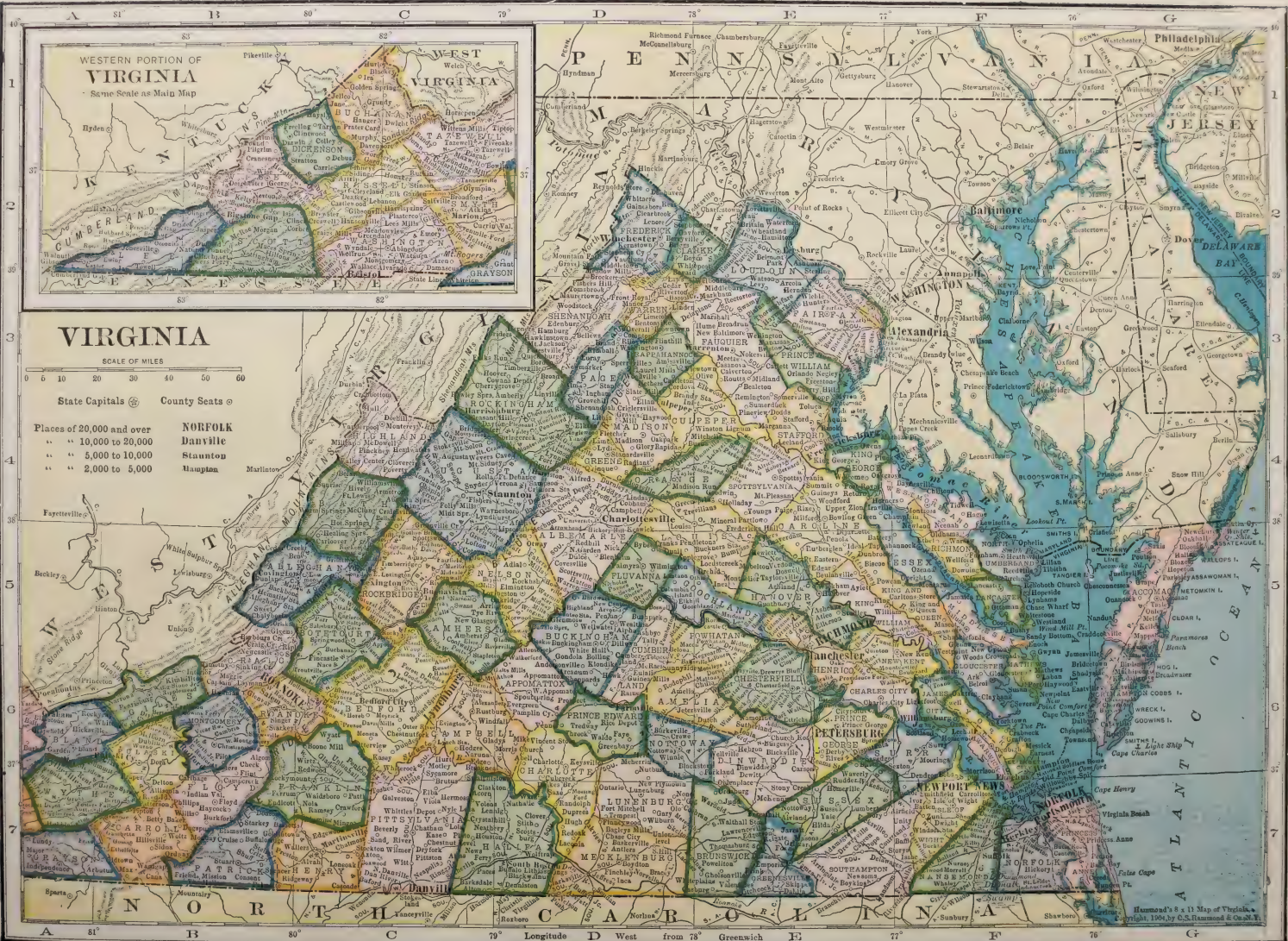
7. Trans-Appalachia (mainly the 1,200 square miles in Buchanan, Dickenson, and Wise counties) is the Virginian portion of the tableland that extends westward from the great Carboniferous escarpment or Alleghany "backbone." It is eroded from the Carboniferous rocks, and so is the great coal-bearing portion of the State.

The State lies in the middle latitudes. It is open to the sea on the east; its great mountain chains guard it on the north and west; and it has accordingly as nearly a climate of means as any of the Atlantic-bordering States can have. Its position and physical structure also give great variety to its climate; that of its bordering sea islands and large peninsulas is insular; that of its great Tidewater and Midland plains is warm temperate; that of Piedmont and the Great Valley is typically mild temperate; and that of the Blue Ridge plateau and of the high valleys and tablelands of Appalachia is more uniformly cool temperate than in higher latitudes.

The mean annual temperature zones of Virginia are  $60^{\circ}$  to  $65^{\circ}$  in eastern Tidewater;  $55^{\circ}$  to  $60^{\circ}$  in western Tidewater, and most of Midland;  $50^{\circ}$  to  $55^{\circ}$  in the higher parts of Midland, in most of Piedmont, and in the lower parts of the Valley and Appalachia;  $45^{\circ}$  to  $50^{\circ}$  in northeast Piedmont, in most of the Valley, and in the lower valleys of Appalachia; and  $40^{\circ}$  to  $45^{\circ}$  on the Blue Ridge, on and near the high levels of the Valley, and in most of Appalachia. The average for the







# WESTERN PORTION OF VIRGINIA

Same Scale as Main Map

## VIRGINIA

SCALE OF MILES

State Capitals @ County Seats @

- Places of 20,000 and over
- " " 10,000 to 20,000
- " " 5,000 to 10,000
- " " 2,000 to 5,000

NORFOLK  
Danville  
Staunton  
Hampden



State is near  $56^{\circ}$ , ranging from  $48^{\circ}$  in the highlands to  $64^{\circ}$  in the lowlands—from the mean adapted to grass to that suitable for cotton. The changes of temperature are great, but not so sudden or so extreme as they are in the regions to the northeast and northwest.

The varied and abundant mineral resources of the State are as yet but imperfectly developed. Her medicinal mineral springs are numerous, and many of them well known. Tidewater abounds in fertilizing marls, and in choice brick-clays, sands, and shell-limestones for building. Lime-burning, from oyster-shells, is an important industry. Midland abounds in superior granites, which are extensively quarried near Richmond and Petersburg; in the best of slates for roofing and other purposes, especially in Albermarle and Buckingham counties; in Jura-Trias brownstones and sandstones; in trar 'or Belgian blocks; in soapstones (steatites), limestones, and in brick, plastic, and fire clays. Thick beds of excellent bituminous coal and of natural coke are found in the Jura-Trias of Chesterfield and adjacent counties, which have long been mined; other beds are worked in Chesterfield county; thick beds of magnetic, specular, and limonite iron ores, and of gold, silver, and copper-bearing rocks, traverse its whole length from northeast to southwest. Its gold belt, from fifteen to twenty miles wide, rich in free, quartz, and pyritous-rock gold, traverses the whole western tier of Midland counties, for more than 200 miles, from the Potomac to the Dan; in this belt, in Louisa county, at the Arminius copper mines, veins of white pyrites, forty-two feet, bearing 46 per cent. of sulphur and considerable yellow copper, have been opened and reduction works erected for a 300 tons daily output; 12,000 tons of pyrites were shipped in 1886. Manganese, mica, plumbago, titanium, cyanite, garnets, emeralds, quartz, and other Archæan and Jura-Trias minerals are found at many points. The minerals and metals now exploited are gold, iron and copper pyrites, manganese, hematites, magnetites, and limonites, mica, slates, granites, brownstones, and trap-rock. Piedmont has extensive beds of magnetic, specular, and limonite iron ore throughout its length; chromic iron ore is found in the northeast; copper ores abound especially along the west border in spurs of Blue Ridge; manganese deposits have been worked at various points; the same Archæan and Jura-Trias building stones and minerals are found here as in Midland, the marbles of Bedford and Loudoun counties of fine quality. Iron ores, manganese, slates, and marbles are now exploited. The Blue Ridge abounds in copper and iron ores for its whole length in Virginia; these as well as pyritous silver, copper, and iron ores, are especially abundant in the Floyd-Carroll-Grayson or southwest plateau, where also auriferous quartz is milled; tin mines have been opened in Rockbridge county; the great Potsdam or primordial iron belt, with its vast deposits of ore, flanks the western base of the Blue Ridge in Virginia for nearly 300 miles, and from the rich deposits of manganese in the same belt two-thirds of the manganese output of the United States in 1886 was mined; glass-sand of the best quality and fire and other clays are abundant, and so are building sandstones in the western Blue Ridge. Mining operations are now extensively conducted in iron and manganese ores. The Great Valley is all underlain by limestones suitable for ornamental, building, and agricultural purposes; its cement (hydraulic) and architectural, fluxing, and agricultural limes are noted for their purity; extensive beds of iron-ore are found among its hills; marbles, barytes, brick and fire-clays, and travertine marls are abundant; there are large deposits of lead and zinc ores, especially in the southwest, in Pulaski and Wythe counties, where they

accompany the great iron-ore deposits of the Cripple Creek region; from the Vespertine (No. x.) beds of the Lower Carboniferous, in Montgomery and Pulaski counties, from 15,000 to 20,000 tons of semi-anthracite coal are annually mined; others are mined in Page and Augusta counties; iron, manganese, zinc, and lead ores are now mined on quite an extensive scale, and lime-burning is an important industry. Appalachian Virginia abounds in very remarkable beds of limonite iron ores, found (often under large areas, in a more or less stratified condition) in the Hudson river (iii.), Clinton (v.), and Oriskany (vii.) formations of Cambrian and Silurian age; there are also deposits of magnetic hematites in Craig and Giles counties; limestones of the Valley (ii.), Trenton (iii.), and Lower Helderberg (vi.) formations, underlying the "rich" valleys and ridges, abound, and furnish the best of materials for building, lime-burning, and blast-furnace fluxing purposes, as well as for beautiful encaustic and other fancy marbles; in its Vespertine (x.) areas are numerous patches of anthracite and semi-anthracite coals, worked and workable for local use; in the Appalachian portions of Smyth and Washington counties are large deposits of rock-salt and gypsum; travertine marls, caves abounding in nitrous earths, and chalybeate, sulphur, alum, hot, warm, and other mineral springs are common; sandstones and slates for building purposes are plentiful. The iron-ores of Alleghany county and those of the Appalachian portions of Rockbridge and Botetourt counties are extensively mined for local blast-furnaces; marbles and gypsum are quarried; considerable salt is manufactured, and semi-anthracite coal in Pulaski for use in local zinc furnaces. Trans-Appalachia is Virginia's 1,000 square miles of the Great Coal Basin of the Ohio, or the Trans-Appalachian Coal Basin (the one usually, but improperly, called the Great Appalachian Coal Basin); this is all underlain by thick and easily accessible beds of the best of semi-bituminous and bituminous coals, those of the Lower (xii.) and of the Middle (xiii.) Coal groups of the Carboniferous. Only the semi-bituminous coking, steam, and domestic coal of this region is now mined for exportation at Pocahontas, Tazewell county, from which 639,751 tons (93,550 of them converted into coke) were shipped in 1886, the traffic having begun with the shipment of 105,805 tons in 1883. From the Flat-top coalfield, including the Pocahontas and some adjacent mines in West Virginia, 1,314,700 tons of coal were mined in 1887, part of which was made into about 145,000 tons of coke, equal in quality to any made in the United States. This fuel is remarkably high in fixed carbon and low in ash and sulphur, and therefore admirably adapted for metallurgical purposes. Twenty mineral springs of Virginia, used medicinally, were reported to the United States Geological Survey in 1886 (Tidewater 1, Midland 4, Blue Ridge 2, Valley 5, Appalachia 8); they were reported as chalybeate, alum, white sulphur, red sulphur, blue sulphur, warm sulphur, cold sulphur, hot sulphur, lithia, healing, ague, and sweet chalybeate. These and many others not reported are visited as health resorts, and many of them ship to market large quantities of their waters.

The variety of vegetation in Virginia is very great, the range being from a profitable growth of semi-tropical cotton to semi-arctic pines and balsams. From one-half to two-thirds of the State is now covered by forests of native evergreen and deciduous trees. Hard and soft woods, in nearly equal proportions, form the original forests of Tidewater and Midland—the plain regions; hard woods predominate in the high country divisions; the park-like hardwood forests of the Great Valley have grown up since its occupation by white men.



The flora of Virginia includes nearly every species of plant found in the United States east of the Mississippi, excepting only the extreme south. The cleared lands of the State, about two-sevenths of the whole, are devoted to orchards, vineyards, meadows and pastures, to market and other gardens, and to crops of maize (Indian corn), wheat, oats, rye, buckwheat, barley, peas, beans, peanuts, round (Irish) and long (sweet) potatoes, turnips, cabbage, clover, flax, hemp, cotton, tobacco, etc. Cereal and root crops are abundantly grown in all parts, as also are tobacco, hay, clover and grass seeds, flax and flaxseed, hops, hemp and cotton. Nearly half the State, part of Piedmont, and all Blue Ridge, the Valley, and the Appalachias is a natural grass country—half of it the habitat of the famous blue grass—and well adapted to grazing and dairy-farming; the special crops of Tidewater are those of market-gardens, early vegetables, and round and sweet potatoes in the east, and of peanuts and cotton in the west; tobacco is a specialty of southwest Midland and Piedmont.

The buffalo and elk, common when white men first settled here, are now extinct; deer, red and gray foxes, rabbits, hares, ground-hogs or woodchucks, red, gray, and ground squirrels, opossums, polecats, muskrats, martens, minks, weasels, bats, rats, and mice are found everywhere; otters and beavers, once numerous in all parts, are again becoming common in south Midland and elsewhere; black bears frequent the Appalachian and borders of the adjacent Valley divisions; wild-cats, catamounts, and the small wolves are occasionally met in unfrequented portions of the mountain regions. Of game or food birds, partridges (quails), pigeons, wood doves, grouse (pheasants), larks, thrushes, snipe, wild turkeys and several kinds of wild ducks are found in nearly all parts; the coasts, the inland bays, the great estuary rivers, and the marshes of Tidewater fairly swarm, especially during the colder months, with canvass-back, mallard, creek, red-head, bald-face, teal, and other wild ducks, and with wild geese, swans, snipe, and other water and water-side fowl; gulls and other sea birds frequent the coast. Song-birds, including mocking-birds, orioles, bobolinks, robins, cat-birds, blue-birds, wrens, tanagers, sparrows, etc., abound; the English sparrow is domiciled in all the cities and towns; numming-birds are plentiful. The common birds of prey, eagles, hawks, owls, a vulture (the turkey buzzard); the wading birds (herons, grass snipes, fly-up-the-creeks, etc.) and the various swimming birds are abundant. The common reptiles include land and water tortoises, or turtles and terrapins (some highly prized for food), and harmless snakes, useful in the destruction of vermin, frogs, toads, salamanders, etc.; the poisonous rattlesnakes, copperheads, and moccasins are sometimes encountered, but are not numerous. The comparatively harmless black snakes are more common. Of edible salt water fishes, more than thirty kinds are taken in quantities in Chesapeake Bay waters, including sturgeon, rock-fish, trout, chub, sheepshead, spot, sunfish, blue-fish, shad, herring, anchovy, Spanish mackerel, cod, bonito, drum, menhaden, bass, sea-eels, and hog-fish; while dozens of kinds not used for food are known. The freshwater fishes are perch, pickerel, cat-fish, chub, bass, sucker, fall-fish, salmon, hog-fish, red-horse, red-eye, carp, mullet, sun-fish, eels, and trout in the mountain streams. Of the abounding crustaceans, edible crabs and lobsters are caught in great numbers in the marine waters, and millions of bushels of oysters, clams, and other shell-fish are annually sent to market.

The government is intrusted to three departments, each with distinct and separate powers. (1) The legislative

authority is vested in a general assembly, composed of a house of delegates of one hundred and a senate of forty members, which meets biennially at Richmond; the members of the house of delegates are elected for two years, those of the senate for four—half the latter being elected biennially. (2) The executive authority is vested in a governor, elected by the people for four years. A lieutenant-governor is elected at the same time, who is president of the senate, and who, should a vacancy occur during the term of office, becomes governor. The other executive officers are a secretary of the commonwealth, a treasurer, first and second auditors of public accounts, a superintendent of public printing, a superintendent of the penitentiary, a railroad commissioner, a commissioner of agriculture, a registrar of the land office, and a superintendent of public instruction. (3) The judicial authority is vested—(a) in justices of peace, three in each of the magisterial districts into which the counties are subdivided; (b) in judges of county courts; (c) in judges of the seventeen circuit courts into which the State is divided, and judges of city courts; and (d) in a supreme court of appeals of five judges. The right of appeal, with specified limitations, is provided for from each of the above courts to the other, in the order named; the supreme court has only appellate jurisdiction save in cases of habeas corpus, mandamus, and prohibition. The justices of the peace, a supervisor, a constable, and an overseer of the poor are elected by the voters of each magisterial district to serve two years; the general assembly elects the county judges for terms of six years, the circuit judges for terms of eight years, and the judges of the supreme court of appeals for terms of twelve years. An attorney-general for the State is elected at and for the same time as the governor. In the congress of the United States, Virginia has two senators and ten representatives. Aliens can acquire and hold any property in Virginia on the same footing as citizens.

The population of Virginia before the separation of West Virginia in 1862 is shown by the following table:—

Census.	Population.	Increase per cent.	Persons per sq. m.	Census.	Population.	Increase per cent.	Persons per sq. m.
1790	747,610	.....	11.5	1830	1,211,405	13.7	18.7
1800	880,200	17.7	13.6	1840	1,239,797	2.3	19.1
1810	974,600	10.7	15.0	1850	1,421,661	14.6	21.9
1820	1,065,116	9.2	16.4	1860	1,596,318	12.2	24.6

In 1870 the population of Virginia was 1,225,163, and that of West Virginia 442,014. In 1880, while West Virginia had 618,457 inhabitants (39.9 per cent. increase), Virginia had 1,512,565 (745,589 males, 766,976 females). The United States census of 1900 gave Virginia 1,854,184.

The accompanying table shows the distribution of the population in 1880, according to the grand divisions. There were in addition six Chinese and eighty-five Indians. The number of foreign born, 19,461 (in 1900), does not amount to 1 per cent. of the population.

	White.	Colored.
Tidewater .....	201,578	213,691
Midland .....	198,140	245,151
Piedmont .....	148,138	103,620
Blue Ridge .....	37,029	2,617
The Valley .....	199,628	51,478
The Appalachias .....	96,345	9,059
Virginia (1900) .....	1,192,855	661,329



The original stock of the whites was mainly English, Scottish, and Huguenot French in Tidewater, Midland, and Piedmont, and Scottish (largely Scoto-Irish from migrating by way of Ireland), German, and English in the remainder of the State—in proportions in the order named.

Virginia has nine cities with over 10,000 inhabitants. In 1900 Richmond, the State capital, had 85,050, Norfolk 46,624, Petersburg 21,870, Lynchburg 18,891, Alexandria 14,528, and Portsmouth 17,427—Danville coming next with 16,520.

The public school system of the State, organized in 1870, provides (1) primary and (2) intermediate instruction in the common branches of education, including preparation for college, by graded primary and high schools—the latter confined to cities, towns, and large villages—free to all between the ages of five and twenty-one inclusive; (3) advanced instruction and training in scientific and professional studies, by a military institute, an agricultural and mechanical college, male and female normal schools, and an institution for the deaf-mutes and the blind—all for whites, and by a normal and agricultural institute and normal college for colored pupils—tuition free to a selected number from all parts of the State; and (4) higher instruction in the complete academic, scientific, technical, and professional schools of the university of Virginia, its academic department tuition free to all young men of Virginia, over eighteen years of age, under restrictions in regard to culture. The State schools confer no honorary degrees. Equal provision, but in entirely separate schools, is made by law for white and colored.

The public free school system is in charge of a board of education. The State makes liberal grants to the military institute, the agricultural and mechanical college, the normal and agricultural institute, the three normal schools, and the university.

Private and corporate schools embrace academies and high schools for boys preparatory for college or university; female colleges, mainly under denominational control; and the well-known colleges of St. John's in Tidewater; Hampden-Sidney, Randolph-Macon, Richmond, and Virginia Medical in Midland; and Roanoke, Emory and Henry, and Washington and Lee University in the Valley. The college of William and Mary (founded in 1693), suspended by reason of losses during the Civil war, is now a normal school.

There are four first-class lunatic asylums—at Williamsburg, Staunton, and Marion, and (for colored patients) at Petersburg. The census of 1880 returned 2,411 insane—1,171 males, 1,240 females; 1,719 white and 692 colored. Pauperism is not common in Virginia; in 1870 there were only 3,890 paupers, supported by public charity at a cost of \$303,081; in 1880 the total number was 3,138, 2,117 of these being in almshouses, of whom 1,027 were colored. Deaf mutes and blind are well cared for in a noble institution at Staunton. The disabled Confederate soldiers of Virginia are aided by the State. There is also, near Richmond, a soldiers' home.

The total valuation of the State in 1900 was \$423,842,680.

Though Virginia has great natural advantages for becoming a leading manufacturing State, less than 5 per cent. of its population is engaged in manufacturing industries. The more important manufactures are those of iron, tobacco, leather, coke, cotton, manures, paper, agricultural implements and machinery, builders' materials, vehicles, lumber, lime, tanning extracts, railway cars and locomotives, flour and mill products, spelter, salt, distilled spirits, canned fruits, vegetables, etc.

The navigable tidal bays, creeks, rivers, harbors,

and roads of Tidewater Virginia furnish more than a thousand miles of channels for commerce; Richmond, at the head of the tidal waters of the James, 117 miles from Chesapeake Bay, is reached by ocean ships drawing 15 feet of water; West Point, at York Head, 41 miles from the bay, has 18 feet of depth; Elizabeth river gives to the fine harbor of Norfolk a channel 25 feet deep; while Hampton Roads, with its 400 square miles of area, is the largest as well as the most central and commodious landlocked harbor on the Atlantic coast of the United States. Ship canals connect the great waterways of Virginia with those of North Carolina and beyond to the southward; and, similarly, northward the head of Chesapeake Bay is connected with Delaware Bay. At the beginning of 1889 there were 35 railway companies working 2,540 miles of road, all of standard 4 feet 9 inches gauge, except some 256 miles of narrow-gauge short lines. Virginia early took part in the construction of railways, investing many millions in the stocks of the various lines now reaching nearly every part of the State; beginning about 1830, it had 147 miles of railway in 1840, 384 in 1850, 1,350 in 1860, 1,449 in 1870, 1,893 in 1880, 2,430 in 1885, and 3,793, with some 200 miles more in course of construction, at the beginning of 1900. Eight great through railway lines connect its trade and manufacturing centers with those of other States.

The mound-builders of the Mississippi valley had outposts, as evidenced by remains of their earth-works, in the mountain passes of Appalachia. At the time of the arrival of the whites the Powhatans held most of Tidewater, the Mannahoacks the northeast and the Monacans the southwest of Midland and Piedmont; the Cherokees held the Tennessee basin parts of the Valley and Appalachia, and Algonkin tribes—Shawnees, Delawares, etc.—the rest of those divisions. Many of the place names are still Indian. Cabot probably entered Chesapeake Bay in 1498; when Raleigh's ships, in 1584, brought to England glowing accounts of the Albemarle Sound region, the whole country was named Virginia in honor of Elizabeth, the virgin queen. The first permanent English settlement in America was made at Jamestown, Va., May 13, 1607, by 100 settlers sent from England by Sir Thomas Gates and Company, who had obtained in April, 1606, a charter from James I. to plant two colonies in Virginia—a southern somewhere between 34° and 41°, and a northern between 38° and 45° N. latitude, but at places not less than 100 miles apart. In 1609 the London Company superseded Gates', which had merely held its settlement and given to the world the romantic adventures of Captain John SMITH, (q.v.). King James gave the London Company, by charter, a sea-front of 400 miles—200 north and 200 south from Point Comfort—all islands within 100 miles of the coast, and all the country back from this 400 miles of frontage "throughout from sea to sea," and to its colonists all the rights of natural-born Englishmen; under this charter Virginia had jurisdiction over her imperial colonial territory, and under it holds the fragment of that colony now called Virginia. The colony of the London Company grew and prospered, and in 1619 Governor Yardley organized at James City, the capital, a few miles inland from Jamestown, the first legislative body that met in North America; in 1621 the London Company granted the colony a liberal constitution, the general form of which Virginia has always preserved. In August, 1619, a Dutch man-of-war sold at Jamestown twenty African negroes, and introduced negro slavery. In 1624 James I. arbitrarily deprived the London Company of its charter, and Virginia became a royal colony, which was, till the revolution, a favorite and generally a loyal royal province governed



by the constitution of 1621, the king appointing the governor and council and the people electing the members of the house of burgesses. In 1698 the capital was transferred to Williamsburg, where, under royal patronage, William and Mary College had been established in 1693. The colony soon occupied most of Tidewater and its Midland border; in 1716 Governor Spotswood crossed the Blue Ridge, and was, so far as known, the first white man to enter the Great Valley, which was soon thereafter occupied by large numbers of Scottish and some German and English settlers. Indian war followed as settlers moved westward, but in 1744 Virginia purchased from the Indians the right to make settlements to the Ohio, and built a fort where Pittsburgh now stands; the French captured this in 1754, and the long French and Indian war followed, until the 1763 treaty of Paris ended it and made the Mississippi the western boundary of Virginia. During that war, in 1755, Braddock was defeated; and in 1758 Fort Duquesne, which under the French had taken the place of Pittsburgh, was captured and renamed Fort Pitt. In 1773 the general assembly of Virginia resolved for an "inter-colonial committee of correspondence," and was dissolved by Lord Dunmore, the royal governor. In May, 1774, it again met and protested against the closing of the port of Boston; Dunmore again dissolved it, but the burgesses, the members elected by the people, reassembled and passed resolutions denouncing British taxation and recommending to the other colonies an annual congress of delegates—leading in this as it had in recommending committees of correspondence. Virginia took a leading part in the subsequent war of independence, but the various steps of her policy need not be detailed here (see UNITED STATES, and compare also JEFFERSON and WASHINGTON).

The great territory of Virginia, reaching from the Atlantic to the Mississippi, and now divided into five large States, made the other States of the Union apprehensive of her future domination. In 1781, to promote harmony, she offered to cede to the general government all her territory beyond the Ohio, and in 1784 she made the cession, only stipulating that the territory thus voluntarily given up should, when peopled, be divided into new States, in which slavery should be forever prohibited, and that the remainder of her territory—that from the Atlantic to the Ohio—should remain inviolably hers. In 1787 the convention of the States, at Philadelphia, presided over by Washington, adopted the present constitution of the United States, and this Virginia, in convention, ratified in 1788. In the war of 1812–14 with England, Virginia bore a conspicuous part, as also in that of 1846–47 with Mexico. The Civil war of 1861–65 was more disastrous in its consequences to Virginia than to any other State of the Union; from first to last its territory was overrun, hundreds of battles and minor engagements took place within its borders, and all the destruction incident to gigantic military operations fell upon it; tens of thousands of its best men were killed in battle; its territory was dismembered, and a third part of it cut off, while more than three hundred million dollars' worth of property was destroyed in what remained.

For some time after 1865 Virginia was under Federal military control as "District No. 1;" but on December 3, 1867, a convention, elected by the people, under an Act of the United States Congress, met and framed a new constitution, prohibiting slavery and accepting the results of the war; this was ratified by a popular vote, July 6, 1869, at which time members of a general assembly and State officers were also elected. The chosen governor was inaugurated September 21, 1869; the general assembly met October 5, 1869, and ratified the

fourteenth and fifteenth amendments to the constitution of the United States; and on January 26, 1870, Virginia was readmitted to representation in Congress, and released from military control.

VIRGINIA CITY, the county seat of Storey county, Nev., and the largest and most important city of the State, is situated upon the steep, rugged eastern slope of Mount Davidson; about 6,300 feet above sea level. A branch line connects it with the Central Pacific Railroad at Reno. Virginia City is built over the great Comstock lode, the mineral vein which has yielded probably more of the precious metals than any other single deposit in the world. With the varying fortunes of this lode the prosperity of Virginia City is intimately connected. It was founded in 1859, and in 1860 its inhabitants numbered 2,345. In 1861 it received a city charter. It continued to increase until toward the end of that decade, when the falling off in the receipts from the mines caused a partial exodus from the town, and the census of 1870 showed only 7,048 inhabitants. The discovery of the "great bonanza" in 1875 produced a return of prosperity, but this was but transient, and before the next census the city was again on the wane. In 1890 the census showed 8,511 inhabitants. In 1900 the United States census showed 2,695 only. The city is laid out rather irregularly, conforming to some extent to the surface of the mountain side. Some streets have been graded, at great expense, as it involved much rock cutting.

VIRGIN ISLANDS, a group of small West India Islands (see WEST INDIES), about one hundred in number, for the most part uninhabited, extending eastward from Porto Rico, and lying between 17° and 18° 50' N. latitude, and 64° 10' and 65° 30' W. longitude. Their total area may be estimated at about 465 square miles, and their population at 67,000. The westerly portion of the group belongs to Spain, the central to Denmark, and the easterly to Great Britain.

The Virgin Islands were discovered by Columbus on his second voyage, in 1494, and named Las Virgenes, in honor of St. Ursula and her companions. In 1666 the English established themselves on Tortola, which has ever since remained in their possession. In the seventeenth century the Virgin Islands were favorite resorts of the BUCCANEERS, (*q.v.*) The Danish Islands of St. Thomas and St. John were taken by the British in 1801, but restored the following year. In 1807 they surrendered to the British, and continued in their hands till 1815, when they were again restored. The British Virgin Islands, in 1901, had a pop. of 4,908; area, 58 sq. m.

VISCONTI. See MILAN.

VISCOUNT (Latin *vice-comes*), a titled rank of nobility, the fourth in the order of the British peerage, and consequently intervening between the dignities of earl and baron. The first English viscount, as that term now is used and understood, was John, Baron Beaumont, K.G., who, by letters patent dated February 12, 1440, by Henry VI. was created Viscount Beaumont. The title *vice-comes*, however, existed in England certainly as early as the Domesday survey; and in those early times it was borne by a county officer, who was deputy to the *comes* or earl, in accordance with the feudal system, which knew no titles independent of offices. The *vice-comes*, whose title from the first may fairly be translated "viscount," and who acted in the absence of the earl, may be considered to have been identical with the functionary known by the English term "shire-reeve" or "sheriff," or, as we now should say, "high-sheriff."

WISE (Escalier, a Vis), a spiral or corkscrew staircase, the steps of which wind round and rest on a per-



pendicular pillar called the newel. In the Norman style the steps rested on a spiral arch; but in later times the steps rested on single stones stretching from the newel to the wall. This kind of staircase was that most generally used in mediæval buildings.

VISHNU. See BRAHMANISM.

VISTULA. See POLAND.

VITALIANUS, bishop of Rome from 657 to 672, succeeded Eugenius I. and was followed by Adeodatus. In the monothelite controversy then raging he acted with cautious reserve, refraining at least from express condemnation of the *Typus* of Constans II. The chief episode in his uneventful pontificate was the visit of Constans to Rome; the pope received him "almost with religious honors," a deference which he requited by stripping all the brazen ornaments of the city—even to the tiles of the Pantheon—and sending them to Constantinople. Archbishop Theodore was sent to Canterbury by Vitilian.

VITEBSK, a government of western Russia, with Livonia and Pskoff on the north, Smolensk on the east, Moghileff, Minsk, and Vilna on the south, and Courland on the west, has an area of 17,440 square miles.

The pop. (1898), 1,502,916, is chiefly White Russian (61 per cent.) and Lettish (21 per cent.); Jews come next (10 per cent.) The Poles make only about 2.3 per cent of the population, and there are moreover about 10,000 Germans in the northwest. The Great Russians number only a few thousands. Nearly two-thirds of the inhabitants are Orthodox or Raskolnik, the remainder being Catholics, Jews, or Lutherans.

Agriculture is the chief industry, but the yearly produce rarely suffices for the wants of the population, and corn has to be imported from Smolensk. Rye, oats, and potatoes are the chief crops, occupying about a third of the area. Flax is an important crop for export. Cattle-breeding is only moderately prosperous. The most important branches of manufacture are represented by distilleries, flour-mills, and tanneries. As a rule, the White Russian population of the villages is very poor, and great numbers of the peasants are compelled every year to leave their homes in search of work. Of domestic trades, the manufacture of wooden wares, as well as some boat-building and flax-combing, may be mentioned. The principal exports are flax, linseed, timber, and hides. There is a brisk water-traffic on the Dūna by boats to Riga.

VITEBSK, capital of the above government, stands on both banks of the Dūna, on the railway from Smolensk to Riga, 345 miles west of Moscow. It is an old town, with decaying mansions of the old nobility, and dirty Jewish quarters, half of its 65,871 inhabitants being Jews. Its manufactures are insignificant, and the poorer classes support themselves by gardening, boat-building, and the flax trade, while the merchants carry on an active business with Riga in grain, flax, hemp, tobacco, sugar, and timber.

VITELLIUS, AULUS, the ninth of the twelve Cæsars, and Roman emperor during the greater part of 69 A.D., was the son of Lucius Vitellius, who had been consul and governor of Syria under Tiberius. Under Galba, to the general astonishment, he was chosen to command the army of Lower Germany, and here he made himself popular with his subalterns and with the soldiers by an outrageous prodigality and an excessive good nature, which soon proved quite fatal to order and discipline. Far from being an ambitious or scheming man, he was lazy and self-indulgent, fond of eating and drinking, and he was in fact drifted into empire by the promptings of Cæcina and Valens, commanders of two legions on the Rhine. Through these two men a military revolution was speedily accomplished, and early

in 69 Vitellius was proclaimed emperor at Cœlogne, or, to speak more accurately, emperor of the armies of Upper and Lower Germany. In fact, he was never acknowledged as emperor by the entire Roman world, though at Rome the senate accepted him and decreed to him the usual imperial honors. But after all he was only emperor in name. It was noted as a bad omen that he received the title of supreme pontiff on the anniversary of the day of Allia, 390 B.C., on which Rome was all but utterly overthrown by the Gauls. As soon as it was known that the armies of the East, Dalmatia, and Illyricum had declared for Vespasian, Vitellius, finding himself deserted by many of his adherents, was for resigning the title of emperor. On the entrance into Rome of Vespasian's troops he was dragged out of some miserable hiding-place, and, with his hands tied behind him, insulted, unpitied, driven to the fatal Gemonian stairs, and there struck down amid a shower of fierce eager blows. "Yet I was once your emperor," were the last, and, as far as we know, the noblest words of Vitellius. He perished thus miserably in his fifty-seventh year.

VITERBO, a city of Italy, capital of a circondario in the province of Rome, lies 1,200 feet above sea-level, on the Arcione, at the northwestern base of Monte Cimino (3,450 feet), on the high road between Florence and Rome, 42 miles north-northwest of the latter city. The inhabitants of Viterbo (17,279 in 1901) are chiefly dependent on agriculture; hemp is a specialty of the district, and tobacco and various grains are largely grown, as well as the olive and vine. There are in the vicinity numerous mineral springs; the warm sulphur spring of Bulicame, about two miles off, is alluded to by Dante.

VITICULTURE. The cultivation of the grape vine is said to be yet in its infancy in the United States. However this may be, there is no country in the world where greater attention is paid to its culture and development with results that are shown in the wonderful improvement made in the products of the plant. The grape is indigenous to America, having been discovered in various sections of the country at an early date, and known by the names of fox grape, summer and winter grapes, muscadines, etc. It has since grown to be one of the most delicious of domesticated fruits, and the highest skill known to the art of horticulture is employed in promoting its quality and variety.

The European grape is supposed to have been a native of Persia, and while its early history is involved in doubt, ancient writers in prose and verse sang the praises of both the fruit and its wine. The use of the latter, as is well known, was general in ancient and mediæval times in Egypt and the East, but during the rule of Mohammed it was prohibited in the countries of the latter, while its introduction into Europe was followed by its universal adoption, and where the scientific cultivation of the vine has since come to be one of the most important, productive, and prosperous industries. They are now included under the general head *Vitis vinifera*, and are supposed to belong to the same species. Their attempted culture in America was at first unsuccessful, thought to be due to unfavorable climatic conditions, but when the climate of California was ascertained to be promotive of their growth they were extensively cultivated, and to-day many species of the *V. vinifera* flourish in the genial climate of the Pacific Coast.

Prior to this, as early indeed as 1620, European vines were planted in Virginia, subsequently in Delaware and Pennsylvania, but with indifferent results, and through succeeding years the attention of horticulturists has been largely directed to the development and improvement of



the native species. Their leading characteristics are described as "luxuriance of growth, and rambling unrestrained habits of vine, often mounting the tops of the tallest forest trees and loading them down with their weight of foliage and fruit, which was of inferior quality." Early in the thirties the Catawba, a native grape, was developed, and in 1835 Major Adlum, a resident of Georgetown, D. C., first brought it into public notice. It received the attention of Nicholas Longworth, Prof. Ernest, Messrs. Werk, Buchanan and other scientific fruit-growers of Southern Ohio, and the hillsides which border the Ohio river for a considerable distance above and below Cincinnati have since been terraced and otherwise transformed into vineyards, covering thousands of acres, producing millions of pounds of fruit, from which still and sparkling wines of unsurpassed purity and delicacy are made. Extensive vineyards in which the Catawba, Isabella, Delaware, Concord, and other varieties of the native grape are grown are to be found at Put-in-Bay, and among the other islands of Lake Erie, as also about Sandusky City, Cleveland, and elsewhere in Northern Ohio, from which an equally superior article of wine and an excellent quality of brandy are made. In 1845 A. J. Downing mentions twelve native varieties which he says "are accidentally improved varieties that have sprung up in the woods and fields from wild vines." None of the varieties mentioned by him are grown now aside from the Scuppernon, which is strictly a southern variety. Since that date, hundreds of new varieties, many of which rival the very best qualities of foreign plants, have been added to the list, and found capable of resisting the vicissitudes of our soils and climates, embracing in addition to those above mentioned the Cynthia, Virginia seedling, Herbemont and many others less conspicuous, but equally desirable. The varieties known to the South of Europe flourish in California, where they were introduced in 1771. Upon the progress of the grape industry in that State, Prof. George Hermann, of Napa, has this to say:

"When gold was discovered in California, during the exciting times of its early settlement, by those who flocked by thousands and tens of thousands over the plains and across the ocean to seek the glittering treasure among its hills and along its streams, but few had an idea that this land, with its rainless summers, would, in the short space of time which has since elapsed, become more famous for its golden fruit and wine than it could ever be by the glittering metal found in the depths of the earth; that its hills and plains, looking so dry and barren during the summer months, would sustain smiling vineyards and trees laden with fruit. It was generally supposed that vines and trees could only live and thrive with irrigation; that the Mission grape, first cultivated by the Jesuit fathers, which even then found its way into the mines and was readily purchased by the delvers after gold, could only reach its luscious ripeness by being freely supplied with water during the dry months. From this small beginning, at one location and one variety, what a change! Grape-growing has spread over the whole State, until its wine crop—only one of the uses to which the grape is devoted—is estimated at about 20,000,000 gallons a year. From one variety cultivated then, we have close to 400 varieties now, and we already produce as fine wines as any country on the globe. From the few scattering small vineyards then in the State, which were irrigated several times a year, our vineyards now look down on the land from the highest tops of the mountains, and there produce their choicest fruits, without irrigation, being more secure from frost and other deleterious influences there than in the valleys. Their smiling verdure greets the

eye and is readily distinguished thousands of feet above the valleys. Our raisins are already competing with the finest London layers in the markets of the world, and our table grapes are shipped to every city and town in the Union."

What is true of California in respect to the cultivation of the vine is equally true of every State wherein the industry has obtained even imperfectly. In 1867 the total acreage devoted to viticulture in the United States did not exceed 2,000,000. By 1880 it had greatly increased its area, with a total wine product of 23,453,827 gallons, one-half of which was produced in California, the balance in Ohio, New York, and the other States in which the vine is grown as a business venture.

Vine culture, the soil and climate being adapted thereto, is inaugurated either by cutting, layering and grafting, or by planting the seeds. In the latter case methods usual to the propagation of plants from seeds are successfully employed. When the plants thus derived have attained a year's growth they are set out and trained until they bear grapes, when the unhealthy or imperfect shoots are removed and the cultivation of the plant proceeded with. Viticulture is also commenced with cuttings. These are usually started in hot-houses and demand especial attention. Still another plan is that of "layering," which consists of a cutting connected with the parent vine, its vitality being thereby preserved until it can form roots. Grafting is the most familiar method and needs no explanation. The vine is grown on arbors or trellises, forming a useful and ornamental shade, also attached to stakes arranged at regular intervals, along which it is trained. This method is found the most advantageous in vineyards located on hillsides, and the products in the United States, as above related, include the grape, wine, and raisins. The diseases to which they are subject are mildew, blight, and that caused by the *phylloxera*, or root-louse.

VITORIA, a town of Spain, capital of the Basque province of Alava, stands at a height of about 1,750 feet above sea-level, on a small hill commanding the plain of Alava, 234 miles by rail north-northeast of Madrid. Vitoria, from its favorable position, is an important center of trade in wine, wool, horses, mules, and hardware; the chief industries are paper-making, carriage-building, cabinet-making, tanning, and the manufacture of earthenware. The population within the municipal boundaries in 1898 was 30,514.

VITRÉ, a town of France, chef-lieu of an arrondissement in the department of Ille-et-Vilaine, stands on a hill rising from the left bank of the Vilaine, twenty-four miles east of Rennes by the railway to Paris. The chief articles of trade are cloth, hosiery, and thick clothing made of goats' skins. The chateau of Les Rochers, celebrated through Madame de Sévigné, stands three miles from the town. The population in 1901 was 9,557 (commune 10,447).

VITRIFIED FORTS is the name given to certain rude stone inclosures whose walls bear traces of having been subjected to the action of fire. They are generally situated on elevated hills, which occupy strong and easily defended positions. Their form is irregular, and seems to have been determined rather by the contour of the flat summits which they inclose than by any definite architectural plan. The walls vary in size, some being comparatively small, while a few are upward of twelve feet high, and are so broad that they present the appearance of huge embankments. Weak and exposed parts in the defense are strengthened by double or triple walls, and occasionally vast lines of ramparts, composed of large blocks of unhewn and unvitified stones, are



drawn around the fortified hills at some distance from the vitrified center. No lime or cement has been found in any of these structures, but all of them present the peculiarity of being more or less consolidated by the fusion of the rocks of which they are built. This fusion, which has been caused by the application of intense heat, is not equally complete and regular in the various forts, or even in the walls of the same fort. In some cases the stones are only partially melted and calcined; in others their adjoining edges are fused so that they are firmly cemented together; in many instances pieces of rock are enveloped in a glassy, enamel-like coating which binds them into a uniform whole; and at times, though rarely, the entire length of the wall presents one solid mass of vitreous substance.

Since John Williams—one of the earliest of British geologists, and author of *The Mineral Kingdom*—first described, in 1777, these singular ruins, about fifty examples have been discovered in different parts of Scotland. The most remarkable are Dun Mac Uisneachain, the ancient Beregonium, north of Oban; Tap o' Noth, in Aberdeenshire; Craig Phadraig and Dun Dhardhail, in Inverness; Knockfarraill, near Strathpeffer; Dun Creich, in Sutherland; Findhaver, near Aberlemno; Barryhill, in Perthshire; Laws, near Dundee; Dun Gall and Burnt Island, in Buteshire; Anwoth, in Kirkcudbright; and Cowdenknowes, in Berwickshire. Dun Mac Uisneachain is the largest in area, being 250 yards long by 50 yards broad. The strongest and most cyclopean is the Tap o' Noth: here the walls are about eight feet high, and between twenty and thirty feet thick. In Dun Mac Uisneachain, Barryhill, and Laws the remains of small rectangular huts or dwellings have been found.

For a long time it was supposed that these forts were limited in their range to Scotland; but they are now known to exist in Londonderry and Cavan, in Ireland; in Upper Lusatia, Bohemia, Silesia, Saxony, and Thuringia; in the provinces on the upper banks of the Rhine, especially in the neighborhood of the Nahe; in the Ucker Lake, in Brandenburg, where the walls are formed of burnt and smelted bricks; and in several places in France, such as Châteauneuf, Peran, La Courbe, Saint Suzanne, Puy de Gaudy, and Thauron. They have not been found in England or Wales; and Worsae, Herbst, Rygh, Hildebrand, and Stephens assert that they do not exist in Denmark or in Scandinavia.

All the examples yet described present a general similarity in form and structure. In some of the continental forts the vitrified walls are supported by masses of unvitrified stone built up on each side. This, in all probability, constituted an essential feature in the Scottish forts. Except on the hypothesis of buttresses of a similar kind, it is impossible to explain the vast quantities of loose stones which are found both inside and outside many of the vitrified walls.

The method by which the fusion of such extensive fortifications was produced has always excited much interest and conjecture. Williams, when he first directed attention to the subject, maintained that the builders of the forts, whoever they were, found out, either during the process of smelting bog-ore, or while offering sacrifices, the power of fire in vitrifying stone, and that they improved upon this discovery by using it for the purpose of cementing and strengthening their strongholds. This view has been keenly controverted, and other theories have been suggested. It has been held that the vitrified summits were not forts at all, but the craters of extinct volcanoes (West, Penant, and Cordiner), an hypothesis long since abandoned as unscientific; that the vitrified summits are not so much vitrified forts as vitrified sites, and that

the vitrescence was produced by beacon fires lighted during times of invasion, or by bonfires kindled on hill tops in religious celebrations (Sir George Mackenzie, Dr. S. Hibbert, and Principal Daniel Wilson); and, lastly, that if they were forts they must have originally been built of wood and stone, and that their present vitrified appearance is not due to design, but to their being set on fire by a besieging enemy (A. Fraser Tytler, Forbes Leslie, Von Cohausen, and Dr. Joseph Anderson). The theory of Williams—which has, with modifications, been accepted by all the principal British and Continental authorities, such as MacCulloch, Hugh Miller, Virchow, Schaaffhausen, Thuot, and Montaiglon—is likely to hold the field.

VITRIOL, a name formerly and sometimes still given to sulphuric acid and to certain sulphates (see SULPHUR). Oil of vitriol is concentrated sulphuric acid. Blue vitriol is sulphate of copper; green vitriol, sulphate of iron (copperas, ferrous sulphate); and white vitriol, sulphate of zinc.

VITRUVIUS, a Roman architect and engineer, whose full name was MARCUS VITRUVIUS POLLIO, the author of a very celebrated work on architecture. Nothing is known about his personal history, except what can be gathered from incidental remarks in his own writings.

From the early Renaissance down to a comparatively recent time the influence of Vitruvius' treatise has been remarkably great. Throughout the period of the classical revival Vitruvius was the chief authority studied by all architects, and in every point his precepts were accepted as final. In some cases a failure to understand his meaning led to curious results; for example, the mediæval custom not uncommon in England, of placing rows of earthenware jars under the floor of the stalls in church choirs, appears to have been an attempt to follow out Vitruvius' remarks about the advantage of placing bronze vases around the auditorium of theatres. Bramante, Michaelangelo, Palladio, Vignola, and earlier architects were careful students of Vitruvius' work, which through them has largely influenced the architecture of almost all European countries down to the present century, a very remarkable instance of the success and influence of a book being actively redeveloped a very long time—about fifteen centuries—after its author's lifetime. There is no reason to suppose that the book was either popular or influential among the ancient Romans, and yet in more modern times its influence has been unbounded. Its archaeological value is very great, as without it we should find it very difficult to understand the uses of the various parts of such houses as those at Pompeii, and many interesting details with regard both to construction and design would have remained unintelligible.

VITTORIA, an inland town of Sicily, in the Italian province of Syracuse, about eighteen miles by road east-southeast from Terranova, stands in the midst of a rich vine and olive district, which also produces silk, rice, and honey. The population in 1901 was 23,755. It is quite a modern town—founded toward the beginning of the seventeenth century. The principal church (San Giovanni) dates from 1854.

VITUS, ST., according to the Roman Breviary, while still a very young boy, had been baptized without the knowledge of his father, who, on learning this, spared no effort to bring about his return to paganism. After other severe measures had been tried in vain he was delivered to Valerian to be scourged, but even this had no effect, and he was handed back to his father. Admonished by an angel, Vitus, accompanied by Modestus and Crescentia, by whom he had been brought up, now took refuge abroad, where his fame for sanctity



became so great that he was summoned by Diocletian to heal his child, who was grievously vexed with a devil. Successful in this, he was urged by the ungrateful emperor to worship the pagan deities, and on his refusal was cast into prison. Along with Modestus and Crescentia he was sentenced to be plunged into a caldron of molten lead, resin, and pitch, but here their experience was that of the three Hebrew children. Next they were cast before the lion, but the wild beast fawned upon them and licked their feet. Finally they were torn limb from limb. The three are commemorated on June 15th. The more extended legend of St. Vitus relates that, on one occasion when he had been shut up in a dungeon, his father looking through a chink in the door beheld him dancing with seven beautiful angels; so dazzled was he by the sight that he became blind, and recovered only through the intercession of his son. St. Vitus is accordingly the patron saint of dancers and actors, and is invoked against the disease known as St. Vitus' Dance, (*g.v.*) He is the patron of Saxony, Bohemia, and Sicily, and throughout Germany ranks as one of the fourteen "Nothhelfer" of the church.

VIVARINI, the surname of a family of painters of Murano (Venice), who produced a great quantity of work in Venice and its neighborhood in the fifteenth century, leading on to that phase of the school which is represented by Carpaccio and the Bellinis.

ANTONIO VIVARINI was probably the earliest of this family. He came from the school of Andrea da Murano, and his works show the influence of Gentile da Fabriano. The earliest known date of a picture of his, an altar-piece in the Venetian academy, is 1440; the latest, in the Lateran museum, 1464.

BARTOLOMMEO VIVARINI is known to have worked from 1450 to 1499. He learned oil-painting from Antonello da Messina, and is said to have produced, in 1473, the first oil picture done in Venice.

LUIGI or ALVISE VIVARINI painted in 1490 and on to 1505. The works of Luigi show an advance on those of his predecessors, his best work being one which he executed for the Scuola di S. Girolamo in Venice, representing the saint caressing his lion, and some monks decamping in terror. The architecture and perspective in this work are superior. Other works by Luigi are in Treviso and in Milan.

VIVES, JUAN LUIS (or LUDOVICUS), a well-known scholar of the third and fourth decades of the sixteenth century, was born at Valencia, in Spain, in March, 1492. At the instance of his friend Erasmus he prepared an edition of Augustine's *De Civitate Dei*, which was published in 1522 with a dedication to Henry VIII. of England. Soon afterward he was invited to England and appointed tutor to the Princess Mary, for whose benefit he wrote *De Ratione Studii Puerilis Epistola Duæ*. While in England he resided a good deal at Oxford, where he was made doctor of laws and lectured on philosophy. Having openly declared himself against the king's divorce, he lost the royal favor and was thrown into prison, where he remained for six months. On his release he went to Spain and afterward to the Low Countries, finally settling in Bruges, where he married and devoted himself to the composition of his numerous works, which were chiefly directed against the scholastic philosophy and the preponderant authority of Aristotle. He died on May 6, 1540.

VIVISECTION is the term employed to denote operations performed on living animals, with a view to increasing the physiological knowledge of the operator. The earliest anatomists, to whom the use of the knife upon the human body was forbidden, utilized animals for their experiments, and the Alexandrian school largely

practiced vivisection. It was not, however, until about the year 1820 that the experimentations of the great French physiologists attracted attention. A protest was made at that time against the extent to which vivisection had been carried on in the veterinary colleges. The Academy of Sciences, after full discussion, concluded that the charge of needless cruelty was unwarranted, and no notice should be taken of it. Of more recent years societies have been formed, in England and elsewhere, by persons who consider that no amount of benefit which might be obtained for humanity, can possibly justify scientific experiments on the lower animals. We do not care to pronounce an opinion on this matter; but, as contrasted with the services which the researches of Bernard, Brown-Sequard, and Hunter have rendered to humanity through knowledge acquired by vivisection, the puling sentimentality which objects to the scientific investigation of disease, simply because it involves the life of the lower animals, appears to be too ridiculous for argument. It might further be stated that but for the researches upon the life of the lower animals, veterinary science itself would to-day be at a very low ebb. That the practice of vivisection should not be wantonly entered upon or indulged in for non-scientific purposes is granted as freely as the fact that surgical operations should not be performed in hospitals for the mere instruction of students. We do not believe that either the latter or former occur.

VIZAGAPATAM, a British district of India, in Madras presidency, lying between 17° 14' 30" and 18° 58' N. latitude and 82° 10' and 83° 59' E. longitude, with an area of 3,477 square miles. Including the Jâipur and Vizianagram zamindaries, which are under British administration, the area is 17,380 square miles. Vizagapatam is bounded on the north by Ganjam district, on the east by Ganjam and the sea, on the south by the sea and Godâvari district, and on the west by the Central Provinces. It is a beautiful, picturesque, and hilly country, forming part of the large extent of shore known as the Orissa coast, but for the most part it is unhealthy. The plain along the Bay of Bengal is exceedingly rich and fertile. It is described as a vast sheet of cultivation, green with rice fields and gardens of sugar-cane and tobacco. There are great varieties of climate in the district. Along the coast the air is soft and relaxing, the prevailing winds being southeasterly. The average annual rainfall at Vizagapatam exceeds forty inches.

The census of 1901 returned the population of the district, exclusive of the agency tracts, at 1,790,468. Including the Jâipur and Vizianagram dependencies, the total population of the district was 2,485,141. There are five towns with populations of more than 10,000, viz.:—VIZAGAPATAM and VIZIANAGRAM (*g.v.*); Anakapalle, 13,341; Bobbili, 14,943; and Salur, 11,856. The chief crops are rice, which is the staple product of the country, and sugar. The cultivation of indigo is also successfully carried on.

VIZAGAPATAM, a municipal and seaport town, the administrative headquarters of the above district, with a population in 1901 of 35,291. It lies on a small bay, the south extremity of which is bounded by a promontory known as the Dolphin's Nose, and its northern extremity by the suburb of Waltair. The principal exports are grain and sugar, and the principal industries of the town are elk horn and ivory knick-knacks and gold and silver filigree work.

VIZIADRUG, or GHERIA, a port in Ratnâgiri district, Bombay presidency, India, about thirty miles south of Ratnâgiri town and 170 miles south of Bombay city, in 16° 33' 40" N. latitude and 73° 22' 10" E. longitude. It is one of the best harbors on the western



coast of India, being without any bar, and may be entered in all weathers; even to large ships it affords safe shelter during the southwest monsoon. The chief interest of the place centers in its fort, which is one of the strongest Mohammedan fortresses in the Concan, and rises grandly about 100 feet above the river.

VIZIANAGRAM, one of the most ancient and extensive estates or zamindari in India, included in the Vizagapatam district of the Madras presidency, with an area of about 3,000 square miles, and a population (1901) of 844,168. The chief town, Vizianagram, had in 1901 a population of 25,577.

VIZIER (Arabic *Wazir*), literally the "burden bearer" of the sovereign. The office of vizier, which spread from the Arabs to the Persians, Turks, Mongols, and other Oriental peoples, arose under the first Abbasid caliphs, and took shape under their great ministers the Barmecides. The vizier stood between sovereign and subjects, representing the former in all matters touching the latter. The title of *wazir* was often given to ministers of a special department, such as the treasury or the police, but the *wazir* (the grand vizier, as Europeans say) bore the whole burden of the state, and, although his position was absolutely uncertain, depending on the mere will of the sovereign, his power was unlimited. His place was one of dizzy grandeur but of extreme difficulty. He was expected to be able to answer all questions, realize every wish of the caliph, keep the coffers of the state full, and yet find time to cultivate the personal favor of the sovereign by the display of social gifts. Such were the Barmecide viziers, the brilliant type of which all subsequent Oriental ministers are more or less imperfect copies.

VIZZINI, an inland town of Sicily, in the Italian province of Catania, thirty-nine miles east-northeast of Terranova and thirty-four miles west-northwest of Syracuse, is a prosperous country place of 15,966 inhabitants (1901).

VLACHS. Vlach, otherwise written Wallack, is a general name for all the members of the Latin-speaking race inhabiting eastern Europe. The name is in its origin identical with our "Welsh," "Welshman," and represents a Slavonic adaptation of a generic term applied by the Teutonic races at the time of the migration of peoples to all Roman provincials. It thus finds its analogies in the German name for Italy—Welschland (Wälschland), in the Walloons of the Low Countries, the "Wallgau" of Tyrol, etc.

The Slavs, at least in their principal extent, first knew the Roman empire through a Teutonic medium, and adopted their terms Vlach, Voloch, from the Ostro-Gothic equivalent of the Anglo-Saxon "Wealh." The name is thus of foreign origin, the native Vlachs continuing to this day to call themselves "Rumeni," "Romeni," or even *Romani*; and it is from the native pronunciation of the Roman name that we have the equivalent expression *Rouman*, a word which must by no means be confined to that part of the Vlach race inhabiting the present kingdom of Roumania. This Vlach or Rouman race constitutes a distinct division of the Latin family of peoples, widely disseminated throughout eastern Europe, both north and south of the Danube. North of the Danube the Roumans inhabit, besides Walachia and Moldavia, Bessarabia and the adjoining South-Russian districts, a large part of Transylvania and the Hungarian Banat, and extend sporadically from the Bug to the Adriatic. South of the Danube the central glens of Pindus form the principal nucleus of Rouman habitation, but there is besides a considerable colony in the Epirote district of Musakja, in Ætolia and Acarnania, in various districts of Albania, Thessaly, Macedonia, and the Bulgarian

principality. In Servia this element is preponderant in the Timok valley, while in Istria it is represented by the Cici, at present largely Slavonized, as are now entirely the kindred Morlachs of Dalmatia.

The center of gravity of the Vlach or Rouman race is at present unquestionably north of the Danube, and corresponds roughly to the limits of Trajan's Dacian province. From this circumstance the popular idea has arisen that the race itself represents the descendants of the Romanized population of Trajan's Dacia which was assumed to have maintained an unbroken existence in Walachia, Transylvania, etc., beneath the dominion of a succession of invaders. The Vlachs of Pindus, etc., on this hypothesis, were to be regarded as later immigrants from the lands north of the Danube. In 1871 Roesler published, in a collective form, a series of essays, in which he absolutely denied the claim of the Roumanian and Transylvanian Vlachs to be regarded as Dacian autochthones. He laid stress on the statements of Vopiscus and others as implying the total withdrawal of the Roman provincials from Trajan's Dacia by Aurelian, and on the non-mention by historians of a Latin population in the lands on the left bank of the lower Danube, during their successive occupation by Goths, Huns, Gepidæ, Avars, Slavs, Bulgars, and other barbarian races. He found the first trace of a Rouman settlement north of the Danube in a Transylvanian diploma of 1222. Roesler's thesis has been generally regarded as an entirely new departure in critical ethnography. As a matter of fact, his conclusions had to a great extent been already anticipated by Sulzer in his *Geschichte des Transalpinischen Daciens*, published at Vienna in 1781, and at a still earlier date by the Dalmatian historian Lucius of Traù in his work *De Regno Dalmatiae et Croatiae*, 1666.

VLADIKAVKAZ, a fortified town of Russia, in the province of Terek, is advantageously and picturesquely situated at the northern base of the Great Caucasus chain, on a raised plain, 2,230 feet above the sea-level, where the gorge of the Terek emerges from the mountain tracts. It is tidily built, and its population since it became an entrepôt for trade between Russia and Caucasus has rapidly grown (43,843 in 1898). The transport of merchandise is the principal occupation of the place.

VLADIMIR, a government of middle Russia, bounded by Moscow and Tver on the west, Yaroslav and Kostroma on the north, Nijni Novgorod on the east, Tamboff and Ryazan on the south, has an area of 18,864 square miles. It extends over the eastern parts of the central plateau of middle Russia.

The population (1,570,733 in 1898) is thoroughly Great Russian; the Finnish tribes, Muroma and Mery, which formerly inhabited the region, have been absorbed by the Slavonians, as also have the Karelians who are supposed to have formerly inhabited the territory; the descendants of the few hundred Karelian families, which were settled by Peter I. on the shores of Lake Pereyasavl, still, however, maintain their language. Agriculture is carried on everywhere, but is in a prosperous state only on the left bank of the Klyasma, and grain is imported. The culture of flax, both for local manufactures and for export—especially about Mel' nki—is important; so also are that of hemp and gardening. Natural pastures being by no means deficient, the number of cattle is greater than might be expected in a province so backward in agriculture.

A distinctive feature of Vladimir is the great variety of petty trades carried on in its villages by peasants who still continue to cultivate their allotments and thus combine manufacture with agriculture.

The manufactures of Vladimir are equally important



out of the aggregate production of the fifty governments of European Russia (1,329,602,000 rubles in 1889), Vladimir was returned for 88,827,000 rubles, exclusive of numerous minor manufactures not included in the census. In the number of workmen employed in manufactures (102,900) Vladimir is second only to Moscow, and in its production it is second only to Moscow and St. Petersburg. The chief industrial establishments are cotton and linen factories, glass, chemical, and iron works, distilleries, and tanneries.

Vladimir is divided into fourteen districts, the chief towns of which (with populations in 1898) are VLADIMIR (*q.v.*), 28,315; Alexandroff, 6,915; Ivanovo-Voznesensk, 53,949; Kovroff, 8,050; Melenki, 6,470; MURROM (*q.v.*), 13,680; Pereyasavl Zalyesskiy, 7,470; Pokroff, 2,700; SHUYA (*q.v.*), 21,430; Sudogda, 1,880; Suzdal, 6,770; Vyazniki, 6,015; and Yurieff Polskiy, 5,400. Kirzhatch (3,285), Voznesensk (6,000), and Gavrilovsk (1,780) have also municipal institutions. Ivanovo, Gusevsk Kholui, and several others, though mere villages, are more important than some district towns.

VLADIMIR, capital of the above government, is known in history as Vladimir-on-the-Klyasma, to distinguish it from Vladimir in Volhynia. It is picturesquely situated on the Klyasma and Lybed, 114 miles by rail to the east of Moscow. Vladimir is a decaying place; its population has only risen to 28,315 in 1898 from 13,865 in 1859. The manufactures are for the most part insignificant, and trade has not the importance it has in some of the district towns.

VLADIVOSTOK, the chief naval station of Russia on the Pacific, is situated in 43° 7' N. latitude and 131° 55' E. longitude, on the Gulf of Peter the Great in the Sea of Japan. Though standing in almost the same parallel as Marseilles, Vladivostok has an average annual temperature of only 38.5° F., and, although the gulf itself never freezes, a thin ice-crust forms along the shores in December, keeping ships ice-bound for from thirty to forty-five days.

The settlement of Vladivostok, though founded only in 1861, had in 1898 28,896 inhabitants, chiefly military; and for hundreds of miles inland the sole population consists of small military posts by which communication is maintained up the Suifuin to Lake Khanka and the Cossack settlements on the Ussuri. Vladivostok is connected with headquarters by telegraph.

VOGELWEIDE. See WALTER VON DER VOGELWEIDE.

VOGHERA (*Vicus Iriae*), a town of Italy, in the province of Pavia, and nineteen miles by rail to the south-southwest of that city, on the Staffora. The neighborhood is fertile and produces much silk, in which, as well as in grain and wine, an active trade is carried on. The population in 1901 was 12,900.

VOGLER, GEORG JOSEPH, usually known as Abbé Vogler, organist and composer, was born at Würzburg, June 15, 1749. In 1769 he prosecuted his higher studies at Bamberg, removing thence in 1771 to Mannheim. Here he composed a ballet for the elector Karl Theodor, who, charmed with his talent, sent him to Bologna, to study under the Padre Martini. Unsatisfied with the method of that learned theorist, he studied for five months under Valotti, at Padua, and afterward proceeded to Rome, where he was ordained priest in 1773, admitted to the famous academy of Arcadia, made a knight of the Golden Spur, and appointed protonotary and chamberlain to the pope.

On his return to Mannheim in 1775 Vogler was appointed court chaplain and second "maestro di cappella." He now established his first great music school, to which Winter, Ritter, Kraus, Danzi and Knecht

came for instruction. His pupils were devoted to him, but he made innumerable enemies, for the principles upon which he taught were confessedly opposed to those of all other teachers whatsoever.

In 1778 the elector removed his court to Munich. Vogler followed him thither in 1780, but, dissatisfied with the reception accorded to his dramatic compositions, soon quitted his post, and traveled for some years in Spain, Greece, Armenia, remote districts of Asia and Africa, and even Greenland, in search of uncorrupted forms of national melody. In 1786 he was appointed "kapellmeister" to the king of Sweden, founded his second music school at Stockholm, and attained extraordinary celebrity by his performances on an instrument called the "orchestrian"—a species of organ invented by himself. In 1790 he brought this instrument to London, and performed upon it with great effect at the Pantheon, for the concert-room of which he also constructed an organ upon his own principles.

From London Vogler proceeded to Rotterdam and the chief towns on the Rhine. We hear of him at Berlin in 1880, at Vienna in 1804, and at Munich in 1806. But while at Frankfurt in 1807 he received an invitation from Louis I., grand-duke of Hesse-Darmstadt, offering him the appointment of "kapellmeister," with the order of merit, the title of privy councillor, a salary of 3,000 florins, a house, a table supplied from the duke's own kitchen, and other privileges, which determined him to bring his wanderings at last to a close.

At Darmstadt he opened his third and most famous music school, the chief ornaments of which were Gänsbacher, Weber, and Meyerbeer. One of Vogler's latest exploits was a journey to Frankfort in 1810, to witness the production of Weber's *Sylvana*. He continued hard at work, genial and pleasant to the last, and died suddenly of apoplexy at Darmstadt, May 6, 1814.

VOICE is produced by the vibrations of the vocal cords, two ligaments or bands of fibrous elastic tissue situated in the larynx. It is to be distinguished from *speech*, which is the production of sounds intended to express ideas. Many of the lower animals have voice, but none have the power of speech in the sense in which man possesses that faculty. There may be speech without voice, as in whispering, while in singing a scale of musical tones we have voice without speech. Regarding speech, see PHONETICS and SPEECH-SOUNDS; also the articles on the various letters of the alphabet.

1. *Physiological Anatomy*.—The organ of voice, the *larynx*, is situated in man in the upper and fore part of the neck, where it forms a well-known prominence in the middle line. It opens below into the trachea or windpipe, and above into the cavity of the pharynx, and it consists of a framework of cartilages, connected by elastic membranes or ligaments, two of which constitute the true vocal cords. These cartilages are movable on each other by the action of various muscles, which thus regulate the position and the tension of the vocal cords. The trachea conveys the blast of air from the lungs during expiration, and the whole apparatus may be compared to an acoustical contrivance in which the lungs represent the wind chest and the trachea the tube passing from the wind chest to the sounding body contained in the larynx. Suppose two tight bands of any elastic membrane, such as thin sheet india-rubber, stretched over the end of a wide glass tube so as to leave a narrow chink between the free borders of the membrane, and that a powerful blast of air is driven through the tube by a bellows. The pressure would so distend the margins of the membrane as to open the aperture and allow the air to escape; this would cause a fall of pressure, and the edges of the membrane would spring back by their elasticity to their former position; again



the pressure would increase, again the edges of the membrane would be distended; and those actions would be so quickly repeated as to cause the edges of the membrane to vibrate with sufficient rapidity to produce a musical tone, the pitch of which would depend on the number of vibrations executed in a second of time. The condensation and rarefaction of the air thus produced are the chief cause of the tone, as Von Helmholtz has pointed out, and in this way the larynx resembles the syren in its mode of producing tone (see ACOUSTICS). It is evident also that the intensity or loudness of the tone would be determined by the amplitude of the vibrations of the margins of the membrane, and its pitch would be affected by any arrangements effecting an increase or decrease of the tension of the margins of the membrane. The pitch might also be raised by the strength of the current of air, because the great amplitude of the vibrations would increase the mean tension of the elastic membrane. With tones of medium pitch, the pressure of the air in the trachea is equal to that of a column of mercury of 160 mm.; with high pitch, 920 mm.; and with notes of very high pitch, 945 mm.; while in whispering it may fall as low as that represented by 30 mm. of water. Such is a general conception of the mechanism of voice.

2. *General Physiological Characteristics.*—The intensity or loudness of voice depends on the amplitude of the movement of the vocal cords. Pitch depends on the number of vibrations per second; and the length, size, and degree of tension of the cords will determine the number of vibrations. The more tense the cords the higher the pitch, and the greater the length of the cords the lower will be the pitch. The range of the human voice is about three octaves, that is from fa (87 vibrations per second) to sol (768 vibrations). In men, by the development of the larynx, the cords become more elongated than in women, in the ratio of three to two, so that the male voice is of lower pitch and is usually stronger. At the age of puberty the larynx grows rapidly, and the voice of a boy "breaks" in consequence of the lengthening of the cords, generally falling an octave in pitch. A similar change, but very much less in amount, occurs at the same period in the female. At puberty in the female there is an increase of about one-third in the size of the glottis, but it is nearly doubled in the male, and the adult male larynx is about one-third greater than that of the female. In advanced life the upper notes of the register are gradually weakened and ultimately disappear, while the character of the voice also changes, owing to loss of elasticity caused by ossification, which first begins about middle life in the thyroid cartilage, then appears in the cricoid, and much later in the arytenoid. Eunuchs retain the voices of childhood; and by careful training it is possible in normal persons to arrest the development of the larynx so that an adult male can still sing the soprano parts sometimes used in cathedral choirs. There is a range for ordinary voices of nearly two octaves, and certain rare voices may have a range of three and a half octaves.

The quality of the human voice depends on the same laws that determine the quality, clang-tint, or timbre of the tones produced by any musical instrument. Musical tones are formed by the vibrations of the true vocal cords. These tones may be either pure or mixed, and in both cases they are strengthened by the resonance of the air in the air passages and in the pharyngeal and oral cavities.

In singing, one can readily observe that the tone may appear to come chiefly from the chest, from the throat, or from the head, or it may show the peculiar quality of tone termed falsetto. Authorities differ much in the

nomenclature applied to these varieties of the voice. Thus the old Italian music masters spoke of the *voce di petto*, *voce di gola*, and *voce di testa*. Madam Seiler describes five conditions, namely, the first series of tones of the chest register, the second series of tones of the chest register, the first series of tones of the falsetto register, the second series of tones of the falsetto register, and the head register. French writers usually refer to two registers only, the chest and the head; while Behnke gives three registers for male voices (lower thick, upper thick, and upper thin), and five for the voices of women and children (lower thick, upper thick, lower thin, upper thin, and small).

VOIRON, a manufacturing town of France, in the department of Isère, stands on the banks of the Morge, (a tributary of the Isère) and on the lower slopes of a mountain nearly 2,500 feet high, fifteen miles northwest of Grenoble on the Lyons railway. The chief attraction of the town lies in the fine views it possesses of the mountains of Grenoble and the valley of the Isère. The population in 1901 was 10,575.

VOITURE, VINCENT, the best writer of *vers de société* that France has yet produced, and one of the most influential preceptors of classical French prose, was born at Amiens in 1598. Voiture lived a careless and Epicurean life for just fifty years, and died at the outbreak of the Fronde, which killed the society to which he was accustomed, on May 26, 1648.

VOLAPÜK. The utility and desirability of a universal language have long been a theme for discussion by philologists, and its accomplishment has been a dream (as yet unfulfilled) for the solace of many enthusiasts. The most respectable attempt to attain this happy consummation of a language which should be used all over the world, and draw men close together in the bonds of a common speech is that which has been called "vol-a-pük" or world language, a word derived from two words of its own, *vol* meaning world, and *pük* meaning speech. The word is formed according to the invariable rule that in compounding words the modifying word is always put first, and the letter *a* is sandwiched in between the two root words, thus in a measure taking the place of the hyphen in English. The inventor of the language is Johann Martin Schleyer, a native of Baden, who was born in 1831, and now resides in Constance, where he devotes his time to the diffusion of knowledge of his scheme of language. He was educated for the priesthood of the Catholic church, and was always an ardent philologist. In 1879 he first conceived the idea of a universal speech, and in the earlier part of the year he published the grammar of the language; it is claimed that he constructed the entire grammar in a single month, a feat indicative of transcendent abilities.

There are many features about the language to recommend it to the student, and it is gradually acquiring a wider scope, and is nearing perfection owing to the fact that many scholars in all parts of the civilized world are constantly carrying on correspondence in the tongue, and their suggestions and improvements must necessarily bear fruit in a greater accuracy of detail and flexibility in use.

The Roman letters are used in the alphabet, with the following omitted, *q* and *w*, and the following modified vowels added, *ä*, *ö*, and *ü*—these latter additions being considered a grave fault. The order adopted in the alphabet is as follows: First the vowels, *a*, *e*, *i*, *o*, *u*; then the modified or secondary vowels, *ä*, *ö*, and *ü*, and lastly the consonants, all arranged according to their cognate sound or mode of utterance—*b*, *p*; *d*, *t*; *v*, *f*; *h*, *y*, *g*, *k*; *l*, *r*, *m*, *n*; *s*, *j*, *c*, *x*, *z*. The vowels have the continental sound, while the modified *ä*, *ö*, *ü*, have the



German sound; the consonants are pronounced as in English, except *j*, which is *sh*, *c* like English *j* in *job*, *z* like *ts*, and *y* as in *yet*. There are no diphthongs, each word having as many syllables as it has vowels. The accent of words is always on the last syllable, with the exception of the two enclitics *li* and *la*, which when added to a word (for interrogative purposes), does not disturb the accent, which still remains on the last syllable of the original word to which it is attached. The root words of the language are almost entirely monosyllabic, although there are a few exceptions to this rule, some of the root words being dissyllabic and others trisyllabic. The meaning of these root words are always either abstract or concrete. The sibilants *s*, *c*, *j*, *x*, and *z* seldom, if ever, occur as the final letters of a root. The English being the language most widely diffused over the earth, the general practice has been to select from it all the root words which can be made to conform to the laws of orthography of the Volapük language. Where no word of this class is available in English, recourse is had to some of the other European tongues—the Latin or the Romance. In the English roots various changes are made, such as the substitution of one letter for another, as *l* for *r* in Europe, the Volapük being *Yulop*, the spelling of Volapük being purely phonetic.

In some instances where the root was too attenuated it was supplemented by the prefixing or suffixing of an additional letter. In the selection of root words, the letters *r* and *h* were avoided, and thus the necessity of going to the various languages to supply the vocabulary with root words of which no two must sound alike and have different meanings. Another peculiarity of the root words is that they must begin and end with a consonant. This is necessary in order that they may be able to receive the sign of inflection which is a vowel either prefixed or affixed. The words are derived from roots very much as in the Aryan languages, and their meaning is modified by the addition of prefixes or suffixes, which invariably convey the same idea. For instance, *el* is the suffix which conveys the idea of an actor or doer or an inhabitant. *Tid* means instruction. Now combine the two and we have *Tidel*, one who does instruction, or a teacher; *Deut* means Germany; *Deut-el* is an inhabitant of Deut, or a German. Our space will not permit us to go into more detail than has been given in regard to this branch of the subject.

The modifications to which the words of the Volapük language are subject are person, case, gender, number, mood, voice, tense, degree. The singular is the primitive form of the root. There is no dual. The plural is invariably formed by adding *s* to the singular, no matter what the part of speech. Thus *man*, man; *mans*, men; *golob*, I go; *golobs*, we go. In the numeration the tens are formed by the addition of *s* to the units; thus *bal*, one; *bals*, ten. There are three genders, masculine, feminine, and neuter. The names of males and females are as in English in the masculine and feminine genders; but the names of inanimate objects, unlike the English, are masculine instead of neuter. The three pronouns and verb terminations for masculine, feminine, and neuter are *om*, *of*, *os*. The first two are used as explained above, while the third is only used impersonally as for instance, *totos*, it thunders. In nouns referring to persons the feminine *ji* is prefixed when the female is meant; thus, *viudel* is a widower, while *ji-viudel* is a widow. In the case of animals (corresponding somewhat to the English common gender) the root word indicates the species irrespective of sex. Thus *jeval* is horse, while if we wish to express a stallion or mare we must prefix either the masculine *om* or the feminine *ji*. From this we have

*omjeval*, a stallion, and *jijeval*, a mare. There are many other salient points in the grammar of this most facile language, but space forbids our noticing more than the tenses. These are expressed by the vowels prefixed to the root words. The present is denoted by the prefix *a* while *ä* denotes the imperfect, *e* for the perfect, *i* for the pluperfect, *o* for the future and *u* for the future perfect. The prefix *a* for the active voice is always omitted, however. Thus *pen*, to write, becomes *Penob*, I write; *Äpenob*, I wrote; *Epenob*, I have written. etc. The order of words or syntax of a sentence is generally as follows: Subject, predicate, object, as John beats Jim, thus preserving the English idiom. Adjectives generally follow the nouns they modify, but adverbs, except in the cases of verbs, precede the words they modify.

The adoption of the language among the learned was very slow, and for a long time the system had no adherents outside of Germany, but in 1882 it began to be noticed simultaneously both in Austria and in the United States. In the latter country the number of Volapükists gradually increased until in 1887 an article in the *American Magazine* drew general attention to the subject, since which time the interest has been unabated and the language is rapidly growing in favor, and societies for its propagation have been formed in many of the American cities. The language has undergone some modification at the hands of various professors, the principal of these latter being Professor Kerchoffs, and when the convention of Volapükists was held in Munich in 1887, considerable time was spent in adopting and adapting these changes and modifications. The bibliography of the language is not extensive as yet, but the number of works in the language is constantly on the increase. Up to the present time about 200 books in this tongue have appeared.

VOLCANOES. See GEOLOGY.

VOLE (Germ. *Wühlmaus*, Fr. *Campagnol*). This word, little known as it is to the majority of English people, is the proper name for a genus containing three of the commonest of the English mammals, namely, the water, bank, and field voles—animals generally called "water-rat," "red field-mouse," and "short-tailed field-mouse" respectively. The scientific name for the group is *Arvicola*, a genus which, with the lemmings and two or three other genera, forms the subfamily *Arvicolina* of the great Rodent family *Murida*, whose proper place in the general system is shown under MAMMALIA.

The voles, as a whole, are distinguished by their squat and heavy shape, their slower and less graceful movements, very small eyes, blunt snout, inconspicuous ears, and shortened limbs and tail, in all of which points they are markedly contrasted with the true rats and mice of the genus *Mus*, the only animals with which they can be confounded. But by far the most important characteristic of the voles lies in their molar teeth, which have been said to form "the perfection of Rodent dentition" from their wonderful specialization and adaptation to the purpose of grinding vegetable substances.

Owing to the manner of the growth of the teeth, their general pattern of spaces and angles is but little affected by age and wear, remaining practically the same throughout the life of the animal. Thus the variations in the pattern have been generally used in classifying the different genera and species of the group.

The species of vole number about forty-three, of which about thirteen are European, twenty Asiatic, and ten North-American, none being found either in Africa, India (except in the extreme north), Australia, or South America. The group is therefore one peculiarly characteristic of the temperate parts of the northern hemisphere.



**VOLGA, THE,** the chief river of European Russia, rises in the Valdai plateau of Tver in northwestern Russia, and after a winding course of 2,325 miles (1,040 in a straight line) falls into the Caspian at Astrakhan. It is by far the largest river of Europe, those next in length, the Danube and the Ural, being only 1,735 and 1,478 miles respectively, while the Rhine (825 miles) is shorter even than two of the chief tributaries of the Volga—the Oka and the Kama. Its drainage area, which includes the whole of middle and eastern as well as part of southeastern Russia, amounts to 563,300 square miles, thus exceeding the aggregate superficies of Germany, France, and the United Kingdom. A hundred tributaries of the Volga are navigable for an aggregate length of 14,600 miles, a distance greater than the aggregate length of all the railways of England and Wales. The drainage area embraces twenty-one provinces of the Russian empire, or, in other words, nearly the whole of Great Russia proper, and has a population of nearly 40,000,000.

The Volga rises in the extensive marshes covering the western parts of the Valdai plateau, where the Dina also has its origin. Small streamlets languidly circulate from marsh to marsh, so that it is very difficult to say which of these ought to be regarded as the real source. Lake Seliger was formerly so considered; but at present that distinction is given to a small stream trickling into a wooden trough from beneath a small chapel in the midst of an extensive marsh to the south of Seliger. The honor has also been claimed of late, not without plausibility, for the Runa rivulet. At Tsaritsyn the Volga reaches its extreme southwestern limit, where it is separated from the Don by an isthmus of only forty miles in width. The isthmus is too high to be crossed by means of a canal, but a railway at Duboffka brings the Volga into some sort of connection with the Don and the Sea of Azoff. At Tsaritsyn the river takes a sharp turn in a southeasterly direction toward the Caspian; it enters the Caspian steppes, and some fifty miles below Tsaritsyn sends off a branch—the Akhtuba—which accompanies it for 330 miles before falling into the Caspian. Here the Volga receives no tributaries; its right bank is skirted by low hills, but on the left it spreads freely, joining the Akhtuba by many branches when its waters are high, and flooding the country for from 15 to 35 miles. The width of the main branch ranges from 520 to 3,500 yards, and the depth exceeds 80 feet. The Delta proper begins 40 miles above Astrakhan, and the branches subdivide so as to reach the sea by as many as 200 separate mouths.

**VOLHYNIA,** a government of southwestern Russia, bounded by the Polish provinces of Lublin and Siedlce on the west, Grodno and Minsk on the north, Kieff on the east, and Podolia and Galicia (Austria) on the south, has an area of 27,743 square miles.

Kaolin, pottery clay, and iron ore are the chief mineral products; amber also is occasionally found in the Tertiary sands. The climate of Volhynia, notwithstanding the influence of its marshes, is much milder than that of Central Russia within the same latitudes. The vegetation on the southern slopes of the Avratynsk Hills begins to show something of a West-European character; oaks, maples, and limes prevail, while on the northern slope there are immense forests of Scotch fir. The forests cover more than one-third of the entire area, and it is reckoned that 2,500,000 acres yield timber for building purposes.

The population of Volhynia in 1898 was 2,997,902. Agriculture cannot be said to flourish except on the Avratynsk plateau and its slopes, but is still the chief occupation, and more than one-third of the area

is under crops. The fertile soil of the south produces a surpluse of grain, which is either used in distilleries or exported. Hay is exported, but cattle-breeding has been almost stationary since 1850. Wool is exported. Beets are largely grown for sugar. The culture of tobacco is rapidly extending. In the Polyesie the principal occupations are connected with the export of timber and firewood, the preparation of pitch, tar, potash, and various wooden wares, and boat-building. The wild boar, bear, fox, and hare are hunted.

**VOLNEY, CONSTANTIN FRANÇOIS CHASSEBŒUF, COMTE DE,** was born at Craon, France, on February 3, 1757. When he was about four and twenty he acquired some reputation by an essay on the chronology of Herodotus, and was introduced into literary and philosophical society. He was a member both of the States-General and of the Constituante, and distinguished himself as an ardent reformer. In 1791 appeared the book *Les Ruines*. The book of which the full title is *Les Ruines, ou Méditation sur les Révolutions des Empires*, purports to contain the discourses of a traveler among the ruins of Palmyra with a very eighteenth-century genius. Volney was a good deal more than a mere author. He tried to put his politico-economic theories into practice in Corsica, where, in 1792, he bought an estate and made an attempt to cultivate colonial produce. He was thrown into prison during the Jacobin triumph, but escaped the guillotine. He was some time professor of history at the newly-founded École Normale, lectured there and published his lectures. Then he undertook a journey to the United States, the result of which took form in a book (chiefly geographical) published in 1803. Next year he republished and much enlarged his early essay on Herodotus. He died at Paris on April 25, 1820, and his complete works appeared soon afterward in eight volumes.

**VOLO,** a town and seaport of Greece, on the east coast of Thessaly, at the head of the gulf to which it gives its name. Volo, which is regularly visited by the Austrian, French, and Greek steamers plying weekly between the Piræus and Constantinople, is the only outlet for the produce of northern Greece. The exports (tobacco, hides and skins, fruits, olive oil, raw silk and cocoons, etc.) were valued in 1886 at \$155,000, while the imports (cereals, cotton goods, petroleum, sugar, etc.) amounted to \$1,295,000. Pop. (1897), 16,232.

**VOLOGDA,** a government of northeastern Russia, having Archangel on the north, Tobolsk on the east, Perm, Vyatka, Kostroma, and Yaroslavl on the south, Novgorod and Olonetz on the west. This immense government, which comprises an area of 155,500 square miles, stretches in a northeasterly direction for 800 miles, from Novgorod to the Urals, including the broad depression drained by the Sukhona from the southwest and the Vytchegda from the northeast, head-waters of the Dwina.

The population (1,365,587 in 1898 as against 960,850 in 1861), consists chiefly of Great Russians (88 per cent.), and Zyrians (12 per cent.; only 7 per cent. according to Rittich).

The chief occupation of the Russians is agriculture, and the average crops of 1883 to 1889 were rye, 785,000 quarters; barley, 926,000; oats, 925,000; other grains, 197,000; and potatoes, 107,000 quarters. They also fell timber, prepare tar, pitch, and potash, and manufacture wooden utensils. In the southwest they pursue a variety of domestic trades (spinning, weaving, sewing of plain cloth, etc.). The manufacturing industry is represented by a few ironworks, distilleries, paper-mills, and a variety of small manufactures. Salt was raised in 1881–89 to the average amount of 65,000 hundredweights. Flax, linen cloth, linsed, butter



tar, pitch, timber, and furs are the main items of export, the chief centers for trade being Vologda, Verkhovajsk, and Ustyug.

Vologda is divided into ten districts, the chief towns (with populations in 1898 being VOLOGDA (see below), Gryazovets (2,225) Kadnikoff (1,520), Nikolsk (1,880), Solvytchegodsk (1,320), Totma (3,380), Ustyug Velikiy (7,980), Ust-Sysolsk (4,100), Velsk (1,410), and Yarensk (1,250).

VOLOGDA, capital of the above government, is situated in its southwestern corner, 302 miles to the northeast of Moscow, with which it is connected by rail via Yaroslavl. Vologda is a considerable commercial center, flax, linseed, oats, hemp, butter, and eggs being bought to a large amount in the neighboring districts and in Vyatka, and exported both to St. Petersburg and Archangel. The population is (1898) was 27,822.

VOLSCI. See ITALY and ROME.

VOLSK, or VOLJSK, a district town of Russia, in the government of Saratoff, and ninety miles to the northeast of that town, on the right bank of the Volga, was a century ago but a small village (Malykovo), recently, however, it has grown to be one of the important towns on the lower Volga, and its population has rapidly increased from 23,500 in 1860 to 27,039 in 1898.

VOLTA, ALESSANDRO, was born at Como on February 18, 1745. In 1774 he was appointed professor of physics in the gymnasium of Como, and in 1777 he left his native town for the first time to travel through Switzerland, where he formed an intimate friendship with De Saussure. In 1779 a chair of physics was founded in Pavia, and Volta was chosen to occupy it. In 1782 he undertook a journey through France, Germany, Holland, and England, and became acquainted with nearly all the scientific celebrities of that day. In 1791 he received the Copley medal of the Royal Society. In 1801 Napoleon called him to Paris, to show his experiments on contact electricity, and a medal was struck in his honor. He was made a senator of the kingdom of Lombardy. In 1815 the emperor of Austria made him director of the philosophical faculty of Padua. In 1819 he retired, and settled down again in his native town. He died on March 5, 1827.

VOLTAIRE, FRANÇOIS MARIE AROUET DE, whose real name was FRANÇOIS MARIE AROUET simply, was born November 21, 1694, at Paris. Voltaire appears to have received no very regular education till he was ten years old; but the Abbé de Châteauneuf instructed him pretty early in belles lettres and deism, and he showed when quite a child, the unsurpassed faculty for facile verse-making which always distinguished him, and to which the literary tastes and models of the time lent themselves with special readiness. But at the age just mentioned he was sent to the Collège Louis-le-Grand, which was under the management of the Jesuits. This was in 1704. He remained there till 1711.

His troubles began when, in August, 1711, at the age of seventeen, he came home, and the usual battle began between a son who desired no profession but literature and a father who, in those days not quite unreasonably, refused to consider literature a profession at all. For a time Voltaire submitted, and read law at least nominally, doing a number of other things besides or instead of that study.

It does not appear that Voltaire got into any great scrapes, and the anecdotes recorded of this wild oats time of his are harmless enough. But his father naturally prognosticated little good to him from such society, and tried to break him off from it by sending him first to Caen and then in the suite of the Marquis de Châteauneuf, the abbé's brother, to the Hague. Almost exactly

at the time of the death of Louis XIV. he returned to Paris, to fall once more into literary and templar society, and to make the tragedy of *Œdipe*, which he had at ready written, privately known. He was now introduced to a less questionable and even more distinguished coterie than Vendôme's to the famous "court of Sceaux," the circle of the beautiful and ambitious Duchesse du Maine. It seems, though it is not certainly known, that Voltaire lent himself to the duchess' frantic hatred of the regent Orleans, and helped to compose lampoons on that prince. At any rate, in May, 1716, he was exiled, first to Tulle, then to Sully. He was allowed to return, but again fell under suspicion of having been concerned in the composition of two violent libels—one in Latin and one in French—called from their first words the *Puero Regnante* and the *J'ai vu*, was inveigled by a spy named Beauregard into a real or burlesque confession, and on May 16, 1717, was arrested and sent to the Bastille. He remained there for eleven months, recast *Œdipe*, began the *Henriade*, and determined to alter his name. Ever after his exit from the Bastille in April, 1718, he was known as Arouet de Voltaire, or simply Voltaire, though legally he never abandoned his patronymic.

A further "exile" at Châtenay and elsewhere succeeded the imprisonment, and though Voltaire was admitted to an audience by the regent and treated graciously it is clear that he was not trusted, and the inconveniences he had suffered for a time induced even his incorrigibly mischievous nature to keep quiet. *Œdipe* was acted at the Théâtre Français on November 18th of the year of release, and was very well received. But adversity had by no means done with him. In the spring of the next year the production of Lagrange-Chancel's libels, entitled the *Philippiques*, again brought suspicion on him. He was informally exiled, and spent much time with Marshal Villars, again increasing his store of "remembrances." He returned to Paris in the winter, and his second play, *Artémire*, was produced in February, 1720. It was a failure, and though it was recast with some success Voltaire never published it as a whole, and used parts of it up in other work. During the late autumn and winter of 1722-23 he abode chiefly in Paris, taking a kind of lodging in the town house of M. de Bernières, a nobleman of Rouen, and endeavoring to procure a "privilege" for his poem, *The Henriade*. In this he was disappointed, but he had the work printed at Rouen nevertheless, and spent the summer of 1723 revising it. In November he caught smallpox and was very seriously ill, so that the book was not given to the world till the spring of 1724 (and then of course, as it had no privilege, appeared privately). Almost at the same time, March 4th, his third tragedy, *Marianne*, appeared, at first with great success, but before the curtain fell complete damnation fell on it. In 1726 he visited England. The visit lasted about three years, from 1726 to 1729; and, as if to make the visitor's luck certain, George I. died and George II. succeeded soon after his arrival. The new king was not fond of "boetry," but Queen Caroline was, and the international jealousy (which, though there was no actual war, was never stronger than then) was pleased at the thought of welcoming a distinguished exile from French illiberality. But he visited Paris now and then, without permission (at other times he obtained permission to go without visiting it), and his mind, like the mind of every exiled Frenchman, was always set thereon. He at last gained full license to return in the spring of 1729.

He was full of literary projects, and immediately after his return he is said to have increased his fortune immensely by a lucky lottery speculation. The *Henriade* was at last licensed in France; *Brutus*, a play



which he had printed in England, was accepted for performance, but kept back for a time by the author; and he began the celebrated poem of the *Pucelle*, the amusement and the torment of great part of his life. But he had great difficulties with two of his chief works which were ready to appear, and did after a fashion appear in 1731—to wit, *Charles XII.* and the *Lettres sur les Anglais*. In 1732 another tragedy, *Ériphile*, appeared with the same kind of halting success which had distinguished the appearance of its elder sisters since *Edipe*. But at last, on August 13, 1732, he produced *Zaire*, the best (with *Mérope*) of all his plays, and one of the ten or twelve best plays of the whole French classical school. It was in 1733 that two important books, the *Lettres Philosophiques sur les Anglais* and the *Temple du Goût* appeared.

If the English visit may be regarded as having finished Voltaire's education, the Cirey residence may be justly said to be the first stage of his literary manhood. He had written important and characteristic work before; but he had always been in a kind of literary *Wanderjahre*. He now obtained a settled home for many years, and, taught by his numerous brushes with the authorities, he began and successfully carried out that system of keeping out of personal harm's way, and of at once denying any awkward responsibility, which made him for nearly half a century at once the chief and the most prosperous of European heretics in regard to all established ideas. He was in no great or immediate danger on this particular occasion, especially as he was perfectly ready to deny his authorship, and he traveled about for some time, visiting the camp at Philippsburg, where some not very important fighting, notable only for being the last campaign of Eugene, was going on. It was not till the summer of 1734 that Cirey, a half-dismantled country house on the borders of Champagne and Lorraine, was fitted up with Voltaire's money and became the headquarters of himself, of his hostess, and now and then of her accommodating husband. Many pictures of the life here, some of them not a little malicious, survive. It was not entirely a bed of roses, for the "respectable Emily's" temper was violent, and after a time she sought lovers who were not so much *des cérébraux* as Voltaire. But it provided him with a safe and comfortable retreat and with something of the same kind of convenience for literary work which matrimony provides for more commonplace or more scrupulous men of letters. In March, 1735, the ban was formally taken off him, and he was at liberty to return to Paris, a liberty of which he availed himself but sparingly now and ever afterward, finding himself better away from the capital. At Cirey he wrote indefatigably and did not neglect business. The principal literary results of his early years here were the play of *Azire* (1736) and a long treatise on the Newtonian system which he and Madame du Châtelet—an expert mathematician—wrote together.

In April, 1739, a journey was made to Brussels, to Paris, and then again to Brussels, which was the headquarters for a considerable time owing to some law affairs of the Du Châtelets. Frederick, king of Prussia, made not a few efforts to get Voltaire away from Madame du Châtelet, but unsuccessfully, and the king earned the lady's cordial hatred by persistently refusing or omitting to invite her. At last in September, 1740, Voltaire and Frederick met for the first time at Cleves; an interview followed three months later by a longer visit at Remusberg. Brussels was again the headquarters in 1741, by which time Voltaire had finished the best and the second or third best of his plays, *Mérope* and *Mahomet*. *Mahomet* was played first in the year and at the place just mentioned; it did not appear in

Paris until August next year, and *Mérope* not till 1743. During these years Voltaire's production of miscellanies was as constant as usual, but his time allotted to serious work was chiefly given to history and much of the *Essai sur les Mœurs* and the *Siècle de Louis XIV.* was now composed.

The death of Madame du Châtelet (1749) is another turning point in the history of Voltaire. For some time after Madame du Châtelet's death he was in a state of pitiable unsettlement. He went on writing tales like *Zadig*. He engaged in a foolish and undignified struggle with Crébillon père (not fils) a dramatist, who, in part of one play, *Rhadamiste et Zénobie*, has struck a note of tragedy in the grand Cornelian strain, which Voltaire could never hope to echo, and who, in most of his other efforts, was and is mainly futile. He used the most extraordinary efforts to make himself more popular than he was, but he could not help being uncomfortable in a city where the court all but threatened, and where the city did more than all but laugh.

All this time Frederick of Prussia had been continuing his invitations, and the "respectable Emily" was no longer in the way. It does not appear that, at any rate at first, Frederick made any real difficulty as to money. Indeed he behaved on the whole very generously. Voltaire left Paris on June 15, 1751, and reached Berlin on July 10th.

This Berlin visit might itself be treated, without undue extension, at the length of the present article; but its circumstances may be presumed to be already more or less familiar to most English readers from the two great essays of Macaulay and Carlyle as well as from the *Frederick* of the latter. He left Frederick in March, 1753, and after a series of vicissitudes reached Colmar in July. Here he remained awhile.

Voltaire's second stage was now over, and he was about to try complete independence of hosts and patrons, mistresses and friends. Even now, however, in his sixtieth year, it required some more external pressure to induce him to take this apparently obvious step.

His first resting-place, Geneva, was reached in the middle of December; but Voltaire had no purpose of remaining in the city, and almost immediately bought a country house just outside the gates, to which he gave the name of Les Délices. This, the first house of his own which he can be said to have possessed, is still standing, though now absorbed in the suburbs. It was pretty, with fine views; but it had advantages of a non-æsthetic kind for its owner, of which he made no secret. He was here practically at the meeting-point of four distinct jurisdictions—Geneva, the canton Vaud, Sardinia, and France, while other cantons were within easy reach. Before finally settling in Ferney he bought other houses dotted about these territories, so never to be without a refuge close at hand in case of sudden storms. At Les Délices he set up a considerable establishment, which his great wealth (obtained chiefly by speculation in the manner already more than once hinted at) made him able easily to afford. He kept open house for visitors; he had printers close at hand in Geneva; he fitted up a private theater in which he could enjoy what was perhaps the greatest pleasure of his whole life—acting in a play of his own, stage managed by himself.

From this time forward many of the most celebrated men of Europe visited him there, and large parts of his usual biographies are composed of extracts from their accounts of Ferney. His new occupations by no means quenched his literary activity, but on the contrary stimulated it.



How he built a church and got into trouble in so doing at Ferney, how he put "Deo erexit Voltaire" on it (1760-61) and obtained a relic from the pope for his new building, how he entertained a grand-niece of Corneille, and for her benefit wrote his well-known "commentary" on that poet, are matters of interest, but to be passed over briefly.

In 1768 he entered, it would seem out of pure wantonness, into an indecent controversy with the bishop of the diocese (who, like an honest man, was not particularly well satisfied with his occasional conformity); he had differences with the superior landlord of part of his estate, the president De Brosses; and he engaged in a long and tedious return match with the republic of Geneva, in which the scoring was alternate and rather bewildering, Geneva playing at one time an insult to Voltaire's friend and patron Catherine of Russia, and Voltaire replying at another by setting up a rival colony of watchmakers at Ferney. The match went on the whole in favor of Voltaire, for during its course a theater was authorized in the city, and he himself, a kind of exile from it, was applied to to mediate between different classes of the community. But the general events of this Ferney life are somewhat of that happy kind which are no events—the distractions and employments of a man who has nothing serious to occupy himself about.

In this way things went on for many years, and Voltaire, who had been an old man when he established himself at Ferney, became a very old one almost without noticing it. The death of Louis XV. and the accession of Louis XVI. excited even in his aged breast the hope of reëntering Paris, but he did not at once receive any encouragement, despite the reforming ministry of Turgot. A much more solid gain to his happiness was the adoption, or practical adoption, in 1776, of Reine Philiberte de Varicourt, a young girl of noble but poor family, whom Voltaire rescued from the convent, installed in his house as an adopted daughter, and married to the Marquis de Villette. It is doubtful whether his last and fatal visit to Paris was due to his own wish or to the instigation of his niece. At any rate he had, at the end of 1777 and the beginning of 1778, been carefully finishing a new tragedy—*Irène*—for production in the capital; he started on February 5th, and five days later arrived at the city which he had not seen for eight and twenty years.

He was received with immense rejoicings, not indeed directly by the court, but by the Academy, by society, and by all the more important foreign visitors. About a fortnight after his arrival age and fatigue made him seriously ill, and a confessor was sent for. But he recovered, scoffed at himself as usual, and prepared more eagerly than ever for the first performance of *Irène* on March 16th. At the end of the month he was able to go out and attend a performance of it, which has often been described, and was a kind of apotheosis. He even began or proceeded with another tragedy—*Agathocle*—and attended several Academic meetings. But such proceedings in a case of a man of eighty-four were impossible. To keep himself up he exceeded even his usual excess in coffee, and about the middle of May he became very ill. For about a fortnight he was alternately better and worse; but on May 30th the priests were once more sent for—to wit, his nephew the Abbé Mignot, the Abbé Gaultier, who had officiated on the former occasion, and the parish priest, the curé of St. Sulpice. He was, however, in a state of half insensibility, and petulantly motioned them away. The legends set afloat about his dying in a state of terror and despair, are certainly false; but it must be regarded as singular and unfortunate that he

who had more than once gone out of his way to conform ostentatiously and with his tongue in his cheek should have neglected or missed this last opportunity. The result was a difficulty as to burial which was compromised by hurried interment at the abbey of Scellières in Champagne, anticipating the interdict of the bishop of the diocese by an hour or two. On July 10, 1791, the body was transferred to the Pantheon, but it was not to rest there, and during the Hundred Days it was once more, it is said, disinterred, and stowed away in a piece of waste ground. His heart, taken from the body when it was embalmed, and given to Madame Denis and by her to Madame de Villette, was preserved in a silver case, and when it was proposed (in 1864) to restore it to the other remains, the sarcophagus at Sainte Geneviève (the Pantheon), was opened and found to be empty.

VOLTERRA, a town of Italy, in the province of Pisa, fifty-one miles by rail east-southeast from Leghorn, and thirty-five by road west-northwest from Siena, stands on a commanding olive-clad eminence about 1,600 feet above sea-level, and is surrounded by the massive remains of its ancient walls, some four and one-half miles in circuit. The inhabitants are chiefly employed in the manufacture of vases and other ornaments from alabaster, of good quality, found in the vicinity of Volterra and near Leghorn. The population 1901 was 7,027 (commune 14,063).

VOLUNTEERS. See MILITIA.

VOLUSENUS, FLORENTIUS (that is, FLORENCE WILSON or WOLSEY, though in an English letter he writes himself VOLUZENE), a Scottish humanist of the first half of the sixteenth century, whose elegant Latinity, but still more the thoughtful beauty of his Christian philosophy, claims for him a high place among the scholars of his age. That he was born near Elgin, and studied philosophy at Aberdeen, may be only an inference from a passage in the dialogue *De Tranquillitate Animi*, but it is certain that he died at Vienne in Dauphiné, France, in 1546.

VONDEL, JOOST VAN DER, Dutch poet, was born in 1587 and died in 1697.

VORAGINE, JACOBUS DE, archbishop of Genoa, is said to have been born at the little village of Varaggio, near Savona, about the year 1230. He entered the order of St. Dominic in 1244. In 1288 Nicholas empowered him to absolve the people of Genoa for their offense in aiding the Sicilians against Charles II. Early in 1292 the same pope, himself a Franciscan, summoned James to Rome intending to consecrate him archbishop of Genoa with his own hands. If we may trust Echard, he was a model bishop, and especially distinguished himself by his efforts to appease the civil discords of Genoa. His death seems to have taken place in June, 1298. His two chief works are the *Chronicon Januense* and the *Golden Legend* or *Lombardica Hystoria*. The former is partly printed in Muratori (*Scriptores Rer. Ital.*, ix. 6). It is divided into twelve parts. The *Golden Legend*, one of the most popular religious works of the Middle Ages, is a collection of the legendary lives of the greater saints of the mediæval church. The preface divides the ecclesiastical year into four periods corresponding to the various epochs of the world's history, a time of deviation, of renovation, of reconciliation, and of pilgrimage.

VORARLBERG, the most western division of the Austrian-Hungarian monarchy, is bounded on the north by Bavaria, on the west by the Lake of Constance, Liechtenstein and Switzerland, on the south by Switzerland, and on the east by Tyrol. About one-third of the surface (almost exactly 1,000 square miles in extent) is occupied by pasture, upward of one-sixth by forests,



one-seventh by meadows, and only one-twentieth by arable land. In correspondence with these figures, we find that the chief employments of the inhabitants are cattle-rearing, dairy-farming, and forestry.

In 1881 the district contained 61,115 cattle, and cheese is produced in large quantities. Grain is cultivated in the valley-bottoms, but not more than enough is raised to cover the home consumption; potatoes, fruit, and wine are also produced. The manufacturing industry is also by no means unimportant, occupying nearly 30 per cent. of the population. The chief branch is the spinning and weaving of cotton, which is carried on with special vigor in the neighborhood of the towns and larger villages. A characteristic industry is the construction of wooden chalets, which are exported to Switzerland by water. Many of the men spend the summer in Switzerland as masons and laborers, returning to their homes in winter. In 1901 the population numbered 147,373, nearly all of Teutonic stock and the Roman Catholic faith. The chief towns, none of which are large, are Bregenz (4,736 inhabitants), the capital, and the port of Austria on the Lake of Constance, Bludenz (3,150 inhabitants), Feldkirch (3,600), and Dornbirn. Vorarlberg belongs to the see of Brixen, the prince-bishop of which is represented by a vicar-general at Feldkirch. The provincial diet consists of twenty-one members, including the vicar-general. The crown-land sends two representatives to the imperial parliament.

VORONEZH, a government of southern Russia, is bounded by Tamboff on the north, Saratoff and the Don Cossacks on the east, Kharkoff on the south, and Kursk and Orel on the west, and has an area of 25,443 square miles.

The population is steadily increasing, and reached 2,546,255 in 1898 as against 1,974,400 in 1860. It is Little Russian in the southwest (from 35 to 40 per cent., according to different estimates), and Great Russian elsewhere. There are also a few German colonies with some 3,500 inhabitants, and a few Poles (2,000).

Agriculture is the chief occupation, and grain is exported to a considerable amount. The sunflower has also been much cultivated of late for oil. The Voronezh horses enjoy a high reputation in Russia, as also do its cattle, and cattle-breeding has advanced during the last thirty years. Bees are kept in many villages, and honey is gathered to the annual amount of more than 10,000 hundredweights. Market-gardening and fishing are also of importance. The manufactures are of recent growth; the chief products being spirits, oil, sugar, woollens, and tallow. Wheat and other grains, flour, flax, tallow and hides, wool, and cattle are the chief items of export.

VORONEZH, capital of the above government, is situated on a high bank of the river of the same name, 365 miles by rail to the south of Moscow. A few factories for cleansing wool and for the preparation of tallow and oil, as well as some distilleries, have arisen of late. The population of the town increased from 39,800 in 1860 to 84,146 in 1898. It is now an important entrepôt for grain, flax, tallow, hides, sugar, wood, and coal from the Don; the railway traffic amounts to two and one half million hundredweights, and that of the Razdelnaya junction, close by, to nearly thrice that amount.

VORTEX MOTION. See HYDROMECHANICS.

VOSGES, a mountain range of central Europe, stretching along the west side of the Rhine valley in a north-northeast direction from Basel to Mains, for a distance of 150 miles. Since 1871 the southern portion, from the Ballon d'Alsace to Mont Donon, has been the political boundary between France and Germany. There is a remarkable similarity between the Vosges and the corresponding range of the Black Forest on the

other side of the Rhine; both lie within the same degrees of latitude and have the same geological formation; both are characterized by fine forests on their lower slopes, above which are open pasturages and rounded summits of a uniform altitude; both have a steep fall to the Rhine and a gradual descent on the other side. The Vosges in their southern portion are mainly of granite, with some porphyritic masses, and of a kind of red sandstone (occasionally 1,640 feet in thickness) which on the western versant bears the name of "grès Vosgien."

VOSGES, a frontier department of eastern France, was formed in 1790, for the most part of territory previously belonging to Lorraine, with fragments of Franche-Comté, Champagne, and Alsace. The portion belonging to Alsace was ceded to Germany in 1871. Lying between 47° 48' and 48° 32' N. latitude, and 5° 22' and 7° 10' E. longitude, the department is bounded by Alsace-Lorraine on the east, and by the departments of Meurthe-et-Moselle on the north, Meuse on the northwest, Haute-Marne on the west, and Haute-Saône on the south. The Vosges Mountains form a natural boundary on the east. The highest point is the Hohenack (4,482 feet) near the Schlucht. The south of the department is traversed by the Monts Faucilles (2,000 feet), which form part of the European watershed, separating the basins of the Rhine and the Rhone. The Moselle and the Meuse, tributaries of the Rhine, have the largest drainage areas in the department; a small district in the northwest belongs to the basin of the Seine (Ornain and Marne), the rest to that of the Rhone. The height above the sea, the northward exposure of the valleys, and the impervious subsoil combine to make the climate severe; the average temperature at Épinal (1,070 feet) is 49° F. The annual rainfall is twenty-four inches at Épinal, thirty-one at St. Dié, and more in the mountains.

Of a total area of 1,452,181 acres, arable land occupies 603,201 acres, grass 109,839, wood 361,526, heath, pasture, and uncultivated land 81,486, and vineyards 12,054. The crops in 1894 were—wheat 1,911,470 bushels, meslin 494,483, rye 710,627, barley 103,262, oats 3,225,755, buckwheat 63,409, potatoes 17,787,404, dry vegetables 45,974, fodder beetroot 25,060 tons, tobacco 33 tons, hops 79 tons, hemp seed 138 tons, hemp 99 tons, linseed 39 tons, flax 22 tons, hemp, flax, and poppy oils 94 tons, colza seed 206 tons, fodder 457,383 tons, wine 2,869,000 gallons (average of preceding ten years 3,964,441). The department stands first in France for the extent and importance of the woods under forest rule, though only third for the actual area of forest land. The state owns one-third of the forests, private individuals one-fifth, and the communes the rest. Oaks, beeches, hornbeams, birches, aspens, and maples thrive on the plains, beeches and oaks on the higher grounds, and firs, beeches, and pines on the mountains. The annual value of timber produced is \$1,400,000, and 9,000,000 fir planks, besides other kinds, are annually cut in 300 sawmills. Traces of gold are found, and the department contains silver and lead mines, copper ore, iron ore (4,530 tons of iron annually), zinc, manganese, cobalt, and antimony. In 1884, 681 tons of coal were mined, and in 1882 1,595 tons of peat were dug; 1,336 persons are employed in 432 quarries of marble, sandstone, granite, and building and lithographic stones. The department is rich in hot, cold, sulphate, sodic, calcium, iron, bicarbonate, and gaseous mineral springs. Those at Plombières were known to the Romans. Thirty-seven thousand hands are employed in the manufacture of pig and cast iron (for all which wood is the chief fuel) and wares of iron and steel. The cotton industry (135,000



looms and 423,724 spindles) has been largely developed since 1871; canvas and linen are woven at Gérardmer (3,000 looms). The manufacture of cloth employs 500 workmen, of lace 1,000, embroidery by the hand and loom 40,000 workwomen, silk spinning 1,000 spindles. Wool is spun and hosiery manufactured. Coopers' work (over 300 tons) is exported, as are also sabots. At Épinal several hundred workmen are engaged in the manufacture of images; and musical instruments are made at Mirecourt. One thousand workmen are employed in glass-works, and 1,937 in paper-mills (10,000 tons of paper and cardboard). The department contains in all 409 industrial establishments; 200,000 tons of coal are imported. There are 281 miles of railway, 177 of national roads, and 3,096 of other roads. The Eastern canal connects the Saône with the Moselle and Meuse. The population in 1901 was 419,784, of whom 189,176 were engaged in agriculture and 131,253 in manufactures; the population in 1886 was 413,707.

VOSS, JOHANN HEINRICH, German poet, archæologist, and translator, was born at Sommersdorf in Mecklenburg, February 20, 1751. From 1766 to 1769 Voss attended school at Neubrandenburg. He went to Göttingen in 1772, in response to the invitation of Boie, whose attention he had attracted by poems contributed to the Göttingen *Musen Almanach*. In 1775 Boie made over to him the editing of the *Musen Almanach*, which he continued to issue for many years. He married Boie's sister, Ernestine, in 1777, and in the following year he accepted the position of rector at Ottendorf in Hanover. As the climate of Ottendorf did not suit his health, he resigned this office in 1782, and went as rector to Eutin, where he remained until 1802. He then lived for some time in Jena, but in 1805 he accepted a call to a professorship at Heidelberg. He died at Heidelberg on March 29, 1826.

VOSSIUS, GERARDUS JOHANNES, classical scholar and theologian, was born near Heidelberg in 1577. He received his education at Dort until he entered the theological college and then the university of Leyden. He there became the lifelong bosom friend of Hugo Grotius, and pursued with great zest the study of the classics, Hebrew, ecclesiastical history, and theology. In 1600 he was made rector of the high school at Dort, where he devoted himself to philology and historical theology. From 1614 to 1619 he filled the office of director of the theological college at Leyden. But in the year 1622 he received the appointment of professor of rhetoric and chronology, and subsequently of Greek, in the university. In 1624 the university of Cambridge offered him a professorship, which he declined. Two years afterward another unsuccessful effort was made to induce him to settle in England, but he accepted from Archbishop Laud a prebend in Canterbury cathedral of the value of \$500 per annum, without residence, coming over to England to be installed in 1629, when he was made LL.D. at Oxford. In 1632 he left Leyden to take the post of professor of history in the newly founded Athenæum at Amsterdam, which he held till his death, March 17, 1649.

VOSSIUS, ISAAC, son of the preceding, was born at Leyden in 1618, and was carefully educated by his father. After three years spent on a learned tour through England, France, and Italy, he accepted in 1648 an invitation to the court of the brilliant Queen Christina of Sweden, whom he taught Greek. He declined the offer of the chair of history at Amsterdam vacated by his father's death, and continued for some years in Sweden, with occasional visits to Holland. In 1658 he finally left Sweden. His father's merits and his own learning procured him favor with Louis XIV.

of France and in England. In 1670 he removed to England, was made LL.D. of Oxford, and in spite of notorious looseness of morals and levity of character received a canonry at Windsor from Charles II. in 1673, residing in the castle, where he died in February, 1689.

VOTKINSK, an iron-works in the Urals, in the Russian government of Vyatka, forty-seven miles north of Sarapul, and eight miles from the Kama, was founded in 1756. Its population reached 18,480 in 1898. Together with the Kamsk iron-works, Votkinsk was till lately one of the chief government establishments for the construction of steamers for the Caspian flotilla, as well as of locomotives for the Siberian railway, and it has long been renowned for its excellent tarantasses and other smaller iron-wares, as well as for its knitted goods.

VOUET, SIMON, French painter, born at Paris, January, 9, 1590, passed many years in Italy, where he married, and established himself at Rome, enjoying there a high reputation as a portrait painter. Louis XIII. recalled him to France, lodged him in the Louvre with the title of First Painter to the Crown, and gave him a considerable salary. All royal work for the palaces of the Louvre and the Luxembourg was placed in his hands; the king became his pupil; he formed a large school, and renewed the traditions of that of Fontainebleau. Vouet was an exceedingly skillful painter, especially in decoration, and executed important works of this class for Cardinal Richelieu (Rueil and Palais Royal) and other great nobles. His better easel pictures bear a curious resemblance to those of Sassoferrato. Almost everything he did was engraved by his sons-in-law Tortebeut and Dorigny.

VOW, a solemn undertaking to do something which is held to be acceptable to the Deity. In the antique religions mere prayer, without some material expression of homage, was not held to be a complete or normal act of worship (*cf.* SACRIFICE). Supplications, therefore, were generally presented to the Deity in connection with a sacrifice, or, if the moment of need was one at which a ritual offering could not well be presented, the prayer for help was naturally accompanied by a promise to present a gift at a future time. Thus prayer together with a vow is a sort of imperfect act of worship, which has to be completed by the discharge of the vow at the sanctuary.

The vows of which we read in the Old Testament and in classical authors are generally conditional on the fulfillment of the petition with which they are coupled. Such vows are made on occasions of special need, or difficulty (Ps. lxxi. 13 *seq.*; Pliny, *H. N.*, viii. 21 [57], "tum præcipuus votorum locus est cum spei nullus est") as before a perilous enterprise (Gen. xxviii. 20; Judg. xi. 30). Of ordinary vows a common type in antiquity was a promise made in peril by sea, sickness, or other straits, to suspend in a temple a picture or other symbol of the danger against which the Divine aid was implored. This usage passed into Christianity and survives in Catholic countries, where votive pictures and models of eyes, hands, etc., cured in answer to prayer, are still seen in churches. At the council of Lestines the use of such models was condemned as a pagan practice.

In point of obligation, vows were analogous to oaths (Numb. xxx. 2); their sanction was not human but Divine (Deut. xxiii. 21). Thus slackness or fraud in the fulfillment of vows is the mark of an age of declining faith (Mal. i. 14; Hārith, *Moall.*, l. 69 Arnold; Lucian, *Jupiter Trag.*, c. 15; *cf.* Eccles. v. 4). Among the Arabs the speedy fulfillment of vows was favored by a rule of abstinence from certain enjoyments and conveniences (*iḥrām*), which custom imposed till the vow was fulfilled. This appears to have been the ancient practice



of other Semitic nations also; among the Hebrews it survives in the Nazarite vow (see NAZARITE), and probably also in the *esār* or *issār* (interdict), which is mentioned along with vows in Numb. xxx., and is described in verse 13 as "an oath of abstinence to afflict the soul"—words which seem to show that fasting is specially contemplated.

The simple vow presupposes that the sanctuary or the customary day of sacrifice is remote; the conditional vow, on the other hand, may often be made at the sanctuary itself, where the Godhead is nearest to man (Gen. xxviii. 20; 1 Sam. i. 11; *Iliad*, vii. 93). In Christian times vows to present a material gift (*vota realia*) have been less important than vows to adopt a certain course of life (*vota personalia*), a change which naturally followed from the modification of the idea of sacrifice in Christianity (see SACRIFICE). The personal vows recognized by the Catholic church are of various kinds, covering all manner of actions religiously meritorious (e.g., pilgrimage or crusading); but the most prominent have been vows of abstinence (fasting, chastity), to which the growth of asceticism gave a positive value. Most important of all is the monastic vow of poverty, chastity, and obedience (see MONACHISM). The presupposition of all such vows is that there is a higher life of godliness, which cannot be attained to by Christians at large, and which all are not bound to attempt, although there is merit in consecrating oneself to it. From this point of view it came about in process of time that vows of self-consecration were viewed as necessarily perpetual. To fall back from a purpose of higher life was not at all the same thing as never to have formed such a purpose. On the other hand, the church was careful to guard against the rash assumption of vows, by requiring certain formalities in the act, and by the institution of the novitiate, as a period of probation. The power of the pope to dispense with vows, which appears in the *Decretals*, was of later growth. Protestantism, denying the superior merit of the ascetic life, rejects all perpetual vows, and indeed shows little favor to vows of any kind.

VRANCX, SEBASTIAN, born about 1572, was a painter of the Antwerp school, of very moderate ability. Most of his pictures represent scenes of war, such as the sack of towns, cavalry combats, and the like. Though occasionally vigorous in drawing, his paintings are dull and heavy in tone. The date of his death is uncertain.

VULCAN, the old Roman fire-god, answering to the Greek HEPHÆSTUS (*g.v.*), with whom he was confounded by the ancients. How closely Vulcan was identified with the fire, regarded as a person, appears from the stories of the birth of Cæculus and Servius Tullius, both of whom were called sons of Vulcan, and were supposed to have been conceived by virgins who had been impregnated by sparks of fire from the hearth. At Rome his temple was in the Campus Martius outside the city walls. There was a festival of Vulcan called the Volcanalia on August 23d, in which the people threw animals into the fire instead of themselves. On June 7th there was a fishermen's festival, with games, held under the superintendence of the "prætor urbanus," and the fish were brought to the Volcanal and sacrificed to the god instead of human victims. Another festival of Vulcan was the Tubilustria, or purification of trumpets on May 23d, Vulcan being regarded as the father of trumpets. At Ostia there was a festival of Vulcan (Volcanalia) presided over by a "prætor sacris Volcani faciendis;" and at Ostia there were also a temple and a pontifex of Vulcan. At Rome there was a "flamen" of Vulcan, who sacrificed to Maia, wife of Vulcan, May 1st. According to others the name of Vulcan's wife was Majesta.

VULCANO. See LIPARI ISLANDS.

VULGATE. See BIBLE.

VULTURE, the name of certain birds whose best-known characteristic is that of feeding upon carcasses, and these birds, owing to this obscene habit, are in many hot countries regarded with favor as useful scavengers. The genus *Vultur*, as instituted by Linnæus, is now restricted by ornithologists to a single species, *V. monachus*, the other species included therein by him, or thereto referred by succeeding systematists, being elsewhere relegated (*cf.* LÄMMERGEYER); but the most important taxonomic change that has been introduced is that by Professor Huxley (*Proc. Zool. Society*, 1867, pp. 462-464), who pointed out the complete structural difference between the Vultures of the New World and those of the Old, regarding the former as constituting a distinct Family, *Cathartidae* (which, however, would be more properly named *Sarcorhamphidae*), while he united the latter with the ordinary diurnal Birds-of-Prey *Gypætidæ*.

The American Vulture may be said to include four genera:—(1) *Sarcorhamphus*, the gigantic Condor, the male distinguished by a large fleshy comb and wattles; (2) *Gypagus*, the King-Vulture, with its gaudily-colored head and nasal caruncle; (3) *Catharista*, containing the so-called Turkey-Buzzard of English-speaking Americans with its allies; and (4) *Pseudogryphus*, the great Californian Vulture—of very limited range on the western slopes of North America, and threatened with speedy extinction through the use of poison. The true Vultures of the Old World, *Vulturidæ* in the restricted sense, are generally divided into five or six genera, of which *Neophron* has been not unjustifiably separated as forming a distinct Subfamily, *Neophroninæ*—its members, of comparatively small size, differing both in structure and habit considerably from the rest. One of them is the so-called Egyptian Vulture or Pharaoh's Hen, *N. percnopterus*, a bird whose delicacy of build and appearance contrast forcibly with its choice of the most filthy kind of food. Of the genera composing the other Subfamily, *Vulturinæ*, space is wanting to say much. *Gyps* numbers seven or eight local species and races, on more than one of which the English name Griffon has been fastened. The best known is *G. fulvus*, which by some authors is accounted "British," from an example having been taken in Ireland, though under circumstances which suggest its appearance so far from its nearest home in Spain to be due to man's intervention. The species, however, has a wider distribution on the European continent (especially toward the northeast) than the Egyptian Vulture, and in Africa nearly reaches the Equator, extending also in Asia to the Himalaya; but both in the Ethiopian and Indian regions its range insulates with that of several allied forms or species. *Pseudogyps* with two forms—one Indian, the other African—differs from *Gyps* by having twelve instead of fourteen rectrices. Of the genera *Otogyps* and *Lophogyps* nothing here need be said; and then we have *Vultur*, with, as mentioned before, its sole representative, *V. monachus*, commonly known as the Cinereous Vulture, a bird which is found from the Straits of Gibraltar to the sea-coast of China. Almost all these birds inhabit rocky cliffs, on the ledges of which they build their nests.

The question whether Vultures in their search for food are guided by sight of the object or by its scent has long excited much interest, and the advocates of either opinion have warmly contended in its behalf. Without denying to them the olfactory faculty, it seems to be now generally admitted, notwithstanding the assertions to the contrary of Waterton and a few more, that the sense of sight is in almost every case sufficient to account for the observed facts. The mode in which com-



munication is effected between the birds, which are soaring at an immense height, seems at first inexplicable, but Canon Tristram has suggested (*Ibis*, 1859, p. 280) this simple solution of the supposed mystery:—

"The Griffon who first descries his quarry descends from his elevation at once. Another, sweeping the horizon at a still greater distance, observes his neighbor's movements and follows his course. A third, still further removed, follows the flight of the second; he is traced by another; and so a perpetual succession is kept up so long as a morsel of flesh remains over which to consort."

VYATKA, or VIATKA, a government of northeastern Russia, with Vologda on the north, Perm on the east, Ufa and Kazan on the south, and Nijni Novgorod and Kostroma on the west, has an area of 59,124 square miles. It has on its northern boundary the flat water-parting which separates the basins of the Northern Dvina and Volga, and its surface is an undulating plateau of from 800 to 1,400 feet above sea-level, deeply grooved by rivers and assuming a hilly aspect on their banks, broken up as they are by ravines. Permian sandstones, marls, and limestones cover it; over these is boulder clay with extensive forests and marshes. The Kama rises in the northeast, and, after making a wide sweep through Perm, flows along its southeastern boundary, while the whole of the government is watered by the Vyatka and its numerous tributaries. Both the Kama and the Vyatka are navigable, as also are several of their tributaries; the Izha and Votka, which flow into the latter, have important iron-works on their banks. As many as 1,700,000 hundred-weights of grain, iron, hides, leather, tallow, timber, and wooden wares were loaded in 1883 at the landing-places of Vyatka, while the traffic on the Kama is still more important. There are no railways, but the province is traversed by the great highway to Siberia, and by two other roads by which goods from the south are transported to loading-places on the Vytchegda and the Yug to be shipped farther north to Archangel. Lakes are numerous, and vast marshes are met with everywhere, especially in the north; three-quarters of the area is under forests. The climate is very severe, the average yearly temperature being 36° F. at Vyatka (January, 8.2°; July, 67.0°), and 35° at Slobodskoi (January, 3.5°; July, 65.3°).

The population in 1898 was 3,082,788, and though sparse on the average, is somewhat dense in the better-situated valleys. The bulk consists of Great Russians (81 per cent.), but there are also considerable remains of the aboriginal Votiaks (250,000), Tcheremisses (about 150,000), Tartars, Tepters, Permians, and even Bashkirs. Mohammedans number about 100,000, and pagans (Tcheremisses and Votiaks) about 11,000. The Votiaks (Otiaks), a Finnish stem of the Permian group, call themselves Ot, Ut, or Ud, and the Tartars call them Ar, so that it is supposed that they may be akin to the Ars of the Yenisei. They are middle sized, with fair hair and eyes, often red-haired; and the general structure of the face and skull is Finnish.

The soil is fertile, especially in the valleys of the south; rye, barley, oats, buckwheat, and to some extent wheat are grown. The crops of 1885 were rye, 4,006,000 quarters; oats, 3,957,000; barley, 734,000; wheat, 98,000; potatoes, 231,000 quarters. Corn is exported to the Kama or to the north, as also are flax and hemp. There is no want of natural meadows in the south, and cattle-rearing prospers. The Vyatka horses, a fine breed, though rather small, are well known throughout Russia. There were in 1883 706,600 horses, 925,100 cattle, and 1,446,400 sheep. Attempts are being made to introduce finer breeds of cows and sheep.

Industries are developing steadily, there having been in 1884, 684 establishments, which employed 9,700 workmen, and showed a yearly return of \$7,750,000. They include distilleries (\$4,425,000), iron works, chemical works, tanneries, soap and glass works, and cotton and paper mills. VOTKINSK (*q.v.*) has a considerable yearly production of agricultural machinery and steam-engines. The crown manufactory of guns at Izhevsk works up yearly 10,000 hundred-weights of steel. Domestic trades give occupation to more than 40,000 persons, and their returns in 1884 reached \$3,534,000. The manufacture of wooden vessels, window frames, doors, furniture, sledges, and carts supplies a considerable export trade to the steppe provinces of the lower Volga. Domestic weaving produces, it is estimated, about 5,400,000 yards of linen every year.

Trade is considerable—iron, copper, tar, pitch, glass, leather, paper, timber, and wooden wares, as also grain, hides, flax, linseed, honey, and other raw produce being exported to Nijni Novgorod, Orenburg, and Siberia; while groceries and various manufactured goods are imported.

Vyatka distinguishes itself very favorably by its schools, libraries, surgeons, and hospitals. There were in 1884, 641 primary and 22 secondary schools.

VYATKA, capital of the above government, is situated on the Vyatka river, 653 miles to the northeast of Moscow. It is built mostly of wood, on the steep hills which rise above the river, as well as on their slopes and at their base. Two public gardens, a small public library, and the usual educational institutions of a Russian provincial town are all that it can boast of. Its manufactures are insignificant, but its trade in grain, leather, tallow, candles, soap, wax, paper and furs is important. The population in 1898 was 26,480.

VYAZMA, a district town of Russia, in the government of Smolensk, and 109 miles by rail to the northeast of that town, was a populous place as early as the eleventh century, and carried on a lively trade with Narva on the Gulf of Finland. It is an important center for the trade of Smolensk; grain, hemp, linseed and hemp seed, tallow, and hides are exported to St. Petersburg and Riga, while fish, metals, and manufactured goods are supplied to the neighboring region. The population was 15,000 in 1898.

VYERNYI, formerly ALMATY, capital of the Russian Central-Asian province of Semiryetchensk, is situated on a plateau at the base of the Trans-Ili Alatau, in 43° 16' N. latitude, forty-seven miles to the south of the Ili river. It was founded in 1854. In 1898 the population numbered 22,982, nearly 3,000 of them military. Around the central blocks are several suburbs of wooden and brick houses; the streets are broad and planted with trees. Situated as it is on the site of the old Almaty, at the crossing of two roads—from Kulджа to Tashkend, and from Semipalatinsk to Kashgar—Vyernyi carries on an active trade in wheat, rice, corn, tea, oil, and tobacco. The dislocation of the rocks on the northern slope of the Alatau mountains is the cause of severe earthquakes, the last of which, on June 9, 1887, destroyed or damaged nearly a thousand stone houses in Vyernyi and its neighborhood, killing 326 persons. Slighter shocks were felt up till February, 1888.

VYSHNIY VOLOTCHOK, a district town of Russia, in the government of Tver, eighty-two miles by rail to the northwest of that city, owes its importance to its situation in the center of the Vyshne-Volotsk navigation system, which connects the upper Volga with the Neva. The inhabitants (11,590 in 1898) support themselves chiefly by shipping, and partly by the cotton industry. The trade is still considerable.



## W.

**W** is simply double *v*, so far as the form goes; but its value, like its name, is double *u*, and it dates back to a time when *u* and *v* had not been fully differentiated, one into a vowel, the other into a consonant (see under *U*). The oldest form of the letter was *uu*, sometimes *u* only; e.g., *uulfheard*, *uiflriþ*, in the *Liber Vite*, ninth century. Later a peculiar symbol appears, “*p*,” called “*wen*,” this belonged to the runic alphabet, which the Latin superseded; it undoubtedly represented the *w*-sound, but died out about 1300, probably through the influence of French copyists. As early as the eleventh century we find *vv*; later *w*.

The sound denoted by *W* is a voiced labial, formed by rounding the lips so much that the voice cannot escape without friction. We may perhaps mark out three noticeable sounds: (1), the clear vowel *u*; (2), a consonant *u*, equivalent to a “glide” in the diphthongs “*eu*,” “*ou*,” etc., i.e., a sound which is held not long enough to be a vowel as forming a syllable by itself, yet without sufficient friction to make a consonant; (3), the consonant *w*. The difference between (2) and (3) may be illustrated by the initial sounds of French “*oui*,” and English “*we*,” the *ou* in “*oui*” is a consonant *u*; it does not make a syllable distinct from the following *i*, and so it is not a vowel; yet it is quite distinguishable from the *w* in “*we*.” It is probable, from some slight indications, principally in Sanskrit, that both (2) and (3) were sounds of the Indo-European language. But it could hardly be supposed that they would be kept rigorously distinct in the derived languages; they lie too near together.

In English the *w*-sound has commonly held its own. It has survived in writing, even in the almost impossible combination *wr*, as in “*wrath*,” “*write*,” “*wreck*,” “*wretch*,” but the sound is lost. In several Old English words the combination *cw* was exchanged for *gu*, as was natural under French influence, e.g., *quoþ* (O.E. *cwæð*), *quell* (O.E. *cwellan*), *queen* (O.E. *cwēn*).

The digraph *wh* denotes the voiceless sound corresponding to the voiced *w*. In the great majority of cases where it occurs it represents original *hw*, as in *who*, *what* (original base *hwa*); these were originally written, *hwá*, *hwæt*; so also “*while*” was “*hwil*,” “*wheeze*” was “*hwæz*” (Lat. *ques-tus*). In similar combinations with *l* and *r* the *h* has been lost, as in “*loud*,” formerly “*hlúd*” (*ἡλυστός*); *raven* (*hræfn*), *ring* (*hring*); and in *hw* the *h* seems to have robbed the *w* of its voice (a result denoted by the writing *wh*), and then fallen off here also as an independent sound.

**WABASH**, a leading and important city of northern Indiana, and capital of Wabash county, is centrally located on the Wabash river forty-two miles from Ft. Wayne, and within easy distance of Indianapolis, the State capital. The natural resources of the surrounding territory, which embrace natural gas, superior water-power and other valuable auxiliaries, have materially enhanced the value of the city as a manufacturing point,

and concentrated here some of the most influential industries in the State. In addition to these the transportation facilities available are comprehensive and invaluable, including the several lines of the Wabash system, the Cincinnati, Wabash and Michigan road, the Wabash and Erie canal, etc., placing the city in immediate communication with Chicago, St. Louis, Cincinnati, and other points at the East, South, and Northwest, and otherwise adding to its prominence as a business center. The city contains one State and two national banks, two weekly papers, a high school, a female academy, a court-house, eight churches, three hotels, an opera house and public hall, and mercantile houses representing every department of trade. The manufacturing plants consist of machine shops, sash, door, and blind works, school and church furniture, woolen mills, flour and lumber mills, tile works, machinery, toys, brooms, etc., and the work-shops of the Cincinnati, Wabash and Michigan railroad. Gas and electric lights are employed for heating and illuminating purposes, and the water supply, obtained from natural springs, is unsurpassed by that of any city in the country for its purity and volume. In 1880 the population was 3,800. In 1900 it was returned at 8,618.

**WABASH**, a river in the United States, rises in western Ohio, runs west and southwest through Indiana, forming the southern half of its western boundary on the borders of Illinois to the Ohio river, 146 miles from its mouth, is 550 miles long, and navigable by steamers at highwater for 300, and has for its principal branches the Tippecanoe, Big Vermillion, Embarras and White rivers—the last 200 miles long. The Wabash and Erie canal connects the lakes with the Mississippi.

**WACE**, whom most modern writers without any authority call **ROBERT**, but who simply calls himself “**MAISTRE WACE**,” was a clerk (*clerc lisant*) and *trouvère* of the twelfth century, who was born in Jersey, studied at Caen, and received from Henry II. a prebend at Bayeux with other gifts. Nothing is known certainly of the dates of his birth or death; but the one is conjecturally put at about 1120, and the other at 1180. Wace has left two long romances, the *Roman de Brut* and the *Roman de Rou*, both of which are interesting monuments of Norman French, while the latter is a document of some importance for English history, the writer informing us that he got some direct information from his father, who no doubt was not his only source. The *Roman de Brut*, the longer of the two, is in octosyllabic couplets of a facile and somewhat undistinguished kind. It has generally been regarded as a mere versifying of Geoffrey of Monmouth, a point which turns to some extent of course on the vexed question of Geoffrey's own originals. The *Roman de Rou*, a chronicle of the Norman dukes, is much more interesting and much more vigorously written. Wace is not in mere poetical value a very good example of the *trouvères*, but his subjects give him interest, especially for Englishmen.

WACO, a leading city of central Texas and capital of McLennan county, is eligibly located on the west bank of the Brazos river at a point where the Bisque river empties into that stream, 95 miles northeast from Austin and 250 miles north of Galveston. It is in the midst of an extensive agricultural country and the shipping point for large consignments of cotton, wool, cereals, and live stock, and since the advent of railroads has advanced with rapid strides to a conspicuous position commercially and financially among its contemporaries in the southwest. The river, which is spanned at Waco with a wire suspension bridge, is navigable during a major portion of the year, and with the railway system, made up of the Houston and Texas Central, St. Louis, Arkansas and Texas and the Missouri, Kansas and Texas roads, completes a line of transportation accommodations adequate and valuable. Each of the railroads entering the city occupies a separate depot and has made important improvements to meet the requirements of the service. The city contains three national and one State bank with a combined capital of \$560,000, two daily and five weekly papers, also one semi-monthly publication and one monthly magazine, a court house, six hotels, an opera house and public hall, the Waco Female College, the Waco (Baptist) university, established in 1861 and accessible to both sexes, a commercial college, a convent, fourteen churches, and a large collection of stores. The manufacturing industries include planing, flour, and woolen mills, foundry and machine shops, brick works, canning establishments, shirt factories, electric light works, carriage factories, flavoring extracts, fencing, etc., etc., representing large investments and producing an output annually increasing in values. The city is supplied with gas, electric lights, street railways, and other modern appointments, and had in 1900 a population of 20,686 against 14,445 reported in 1890.

WADAL. See SOUDAN.

WADDING, LUKE, ecclesiastical historian, born at Waterford in 1588, emigrated with his parents to Spain in early youth, and from Spain passed to Portugal, to study at the Irish College in Lisbon. While still a student, he entered the order of Cordeliers, or Friars Minim, in 1604, taking the name Michael Angelo of St. Romulus, and his early reputation for learning soon obtained for him a professorship of theology at Salamanca. Philip III. of Spain was anxious to procure the formal definition of the Immaculate Conception B. V. M., which had been left open by the council of Trent, and sent Diego de Torres, bishop of Cartagena, as ambassador to the pope for that purpose. Torres, being himself a Cordelier, made choice of Wadding to accompany him on his embassy. He made Rome his headquarters for the remainder of his life, dying there as principal of the Irish College of St. Isidore in 1657.

WAFERS, as articles of stationery, consist of thin, brittle, adhesive disks, used for securing papers together, and for forming a basis for impressed official seals. Wafers are made of a thin paste of very fine flour, baked between "wafer irons" over a charcoal fire till the thin stratum of paste becomes dry and brittle, and the flour starch is partly transformed into glutinous adhesive dextrin. The cake is cut into round disks with suitable steel punches. Wafers of gelatin are also made.

WAFERS, in relation to the Roman Catholic usage of the Eucharistic communion is the name given (chiefly by non-Catholics) to the thin circular portions of unleavened bread which are used in the Roman Catholic church in the celebration and administration of the Eucharist. In ancient times, the bread and wine for the Eucharist were contributed by the faithful and a place

is found in every Eucharistic service of every known liturgy for this offering still known by the name of OFFERTORY. But in the Latin church for many centuries the bread, which as being unleavened and different from that in common use needed special preparation, has been provided by the clergy, and the practice has been followed of preparing it in the form of thin cakes commonly although not necessarily circular, and frequently impressed with representations of sacred emblems, as the Crucifixion, the Lamb, the Christian monogram, the Crest, and other sacred symbols. The circular form itself is by some ritualistic writers regarded as symbolical, the circle being a figure of perfection. The wafers used in the Roman Catholic church are made of different sizes, the smallest about an inch in diameter for communion of the people, a second considerably larger for the celebration of the mass, and a third still larger to be placed in the MONSTRANCE for the service of benediction or exposition.

WAGER. The law of wagers may be divided for purposes of convenience into two great classes, dealing respectively with procedure and with substantive law. In both classes the legal importance of the wager has tended to diminish. Determination of cases, civil and criminal, by means of wager or analogous forms of procedure, is a characteristic feature of archaic law. The *legis actio sacramenti* at Rome—at first a real, then a fictitious wager—the wager of battle and of law in England, of the highest antiquity in their origin, survived up to a comparatively late period in the history of both legal systems. Wager of battle in England was a mode of trial which was allowed in certain cases, viz., on a writ of right (see WRIT), and on appeals of treason and felony (see APPEAL). Wager of law (*vadiatio legis*) was a right of a defendant in actions of simple contract debt and of detinue. It superseded the ordeal (itself called *lex* in the Assize of Clarendon and other ancient constitutional records). In the wager of law the defendant, with eleven compurgators, appeared in court, and he swore that he did not owe the debt or (in detinue) that he did not detain the plaintiff's chattel; while the compurgators swore that they believed that he spoke the truth. It was an eminently unsatisfactory way of arriving at the merits of a claim, and it is therefore not surprising to find that the policy of the law was in favor of its restriction rather than of its extension. Thus it was not permitted where the defendant was not a person of good character, where the king sued, where the defendant was the executor or administrator of the person alleged to have owed the debt, or in any actions other than those named, even though the cause of action were the same. No wager of law was allowed in *assumpsit*, even though the cause of action were a simple debt. This led to the general adoption of *assumpsit*—proceeding originally upon a fictitious averment of a promise by the defendant—as a means of recovering debts. Another form of the judicial wager in use up to 1845 was the feigned issue by which questions arising in the course of chancery proceedings were sent for trial by jury in a common law court. The plaintiff averred the laying of a wager with the defendant that a certain event was as he alleged; the defendant admitted the wager but disputed the allegation; on this issue was joined. 8 and 9 Vict. c. 109 enabled such questions to be referred by the chancery to the common law courts in a direct manner.

A wager may be defined as a "promise to pay money or transfer property upon the determination or ascertainment of an uncertain event." At common law wagers were legally enforceable, subject to certain rules dictated by considerations of public policy, e.g., that they did not lead to immorality or breach of the peace.



or expose a third person to ridicule. Parliament gradually intervened to confine the common law within narrower limits, both in commercial and non-commercial wagers, and both by general and temporary enactments.

The mere making of a wager is not now illegal, as it was under the earlier statutes; it is simply unenforceable. The winner has no legal remedy against the loser or the stakeholder. The loser can recover his stake where it still remains in the stakeholder's hands or has been paid over to the winner after notice from the loser to the stakeholder not to pay it over. He cannot recover where it has been paid over to the winner without notice. The agent in a wagering contract may have legal rights against his principal, though the principal has none against the other party. Though wagers themselves are now void and not illegal, securities for wagers are still either illegal (as a bet on the result of a game) or void (as a bet on the result of something other than a game, such as a contested election). This difference is important as affecting the question of burden of proof in actions on securities originally given for wagering purposes. Where the consideration is illegal, the plaintiff must show affirmatively that he gave value, but the mere absence of consideration throws on him no such duty. In commercial matters the most important examples are wagering policies of insurance, that is, policies made by persons having no insurable interest, and made void by statute.

In the United States the loser may, by the legislation of some States, recover his money if he sue within a limited time.

**WAGES.** Wages, although one of the most common and familiar terms in economic science, is at the same time one of the most difficult to define accurately. The natural definition is that wages is the "reward for labor," but then we are at once confronted with the difficulty so well stated by Adam Smith: "The greater part of people understand better what is meant by a quantity of a particular commodity than by a quantity of labor; the one is a plain, palpable object, the other an abstract notion, which, though it can be made sufficiently intelligible, is not altogether so natural and obvious." It is, however, only when we refer to the list of "occupations" in any civilized country that we can really form an adequate idea of the variety of classes to which the term labor, as defined by Mill, may be extended. Accordingly it seems natural to adopt as the preliminary definition of "wages" something equivalent to that of Prof. Walker in his work on the *Wages Question* (the best book on the subject as a whole), viz., "the reward of those who are employed in production with a view to the profit of their employers and are paid at stipulated rates." It may be observed that by extending the meaning of production, as is now done by most economists, to include all kinds of labor, and by substituting benefit for profit, this definition will include all grades of wages. Having thus limited the class of those who earn "wages," the next point is to consider the way in which the wages ought to be measured. The most obvious method is to take as the rate of *time-wages* the amount of *money* earned in a certain *time*, and as the rate of *task-wages* the amount of *money* obtained for a given amount of *work* of a given quality; and in many inquiries this rough mode of measurement is sufficient.

Variations in the purchasing power of money may be due in the first place to causes affecting the general level of prices in a country. Such, for instance, is a debasement of the coinage. Professor Thorold Rogers has ascribed much of the degradation of labor which ensued to this fact; and Lord Macaulay has given a graphic

account of the evils suffered by the laboring classes prior to the recoinage of 1696. The issues of inconvertible paper notes in excess of the national requirements have frequently caused a disturbance of real wages, and it is certain that in this case wages as a rule do not rise so quickly as commodities. A general rise in prices due to great discoveries of the precious metals would, if nominal wages remained the same, of course cause a fall in real wages. There are, however, good grounds for supposing that the stimulus given to trade in this case would raise wages at least in proportion. Similarly it is possible that a general fall in prices, owing to a relative scarcity of the precious metals, may lower the prices of commodities before it lowers the price of labor, in which case there is a rise in real wages. In the controversy as to the possible advantages of bimetalism this is one of the points most frequently discussed.

In a systematic treatment of the wages question it would be natural to examine next the causes which determine the general rate of wages in any country at any time. This is a problem to which economists have given much attention, and is one of great complexity. But, however difficult it may be to obtain an accurate measure of the general rate of wages for practical purposes, there can be no doubt as to the value and necessity of the conception in the theory of political economy. For, as soon as it is assumed that industrial competition is the principal economic force in the distribution of the wealth of a community, and this is in reality the fundamental assumption of modern economic science, a distinction must be drawn between the most general causes which affect all wages, and the particular causes which lead to differences of wages in different employments. In other words, the actual rate of wages obtained in any particular occupation depends partly on causes affecting that group compared with others, and partly on the general conditions which determine the relations between labor, capital, and production over the whole area in which the industrial competition is effective. Thus the theory of the wages question consists of two parts, or gives the answers to two questions:—(1) What are the causes which determine the general rate of wages? (2) Why are wages in some occupations and at some times and places above or below this general rate?

With regard to the first question, Adam Smith, as in almost every important economic theory, gives an answer which combines two views which were subsequently differentiated into antagonism. "The produce of labor constitutes the natural recompense or wages of labor," is the opening sentence of his chapter on wages. But then he goes on to say that "this original state of things, in which the laborer enjoyed the whole produce of his own labor, could not last beyond the first introduction of the appropriation of land and the accumulation of stock." And he thus arrives at the conclusion that "the demand for those who live by wages, it is evident, cannot increase but in proportion to the increase of the *funds* which are *destined* to the payment of wages." This is the germ of the celebrated wages-fund theory which was carried to an extreme by J. S. Mill and others. The wages-fund theory as a real attempt to solve the wages question may be resolved into three propositions. (1) In any country at any time there is a determinate amount of capital unconditionally destined for the payment of labor. This is the wages-fund. (2) There is also a determinate number of laborers who must work independently of the rate of wages—that is, whether the rate is high or low. (3) The wages-fund is distributed among the laborers solely by means of competition, masters competing with one another for labor, and laborers with



one another for work, and thus the average rate of wages depends on the proportion between wage-capital and population. It follows then, according to this view, that wages can only rise either owing to an increase of capital or a diminution of population, and this accounts for the exaggerated importance attached by Mill to the Malthusian theory of population. It also follows from the theory that any restraint of competition in one direction can only cause a rise of wages by a corresponding fall in another quarter, and in this form it was the argument most frequently urged against the action of trade unions.

As regards the first of these propositions—that there is always a certain amount of capital destined for the employment of labor—it is plain that this destination is not really unconditional. In a modern society whether or not a capitalist will supply capital to labor depends on the rate of profit expected, and this again depends proximately on the course of prices. But the theory as stated can only consider profits and prices as acting in an indirect roundabout manner upon wages. Nor is the second proposition perfectly true, namely, that there is always a certain amount of laborers who must work independently of the rate of wages. For the returns of pauperism and other statistics show that there is always a proportion of “floating” labor sometimes employed and sometimes not. Still, on the whole, the second proposition is a much more adequate expression of the truth than the first; for labor cannot afford to lie idle or to emigrate so easily as capital.

The third proposition, that the wages-fund is distributed solely by competition, is also found to conflict with facts. Competition may be held to imply in its positive meaning that every individual strives to attain his own economic interest regardless of the interest of others. In some cases this end may be attained most effectively by means of combination, as, for example, when a number of people combine to create a practical monopoly. Again, the end may be attained by leaving the control to government, or by obeying the unwritten rules of long-established custom. But these methods of satisfying the economic instinct are opposed to competition in the usual sense of the term, and certainly as used in reference to labor. Thus, on the negative side competition implies that the economic interests of the persons concerned are attained neither by combination, nor by law, nor by custom. The most important omission of the wages-fund theory is that it fails to take account of the quantity produced and of the price obtained for the product. If we bring in these elements, we find that there are several other causes to be considered besides capital, population, and competition. There are, for example, the various factors in the efficiency of labor and capital, in the organization of industry, and in the general condition of trade.

An industrial society may be regarded, in the first place, as a great productive machine turning out a vast variety of products for the consumption of the members of the society. The distribution of these products, so far as it is not modified by other social and moral conditions, depends upon the principle of “reciprocal demand.” In a preliminary rough classification we may make three groups—the owners of land and natural products, the owners of capital or reserved products and instruments, and the owners of labor. To obtain the produce requisite even for the necessary wants of the community a combination of these three groups must take place, and the relative reward obtained by each will vary in general according to the demands of the others for its services. Thus, if capital, both fixed and circulating, is scanty, while labor and land are both abundant, the reward of capital will be high relatively

to rent and wages. This is well illustrated in the high rate of profits obtained in early societies. According to this view of the question the aggregate amount paid in wages depends partly on the general productiveness of all the productive agents and partly on the relative power of the laborers as compared with the owners of land and capital. Under a system of perfect industrial competition the general rate of wages would be so adjusted that the demand for labor would be just equal to the supply at that rate. If all labor and capital were perfectly uniform it would not be necessary to carry the analysis further, but as a matter of fact, instead of two great groups of laborers and capitalists, we have a multitude of subdivisions all under the influence of reciprocal demand. Every sub-group tries to obtain as much as possible of the general product, which is practically always measured in money. The determination of relative wages depends on the constitution of these groups and their relation to one another. Under any given social conditions there must be differences of wages in different employments, which may be regarded as permanent until some change occurs in the conditions; in other words, certain differences of wages are stable or normal, while others depend simply on temporary fluctuations in demand and supply. First of all, a broad distinction must be drawn between the natural and artificial causes of difference, or, in Adam Smith's phraseology, between those due to the nature of the employments and those due to the policy of Europe.

In addition to these so-called natural causes of difference, are those arising from law, custom, or other so-called artificial causes. They may be classified under four headings. (1) Certain causes artificially restrain industrial competition by limiting the number of any particular group. Up to the close of last century, and in many instances to a much later date, the regulations of guilds and corporations limited the numbers in each trade. (2) In some employments, however, law and custom tend unduly to increase the amount of competition. This is to a great extent the case in the church and the scholastic professions owing to the large amount of charitable education. In the same way state-aided education of a commercial and technical kind may result in lowering the rates (relatively) of the educated business classes. It is said that one reason why the Germans replace Englishmen in many branches is that, having obtained their education at a low rate, there are more of them qualified, and consequently they accept lower wages. The customary idea that the position of a clerk is more genteel than that of an artisan accounts largely for the excessive competition in the former class, especially now that education is practically universal. (3) In some cases law and custom may impede or promote the circulation of labor. Differences in wages in different parts of the same country and in different occupations are still largely due to impediments in the way of the movement of labor, which might be removed or lessened by the government making provisions for migration or emigration. (4) On many occasions in the past the law often directly interfered to regulate wages. The Statute of Laborers, passed immediately after the Black Death, was an attempt in this direction, but it appears to have failed.

But, although the direct intervention of the state, with the view of raising the nominal rates of wages, is, according to theory and experience, worse than useless, still, when we consider real wages in the evident sense of the term, there seems to be an almost indefinite scope for state interference. The analysis previously given of real wages shows that logically all these improvements in the conditions of labor, by diminishing the “quantity of labor” involved in work, are equivalent to a real rise in wages. Experience has also shown that the state may



advantageously interfere in regulating the methods of paying wages.

The power of trade unions in regulating wages is in most respects analogous in principle to that of legislation just noticed. Nominal wages can only be affected within comparatively narrow limits, depending on the condition of trade and the state of prices, while in many cases a rise in the rate in some trades or places can only be accomplished by a corresponding depression elsewhere. At the same time, however, it can hardly be questioned that through the unions nominal wages have on the whole risen at the expense of profits—that is to say, that combinations of laborers can make better bargains than individuals. The unions can, moreover, look after the interests of their members in many ways which improve their general condition or raise the real rate of wages, and when nominal wages have attained a natural maximum, and some method of arbitration or sliding-scale is in force, this indirect action seems the principal function of trade unions. Machinery affects the condition of the working-classes in many ways. The most obvious mode is the direct substitution of machinery for labor. It is clear that any sudden and extensive adoption of labor-saving machinery may, by throwing the laborers out of employment, lower the rate of wages, and it is easy to understand how riots arose repeatedly owing to this cause. But as a rule the effect of labor-saving machinery in diminishing employment has been greatly exaggerated, because two important practical considerations have been overlooked. In the first place, any radical change made in the methods of production will be only gradually and continuously adopted throughout the industrial world; and in the second place these radical changes, these discontinuous leaps, tend to give place to advances by small increments of invention.

It is clear on taking a balance that the great increase in population in this century has been largely caused, or rather rendered possible, by the increased use of labor-saving machinery. The way in which the working classes were at first injured by the adoption of machinery was not so much by a diminution in the number of hands required as by a change in the nature of the employment. Skilled labor of a certain kind lost its peculiar value, and children and women were able to do work formerly only done by men. But the principal evils resulted from the wretched conditions under which, before the factory legislation, the work was performed; and there is good reason to believe that a deterioration of the type of laborer, both moral and physical, was effected. It is, however, a mistake to suppose that on the whole the use of machinery tends to dispense with skill. On the contrary, everything goes to prove that under the present system of production on a large scale there is on the whole far more skill required than formerly. Taking the most general view of the subject, the more there is produced or acquired in exchange from other countries, so much more is there to consume. But this very improvement in the production and acquisition of wealth facilitates the creation of new capital, and increases the rate of accumulation, and thus there is a greater intensity in the demand of capital for labor, and the rate of profits falls while the rate of wages rises.

WAGNER, RUDOLPH, anatomist and physiologist, was born in June, 1805, at Baireuth, where his father was a professor in the gymnasium. He began the study of medicine at Erlangen in 1820, and finished his curriculum in 1826 at Würzburg, where he had attached himself mostly to Schönlein in medicine and to Heusinger in comparative anatomy. Aided by a public stipendium, he spent a year or more studying in the Jar-

din des Plantes, under the friendly eye of Cuvier, and in making zoological discoveries at Cagliari and other places on the Mediterranean. On his return he set up in medical practice at Augsburg, whither his father had been transferred; but in a few months he found an opening for an academical career, on being appointed prosector at Erlangen. In 1832 he became full professor of zoölogy and comparative anatomy there, and held that office until 1840, when he was called to succeed Blumenbach at Göttingen. At the Hanoverian university he remained till his death in 1864, being much occupied with administrative work as pro-rector for a number of years, and for nearly the whole of his residence troubled by ill-health (hereditary phthisis). In 1860 he gave over the physiological part of his teaching to a new chair, retaining the zoological, with which his career had begun. While at Frankfurt, on his way to examine the Neanderthal skull at Bonn, he was struck with paralysis, and died at Göttingen a few months later (May, 1864) in his fifty-ninth year.

WAGNER, WILHELM RICHARD, dramatic composer and reformer of the musical drama, was born at Leipsic on May 22, 1813. In 1822 he was sent to the Kreuzschule at Dresden. In 1828 he was removed to the Nicolaischule at Leipsic. His *First Symphony* was performed at the Gewandhaus concerts in 1833, and in the following year he was appointed conductor of the opera at Magdeburg. The post was an unprofitable one, and Wagner's life at this period was very unsettled. He had composed an opera called *Die Feen*, adapted from Gozzi's *La Donna Serpente*, and another *Das Liebesverbot*, founded on Shakespeare's *Measure for Measure*, but these were never performed, and for some considerable time the young composer found it difficult to obtain a hearing.

In 1836 Wagner married, Fräulein Wilhelmina Planer, an actress at the theater at Königsberg. He had accepted an engagement there as conductor, but, the lessee becoming bankrupt, the scheme was abandoned in favor of a better appointment at Riga. Accepting this, he remained actively employed until 1839, when he made his first visit to Paris, taking with him an unfinished opera, for which he had himself prepared a libretto, upon the lines of Lord Lytton's novel *Rienzi*. The venture proved a most unfortunate one. Wagner was unsuccessful in all his attempts to achieve popularity, and *Rienzi*, destined for the Grand Opéra, was relentlessly rejected. He completed it, however, and in 1842 it was produced at the court theater in Dresden, where, with Madame Schroeder Devrient and Herr Tichatschek in the principal parts, it achieved an immense success, and undoubtedly laid the foundation of the great composer's fame. Though, in completing *Rienzi*, Wagner had put forth all the strength he then possessed, that work was far from representing his preconceived ideal. This he now endeavored to embody in *Der Fliegende Holländer*, for which, as before, he composed both the libretto and the music. The piece was warmly received at Dresden, January 2, 1843; but its success was by no means equal to that of *Rienzi*.

Wagner was now fairly launched upon his arduous career. On February 2, 1843, he was formally installed as hofkapellmeister at the Dresden theater, and he celebrated the event by at once beginning the composition of a new opera. For the subject of this he selected the legend of Tannhäuser, collecting his materials from the ancient "Tannhäuser-Lied," the *Volksbuch*, Tieck's poetical *Erzählung*, Hoffman's story of *Der Sängerkrieg*, and the mediæval poem on *Der Wartburgkrieg*. This last-named legend introduces the incidental poem of "Lohe-rangrin," and led to the study of Wolfram von Eschenbach's *Parzival* und *Titarel*, with strange effect upon



Wagner's subsequent inspirations. But for the present he confined himself to the subject in hand; and on October 19, 1845, he produced his *Tannhäuser*, with Madame Schroeder Devrient, Fräulein Johanna Wagner, Herr Tichatschek, and Herr Mitterwurzer in the principal parts. Notwithstanding this powerful cast, the success of the new work was not brilliant, for it carried still farther the principles embodied in *Der Fliegende Holländer*, and these principles were not yet understood either by the public or the critics. But Wagner boldly fought for them, and would probably have gained the victory much sooner than he did had he not taken a fatally prominent part in the political agitations of 1849, after which his position in Dresden became untenable. In fact, after the flight of the king, and the subsequent suppression of the riots by troops sent from Berlin, a formal act of accusation was drawn up against him, and he had barely time to escape to Weimar, where Liszt was at that moment engaged in preparing *Tannhäuser* for performance at the court theater, before the storm burst upon him with a violence that seriously alarmed both his friends and himself. Without the loss of a moment Liszt procured a passport, and escorted his guest as far as Eisenach. Wagner proceeded in all haste to Paris, and thence to Zurich, where, with few interruptions, he lived in strict retirement until the autumn of 1859. And it was during this period that most of his literary productions—including *Oper und Drama, Ueber das Dirigiren, Das Judenthum in der Musik*, and other like works—were given to the world. We have spoken of Wagner's incidental study of the legends of "Lohe-rangrin" and "Parzival" during the time that he was preparing the libretto of *Tannhäuser*. After the production of that opera he again recurred to the subject, chose *Lohengrin* as the title for his next opera, and elaborated the conception with his usual minute and affectionate care, carrying out his new principles somewhat farther than he had hitherto ventured to do.

*Lohengrin* was produced at Weimar, under Liszt's direction, on August 28, 1850. It was a severe trial to Wagner not to be permitted to hear his own work, but he knew that all that could be done for it was done, and he responded to Liszt's appeal for a new creation by meditating upon his famous tetralogy, *Der ring des Nibelungen*, the four divisions of which—*Das Rheingold, Die Walküre, Siegfried, Götterdämmerung*—though each as long as an ordinary opera, are in reality but parts of one colossal whole. At this time, also, he first began to lay out the plan of *Tristan und Isolde*, and to think over the possibilities of *Parsifal*.

It was during the period of his exile that Wagner matured his plans and brought his style to its culminating point of perfection; but it was not until some considerable time after his return that any of the works he then meditated were placed upon the stage. In 1855 he accepted an invitation to London, where he conducted the concerts of the Philharmonic Society with great success. In 1857 he completed the libretto of *Tristan und Isolde* at Venice, taking as the basis of his scheme the Celtic legend modified by Gottfried of Strasburg's mediæval treatment of the subject (see GOTTFRIED and ROMANCE). But the music was not completed till 1859. In that year Wagner visited Paris for the third time; and, after much negotiation, in which he was nobly supported by the Prince and Princess Metternich, *Tannhäuser* was accepted at the Grand Opéra. Magnificent preparations were made for its production. It was rehearsed 164 times, 14 times with the full orchestra; and the scenery, dresses, and stage accessories generally were placed entirely under the composer's direction. More than \$40,000 was expended upon the venture; and the work was performed for the first time in the

French language on March 13, 1861. But, for political reasons, a powerful clique determined to suppress both the piece and its composer. A scandalous riot was inaugurated by the members of the Parisian Jockey Club, and so great was the disturbance that after the third representation the opera was withdrawn to reappear no more. Wagner was broken-hearted. But the Princess Metternich continued to befriend him, and, in 1861, he received, through her intercession, a pardon for his political offenses, with permission to settle in any part of Germany, except Saxony. Even this restriction was removed in 1862.

Wagner now settled for a time in Vienna, where *Tristan und Isolde* was accepted, but abandoned after fifty-seven rehearsals, through the incompetence of the tenor, Herr Ander. *Lohengrin* was, however, produced on May 15, 1861, when Wagner heard it for the first time. In 1863 he published the libretto of *Der Ring des Nibelungen*. *Der Fliegende Holländer* was performed at Munich in 1864; and on June 10, 1865, *Tristan und Isolde* was produced for the first time, with Herr and Frau Schnorr in the principal parts. *Die Meistersinger von Nürnberg*, first sketched in 1845, was completed in 1867, and first performed at Munich under the direction of Herr Von Bülow, June 21, 1868. The success of the opera was very great.

After this Wagner resided permanently at Baireuth, in a house named *Wahnfried*, in the garden of which he himself built the tomb in which his remains now rest. Meantime *Der Ring des Nibelungen* was rapidly approaching completion, and on August 13, 1876, the introductory portion, *Das Rheingold*, was performed at Baireuth for the first time, followed on the 14th by *Die Walküre*, on the 16th by *Siegfried*, and on the 17th by *Götterdämmerung*. The success of the work, the story of which is founded on the famous *Nibelungenlied*, was very great; and the performance, directed by Herr Hans Richter, excited extraordinary attention.

Wagner's next, last, and perhaps greatest work was *Parsifal*, based upon the legend of the Holy Grail. The libretto was complete before his visit to London in 1877. The music was begun in the following year, and completed at Palermo January 13, 1882. The first sixteen performances took place at Baireuth in July and August, 1882, under Wagner's own directing, and fully realized the expectations that had been formed of them. Toward the close of 1882 his health began to decline rapidly. He spent the autumn at Venice, in the Palazzo Vendramini, on the Grand canal, and was well enough on Christmas Eve to conduct his own first symphony (composed in 1833), at a private performance given at the Liceo Marcello. But late in the afternoon of February 13, 1883, he was seized with a sudden attack of faintness, and on that evening he calmly breathed his last.

WAGTAIL, a little bird that delights us equally by its neat coloration, its slender form, its nimble actions, and its sprightly notes. The Pied Wagtail of authors, it is the *Motacilla lugubris* of modern ornithology, or *M. yarrelli* of some writers, and has for its very near ally the *M. alba* of Linnaeus, which has a wide range in Europe, Asia, and Africa. Eleven other more or less nearly-allied species are recognized by Mr. Sharpe, who has laboriously treated the complicated synonymy of this group of birds. Eight of these are natives of Asia, several of them wintering in India, and one, *M. ocularis*, even occasionally reaching the west coast of North America, while the rest are confined to Africa. No colors but black, gray, or white enter into the plumage of any of the foregoing; but in the species peculiar to Madagascar, *M. flaviventris*, as well as in that which it much resembles, the so-called Gray Wagtail of Britain, *M. melan-*



ope (*M. boarula* or *sulphurea* of some authors), a great part of the lower surface is yellow.

WAHABEES, or WAHHABIS. See ARABIA.

WAINEWRIGHT, THOMAS GRIFFITHS, journalist and subject-painter, was born at Chiswick, England, in October, 1794. In 1810 he entered on a literary life, and began to write for *The Literary Pocket-Book*, *Blackwood's Magazine*, and *The Foreign Quarterly Review*. He is, however, most definitely identified with *The London Magazine*, to which, from 1820 to 1823, he contributed some smart but most flippant art and other criticisms, under the signatures of "James Weathercock," "Mr. Bonmot," and "Herr Vinkbooms." He also practiced as an artist, designing illustrations to Chamberlayne's poems, and from 1821 to 1825 exhibiting in the Royal Academy figure pictures, including a *Romance from Undine*, *Paris in the Chamber of Helen*, and the *Milk Maid's Song*. He died of apoplexy about the year 1852, in Hobart Town hospital, whither he had had been transported for forgery in 1837.

WAITZ, GEORG, one of the most distinguished of modern German historians, was born at Flensburg, in the duchy of Schleswig, on October 9, 1813. On graduating at Berlin in August, 1836, Waitz went to Hanover to assist Pertz in the great national work of publishing the *Monumenta Germanie Historica*; and the energy and learning he displayed in that position won him a summons to the chair of history at Kiel in 1842. The young professor soon began to take an interest in politics, and in 1846 entered the provincial diet as representative of his university. His leanings were strongly German, so that he became somewhat obnoxious to the Danish Government, a fact which made an invitation in 1847 to become professor of history at Göttingen peculiarly acceptable. In the autumn of 1849 Waitz began his lectures at Göttingen. At the same time Waitz's pen was not idle, and his industry is to be traced in the list of his works and in the *Proceedings* of the different historical societies to which he belonged. In 1875 Waitz removed to Berlin to succeed Pertz as principal editor of the *Monumenta Germanie Historica*. In spite of advancing years the new editor threw himself into the work with all his former vigor, and took journeys to England, France, and Italy to collate works preserved in these countries. He died at Berlin on May 24, 1886.

WAKE (from the Anglo-Saxon *wacian*, to watch), is the English equivalent of the ecclesiastical VIGIL, (*q.v.*) In early times the day was considered as beginning and ending at sunset; Sundays and holidays, in consequence, began not on the morning but on the previous evening (the eve of the holiday) and worshippers then repaired to the churches for worship. The following day was spent in amusement. Each church when consecrated was dedicated to a saint, and on the anniversary of that day was kept the parish wake. In many places was a second wake on the birthday of the saint. On these occasions the floor of the church was strewn with rushes and flowers, and the altar and pulpit were decked with boughs and leaves. In the churchyard tents were erected to supply cakes and ale for the use of the crowd on the morrow which was kept as a holiday. The second part of the festival seems to have made the most impression on the popular mind, and the word wake came to be applied to it. Crowds resorted to wakes in neighboring parishes, hawkers or merchants were attracted by the crowd, and ultimately they became mere fairs or markets, little under the influence of the church, and disgraced by scenes of indulgence and riot. A statute was afterward made which forbade fairs and markets in country churchyards, but this law was not strictly enforced. Henry VIII., however, effected a

more important change; he ordered the day of dedication to be kept in all the parishes on the first Sunday in October, and that festival gradually ceased to be observed. The Saint's day festivals, however, were not affected and are still kept in many English parishes under the name of "country wakes." A lyke-wake or liche-wake is the watching of a dead body all night by the friends and neighbors of the deceased. The custom no doubt originated in superstitious fear either of passing the night alone with a dead body, or of its being interfered with by evil spirits. It must at all times have led to scenes ill suited to the occasion, and it now survives only among the lower classes in Ireland.

WAKEFIELD, a municipal and parliamentary borough and market-town of England, in the West Riding of Yorkshire, of which division it is the shire-town, is pleasantly situated on the Calder, and on the Lancashire and Yorkshire, Great Northern, and Northeastern railway lines, nine miles south of Leeds and 175½ miles from London. Formerly Wakefield was the great emporium of the cloth manufacture in Yorkshire, but it has within the present century been superseded in this respect by Leeds. Although its manufacturing importance is now small in comparison with that of several other Yorkshire towns, it possesses large mills for spinning worsted and carpet yarns, cocoa fiber, and China grass. It has also rag-crushing mills, chemical works, soap-works, and iron-works; and there are a large number of collieries in the neighborhood. Wakefield is the chief agricultural town in the West Riding, and has one of the largest corn-markets in the north of England. The population of the municipal and parliamentary borough (area 1,553 acres) in 1901 was 45,854. By the Act of 1885 the parliamentary borough was enlarged by the addition of the suburb of Bellevue.

WAKEFIELD, EDWARD GIBBON, colonial statesman, was born in London, March 20, 1796, of an originally Quaker family. In consequence of an elopement he was sentenced to penal servitude, and it was thus that his attention was turned to the subject of the colonies and the evils attendant on the prevailing system of government of the settlements. He then began to write on these and cognate subjects, and for many years was a leading authority on the subjects of emigration and colonization. In 1833 he published anonymously *England and America*, a work primarily intended to develop his own colonial theory, which is done in the appendix entitled "The Art of Colonization." In 1836 he published the first volume of an edition of Adam Smith, which he did not complete. In 1837 the New Zealand Association was established, and he became its managing director. Scarcely, however, was this great undertaking fairly commenced when he accepted the post of private secretary to Lord Durham on the latter's appointment as special commissioner to Canada. For several years Wakefield continued to direct the New Zealand Company. In 1846 Wakefield, exhausted with labor, was struck down by apoplexy, and spent more than a year in complete retirement, writing during his gradual recovery his *Art of Colonization*. In 1853, after the grant of a constitution to New Zealand, he took up his residence in the colony, and immediately began to act a leading part in colonial politics. In 1854 he appeared in the first New Zealand parliament as extra-official adviser of the acting governor, a position which excited great jealousy, and as the mover of a resolution demanding the appointment of a responsible ministry. It was carried unanimously, but difficulties prevented its being made effective until after the mover's retirement from political life. In December, 1854, after a fatiguing address to a public meeting, followed by prolonged exposure to a southeast gale, his constitu-



tion entirely broke down. He spent the rest of his life in retirement, dying at Wellington on May 16, 1862.

WAKEFIELD, GILBERT, classical scholar, theologian, and politician, was born at Nottingham, February 22, 1756. He became fellow of his college in 1776, and in 1778 was ordained by the bishop of Peterborough. He held curacies for a short time at Stockport and Liverpool, but in 1779 quitted the church and accepted the post of classical tutor at the Nonconformist academy at Warrington. During this short period he published translations of Matthew and the first epistle to the Thessalonians, and treatises on inspiration and baptism. His most important production at this time was the *Silva Critica*, "illustrating the Scriptures by light borrowed from the philology of Greece and Rome." His next important work was a new translation of the New Testament, retaining as much of the language of the Authorized Version as he deemed consistent with accuracy. This soon reached a second edition. He commenced an edition of Pope, which he was prevented from completing by the competition of Warton, but the notes were published separately. His edition of *Lucretius*, a work of high pretensions and little solid performance, appeared in 1796. After assailing with equal acerbity writers so diverse in their principles as Wilberforce and Thomas Paine, he in January, 1798, "employed a few hours" in drawing up a reply to Bishop Watson's *Address to the People of Great Britain*. These few hours procured him two years' imprisonment in Dorchester jail. He was convicted in February, 1799, of having published a seditious libel. The sympathy excited for him, however, led to a subscription, amounting to no less than \$25,000, and forming a sufficient provision for his family upon his death, which occurred September 9, 1801, shortly after his liberation.

WAKEFIELD, an important town in Wakefield township, Middlesex county, Mass., is located on the Boston and Maine railroad ten miles from Boston, with which it is also connected by other mediums of transportation. The town contains two weekly papers, three banks, seven churches, a high school, a public hall and other incidents of growth, but its chief importance is due to its prominence as a manufacturing town. It contains no less than a dozen large and thoroughly equipped boot and shoe factories and is extensively engaged in the manufacture of reed chairs and furniture, rattan goods, chair cane, bamboo easels, novelties, etc. Besides these there are carriage repositories, foundries, shoe-tool works, piano factories, and foundries for the construction of machines for generating gas. The population in 1900 was returned at 9,290. The town was formerly known as South Reading and is connected with Salem by rail.

WAKIDI. See TABARI.

WALACHIA. See ROUMANIA and VLACHS.

WALAFRID STRABO (or STRABUS, *i. e.*, "squint-eyed"), was born in Germany (808-9), but the exact place is unknown. His taste for literature early displayed itself, and by the age of eighteen he had already achieved a reputation among the learned men of his age. He was educated at the monastery of Reichenau, near Constance, where he had for his teachers Tatto and Wettin, to whose visions he devotes one of his poems. Later on in life (*c.* 826-829) he passed to Fulda, where he studied for some time under Hrabanus Maurus before returning to Reichenau, of which monastery he was made abbot in 838. There is a story, based, however, on no good evidence, that Walafred devoted himself so closely to letters as to neglect the duties of his office, owing to which he was expelled from his house; but, from his own verses, it seems that the real cause of his flight to Spire was that, notwith-

standing the fact that he had been tutor to Charles the Bald, he espoused the side of his elder brother Lothair on the death of Louis the Pious in 840. He was, however, restored to his monastery in 842, and died August 16, 849, on an embassy to his former pupil. His epitaph was written by Hrabanus Maurus, whose elegiacs praise him for being the faithful guardian of his monastery.

WALCH, the name of a family of scholars.

I. JOHANN GEORG WALCH was born at Meiningen in 1693, died in 1775, and studied at Leipzig and Jena under Olearius and Buddæus. From 1716 he was professor at Jena of philosophy, rhetoric, and poetry successively, and afterward (from 1724) of theology. His university lectures and published works ranged over the wide fields of ecclesiastical history in its various branches, particularly the literature and the controversies of the church, dogmatics, ethics, and pastoral theology.

II. JOHANN ERNST IMMANUEL WALCH, son of the above, born at Jena in 1725, became professor of philosophy in the university in 1750, and of rhetoric and poetry in 1759. He died in 1778. He was distinguished for his philological, antiquarian, and mineralogical acquirements.

III. CHRISTIAN WILHELM FRANZ WALCH, younger brother of J. E. I. Walch, was born at Jena, December 25, 1726. He was educated at Jena under his father's direction, and as early as 1745-1747 lectured in the university in branches of exegesis, philosophy, and history. He then traveled with his brother J. E. I. Walch for a year through the Continent, making the acquaintance of the learned men of each country. On his return he was made professor of theology in Jena, but in 1753 he accepted an invitation to Göttingen, where he spent his life as professor of theology. His permanent place among learned theologians rests on his works on ecclesiastical history. He here holds the third place in the important trio Semler, Mosheim, Walch. Semler was much his superior in originality and boldness, and Mosheim in clearness, method, and elegance. But to his wide, deep, and accurate learning, to his conscientious and impartial examination of the facts and the authorities at first hand, and to "his exact quotation of the sources and works illustrating them and careful discussion of the most minute details" all succeeding historians are deeply indebted. He died in 1784.

IV. CARL FRIEDRICH WALCH, brother of the last named, was professor of jurisprudence at Jena, and the author of several valuable legal works. He was born in 1734 and died at Jena in 1799. His son, Georg Ludwig, born in 1785, was for a time professor in the Kloster gymnasium of Berlin and afterward in the university of Greifswald. He edited valuable editions of Tacitus' *Agricola* and *Germania*. He died 1838.

WALCHEREN. See ZEALAND.

WALDECK-PYRMONT, a small principality in the northwest of Germany, is the eighteenth factor of the German empire in point of area, and the twenty-fourth in point of population. It consists of two separate portions lying about thirty miles apart, *viz.*, the county of Waldeck, embedded in Prussian territory between the provinces of Westphalia and Hesse-Nassau, and the principality (fürstenthum) of Pyrmont, farther to the north, between Lippe, Brunswick, and Hanover. The united area is 433 square miles, or about half the size of Cambridgeshire in England, and the united population in 1901 was 57,918. Agriculture and cattle rearing are the main resources of the inhabitants in both parts of the principality, but the soil is nowhere very fertile. Rye is the principal crop; but oats, potatoes,



and flax are also grown in considerable quantities. Iron, slate, and building-stone are worked at various points, and, along with horses, cattle, sheep, pigs, wool, and timber, form the chief exports. Trade and manufactures are much retarded by the almost complete isolation of the country from railways.

The capital and the residence of the prince is Arolsen (2,442 inhabitants) in Waldeck; twelve smaller "towns" and about 100 villages are also situated in the county. The only town in Pymont is Bad Pymont, with about 1,500 inhabitants, at one time a highly fashionable watering-place on account of its chalybeate and saline springs. Wildungen is also a spa of some repute. The inhabitants to the north of the Eder are of Saxon stock; to the south of Franconium—a difference which is distinctly marked in dialect, costumes, and manners. Nearly all are Protestants. In 1902 the population was 58,204.

**WALDENBURG**, an active industrial town in Prussian Silesia, is situated on the Polnitz, thirty-nine miles southwest of Breslau. Among the chief industrial establishments are a large porcelain and stoneware factory, extensive fire-clay works, glass works, and a china-painting establishment; and there are numerous flax spinneries and linen factories in the neighborhood. The town, which received municipal rights in the sixteenth century, had a population of 14,999 in 1901. There are villages of the same name in Saxony and Württemberg.

**WALDENSES**, *THE*, a name given to the members of an heretical sect which arose in the south of France about 1170. The history of the sects of the Middle Ages is obscure, because the earliest accounts of them come from those who were concerned in their suppression, and were therefore eager to lay upon each of them the worst enormities which could be attributed to any. In later times the apologists of each sect reversed the process, and cleared that in which they were interested at the expense of others. So far as can be discovered the heretical sects of the Middle Ages rested upon a system of Manichæism which was imported into Europe from the East (see **MANICHÆISM**). Its presence in Europe can first be traced in Bulgaria soon after its conversion in 862, where the struggle between the Eastern and Western churches for the new converts opened a way for the more hardy speculations of a system which had never entirely disappeared, and found a home among the Paulicians in Armenia. The name of Cathari, taken by the adherents of this new teaching, sufficiently shows the Oriental origin of their opinions, which spread from Bulgaria among the Slavs, and followed the routes of commerce into central Europe. The earliest record of their presence there is the condemnation of ten canons of Orleans as Manichees in 1022, and soon after this we find complaints of the prevalence of heresy in northern Italy and in Germany.

The system of Catharism recognized two classes of adherents, *credentes* and *perfecti*. The *perfecti* only were admitted to its esoteric doctrines and to its superstitious practices. To the ordinary men it seemed to be a reforming agency, insisting on a high moral standard, and upholding the words of Scripture against the traditions of an overgrown and worldly church. Its popular aim and its rationalistic method made men overlook its real contents, which were not put clearly before them. It may be said generally that Catharism formed the abiding background of mediæval heresy. Its dualistic system and its anti-social principles were known only to a few, but its anti-ecclesiastical organization formed a permanent nucleus round which gathered a great deal of political and ecclesiastical discontent. The result was that in the beginning of the thirteenth

century there was a tendency to class all bodies of heretics together: partly their opinions had coalesced; partly they were assumed to be identical.

Most of these sects were stamped out before the period of the Middle Ages came to a close. The Waldenses, under their more modern name of the Vaudois, have survived to the present day in the valleys of Piedmont, and have been regarded as at once the most ancient and the most evangelical of the mediæval sects. As regards their antiquity, the attempts to claim for them an earlier origin than the end of the twelfth century can no longer be sustained. They rested upon the supposed antiquity of a body of Waldensian literature, which modern criticism has shown to have been tampered with. This discovery did away with the ingenious attempts to account for the name of Waldenses from some other source than from the historical founder of the sect, Peter Waldo or Valdez.

Putting these views aside as unsubstantial, we will consider the relation of the Waldenses as they appear in actual history with the sects which preceded them. Already in the ninth century there were several protests against the rigidity and want of spirituality of a purely sacerdotal church. In 1110 an apostate monk in Zealand, Tanchelm, carried their views still further, and asserted that the sacraments were only valid through the merits and sanctity of the ministers.

It was about this time (1170) that a rich merchant of Lyons, Peter Waldo, sold his goods and gave them to the poor: then he went forth as a preacher of voluntary poverty. His followers, the Waldenses, or poor men of Lyons, were moved by a religious feeling which could find no satisfaction within the actual system of the church, as they saw it before them. Like St. Francis, Waldo adopted a life of poverty that he might be free to preach, but with this difference that the Waldenses preached the doctrine of Christ while the Franciscans preached the person of Christ; Waldo reformed teaching while Francis kindled love; hence the one awakened antagonisms which the other escaped. Pope Alexander III., who had approved of the poverty of the Waldensians, prohibited them from preaching without the permission of the bishops (1179). Waldo answered that he must obey God rather than man. The result of this disobedience was excommunication by Lucius III. in 1184. Some were readmitted into the Catholic Church, and one, Durandus de Osca (1210), attempted to found an order of Pauperes Catholici, which was the forerunner of the order of St. Dominic. Many were swept away in the crusade against the ALBIGENSES, (*g.v.*) Others made an appeal to Innocent III., protesting their orthodoxy. Their appeal was not successful, for they were formally condemned by the Lateran council of 1215.

The earliest definite account given of the Waldensian opinion is that of the inquisitor Sacconi about 1250. He divides them into two classes, those north of the Alps and those of Lombardy. The first class hold (1) that oaths are forbidden by the gospel, (2) that capital punishment is not allowed to the civil power, (3) that any layman may consecrate the sacrament of the altar, and (4) that the Roman Church is not the church of Christ. The Lombard sect went farther in (3) and (4), holding that no one in mortal sin could consecrate the sacrament, and that the Roman Church was the scarlet woman of the Apocalypse, whose precepts ought not to be obeyed, especially those appointing fast-days.

These opinions were subversive of the system of the mediæval church, and were naturally viewed with great disfavor by its officials; but it cannot fairly be said that they have much in common with the opinions of the Reformers of the sixteenth century. The mediæval



church set forth Christ as present in the orderly community of the faithful; Protestantism aimed at setting the individual in immediate communion with Christ, without the mechanical intervention of the officers of the community; the Waldenses merely set forward a new criterion of the orderly arrangement of the church according to which each member was to sit in judgment on the works of the ministers, and consequently on the validity of their ministerial acts. It was a rude way of expressing a desire for a more spiritual community. As these opinions became more pronounced persecution became more severe, and the breach between the Waldenses and the church widened. The Waldenses withdrew altogether from the ministrations of the church, and chose ministers for themselves whose merits were recognized by the body of the faithful. Gradually the separation from the church became more complete: the sacraments were regarded as merely symbolical; the priests became helpers of the faithful; ceremonies disappeared; and a new religious society arose equally unlike the mediæval church and the Protestantism of the sixteenth century.

The spread of these heretical sects led to resolute attempts at their suppression. The revival of preaching, which was the work of the order of St. Dominic, did more to combat heresy, especially where its persuasions were enforced by law. The greatest blow struck against heresy was the transference of the duty of inquiry into heresy from the bishops to Dominican inquisitors. Everywhere, and especially in the district round Toulouse, heretics were keenly prosecuted, and before the continued zeal of persecution the Waldenses slowly disappeared from the chief centers of population and took refuge in the retired valleys of the Alps. In the more accessible regions north and south heresy was exposed to a steady process of persecution, and tended to assume shifting forms. Among the valleys it was less easily reached, and retained its old organization and its old contents. At times attempts were made to suppress the sect of the Vaudois, but the nature of the country which they inhabited, their obscurity, and their isolation made the difficulties of their suppression greater than the advantages to be gained from it. However, in 1487, Innocent VIII. issued a bull for their extermination, and Alberto de' Capitanei, archdeacon of Cremona, put himself at the head of a crusade against them. Attacked in Dauphiné and Piedmont at the same time, the Vaudois were hard pressed; but luckily their enemies were encircled by a fog when marching upon their chief refuge in the valley of the Angrogne, and were repulsed with great loss. After this Charles II., duke of Piedmont, interfered to save his territories from further confusion, and promised the Vaudois peace. They were, however, sorely reduced by the onslaught which had been made upon them, and lost their ancient spirit of independence.

The last step in the development of the Waldensian body was taken in 1530, when two deputies of the Vaudois in Dauphiné and Provence, Georges Morel and Pierre Masson, were sent to confer with the German and Swiss Reformers. A letter addressed to Œcolompadius gives an account of their practices and beliefs at that time, and shows us a simple and unlettered community, which was the survival of an attempt to form an esoteric religious society within the mediæval church.

The result of this intercourse was an alliance between the Vaudois and the Swiss and German reformers. A synod was held in 1532 at Chanforans in the valley of the Angrogne, where a new confession of faith was adopted, which recognized the doctrine of election, assimilated the practices of the Vaudois to those of the Swiss congregations, renounced for the future all recog-

nition of the Roman communion, and established their own worship no longer as secret meetings of a faithful few but as public assemblies for the glory of God. Thus the Vaudois ceased to be relics of the past, and became absorbed in the general movement of Protestantism. This was not, however, a source of quiet or security. In France and Italy alike they were marked out as special objects of persecution, and the Vaudois church has many records of martyrdom.

According to the latest official returns the Waldensian church had, in 1886-87, 43 churches and 38 mission stations throughout Italy. The ordained pastors numbered 37, evangelists 6, and male and female teachers 56, the total number of salaried agents being 124. The church had 4,005 members, and the day schools were attended by 2,206 scholars, the Sunday schools by 2,482. The total income, about three-fourths of it contributions from the United Kingdom and other Protestant countries of northern Europe, amounted to upward of \$50,000.

WALDO, VALDO, or VALDEZ, PETER. See p. 6243.

WALE. See ENGLAND.

WALKER, a town of Northumberland, England, on the north bank of the river Tyne, two miles east of Newcastle-on-Tyne. Along the banks of the Tyne there are large iron and chemical works, ship and boat-building establishments, and brick and tile works. The population of the urban sanitary district (area 1,200 acres) in 1901 was 11,527.

WALKER, FREDERICK, subject painter, was born in London, England, on May 24, 1840. While very young he began to draw from the antique in the British Museum, and at the age of sixteen he was placed in the office of an architect. The occupation proved ungenial; at the end of eighteen months he resumed his work from the Elgin marbles at the Museum, attending art classes; and in March, 1858, he was admitted a student of the Royal Academy. He soon turned his attention to designing for the wood-engravers, and served an apprenticeship of three years with J. W. Whymper. His earliest book-illustrations appeared in 1860 in *Once a Week*, a periodical to which he contributed largely, as also to the *Cornhill Magazine*, where his admirable designs to the works of Thackeray and those of his daughter appeared. He was elected an associate of the Society of Painters in Water Colors in 1864, and a full member in 1866; and in 1871 he became an associate of the Royal Academy. His first oil picture, the *Lost Path*, was exhibited in the Royal Academy in 1863, where it was followed in 1867 by the *Bathers*, one of the artist's finest works, in 1868 by the *Vagrants*, now in the National Gallery, in 1869 by the *Old Gate*, and in 1870 by the *Plow*, a powerful and impressive rendering of ruddy evening light, of which the landscape was studied in Somerset. On June 5, 1875, he died of consumption at St. Fillan's, Perthshire, Scotland.

WALKER, SEARS COOK, astronomer, was born at Wilmington, Mass., on March 28, 1805. He kept a school at Philadelphia till 1845, when he was appointed assistant at the Washington observatory. Shortly afterward he took charge of the astronomical department of the United States Coast Survey, where he was among the first to make use of the electric telegraph for the purpose of determining the difference of longitude between two stations, and he introduced the method of registering transit observations electrically by means of a chronograph. He also investigated the orbit of the newly discovered planet Neptune. He died at Cincinnati on January 30, 1853.

WALKER, REV. GEORGE, an Irish clergyman, distinguished for the part he took in the heroic defense of Londonderry against the army of James II., was born in the county of Tyrone, of English parents, in the



early part of the seventeenth century. He was educated at the university of Glasgow, and, entering the church, became rector of Donoughmore. The early life of Walker was not remarkable. When the Irish army entered Ulster, and took possession of Kilmore and Coleraine, Walker sought refuge in Londonderry, the headquarters of "the Englishry" since the times of James I., when the confiscated lands of the county had been bestowed on the corporation of the city of London, and a Saxon colony, English and Scotch, had been planted there, who had converted a waste into the richest district of Ireland. The town was fortified sufficiently to protect it from the pike-armed Celtic peasantry, and it had resisted more than one attack. But it was not so defended as to oppose regular troops. Lundy, the governor, was in secret communication with the enemy, and prepared to hand over the town to them; but some of his own officers protested against this course, and the citizens, remarkable at the time for that high courage which characterizes a dominant race, and the possession of those qualities which made the soldiers of Cromwell famous, determined not to yield. The bishop, Ezekiel Hopkins, in vain inculcated the doctrine of passive obedience at a conference; he was interrupted by a lad, one of a daring band known as the "thirteen Scotch apprentices," who called out: "A good sermon, my lord, a very good sermon; but we have no time to hear it now." A Scotch fanatic, named Hewson, urged the Presbyterians not to ally themselves with the enemies of the covenant; but he was laughed at by his countrymen. The thirteen apprentices closed the city gates, and defied the enemy. It was then that Walker, described as an aged clergyman, who had taken refuge in the city, encouraged the townspeople to fight to the last. Walker saved Lundy from the rage of the populace, and enabled him to quit the city in safety. Major Baker, who soon after died, and Walker became joint governors, aided by Captain Adam Campbell. The siege is the most memorable in the British history. It began in April and lasted till the end of July, 1689.

The inhabitants were reduced to the greatest extremities by hunger, but they were sustained to the last by the rousing sermons preached to them by Walker in the cathedral, and the example he and Captain Campbell set in headlong sallies. When the siege was raised by the English fleet entering the harbor, Walker went to London. He was warmly received at court, thanked by the House of Commons, created D.D. by Oxford, and bishop of Derry by the king. Portraits of him were in every house in England, and his triumph would have been complete had the Presbyterians not thought that their share in the defense of the city was overlooked and provoked useless controversy. Walker could not be induced to take quiet possession of his bishopric; he would head a troop at the battle of the Boyne, and he was there killed.

WALLACE, SIR WILLIAM, the most popular national hero of Scotland, is believed to have been the second son of Sir Malcolm Wallace of Elderslie and Auchinbothie, in Renfrewshire. The date of his birth is not certainly ascertained, but is usually given as 1270. The only authority for the events of his early life is the metrical history of Blind Harry. He lived about two centuries later than Wallace, during which a considerable body of legend had probably gathered round the name, and these popular "gestis" he incorporates in his narrative. The treaty of Irvine, by which the Scottish nobles agreed to acknowledge Edward as their sovereign lord, is printed in Rymers *Fadera*. It is dated July 9, 1297, and is the first public document in which the name of Sir William Wallace occurs. Wallace retired to the north, and

although deserted by the barons was soon at the head of a large army. The vigor and success of his operations was such that in a short time he succeeded in recovering almost all the fortresses held by the English to the north of the Forth. He had begun the siege of Dundee when he received information that an English army, led by the earl of Surrey and Cressingham the treasurer, was on its march northward. Leaving the citizens of Dundee to continue the siege of the castle, he made a rapid march to Stirling. After an unsuccessful attempt to bring Wallace to terms, the English commander, on the morning of September 11, 1297, began to cross the bridge of Stirling. When about one-half of his army had crossed, and while they were still in disorder, they were attacked with such fury by Wallace, that almost all were slain, or driven into the river and drowned. Those on the south side of the river were seized with panic and fled tumultuously, having first set fire to the bridge. The Scots, however, crossed by a ford, and continued the pursuit of the enemy as far as Berwick.

The English were everywhere driven from Scotland. To increase the alarm of the English, as well as to relieve the famine which then prevailed, Wallace organized a great raid into the north of England, in the course of which he devastated the country to the gates of Newcastle. On his return he was elected guardian of the kingdom. In this office he set himself to reorganize the army and to regulate the affairs of the country. His measures were marked by much wisdom and vigor, and for a short time succeeded in securing order, even in the face of the jealousy and opposition of the nobles. Edward was in Flanders when the news of this successful revolt reached him. He hastened home, and at the head of a great army entered Scotland in July, 1298. Wallace was obliged to adopt the only plan of campaign which could give any hope of success. He slowly retired before the English monarch, driving off all supplies and wasting the country. His plan came very near being successful. Edward, compelled by famine, had already given orders for a retreat when he received information of Wallace's position and intentions. The army, then at Kirkliston, was immediately set in motion, and the next morning (July 22, 1298), Wallace was brought to battle in the vicinity of Falkirk. After an obstinate fight the Scots were overpowered and defeated with great loss. With the remains of his army Wallace found refuge for the night in the Torwood. He then retreated to the north, burning the town and castle of Stirling on his way. He resigned the office of guardian and betook himself again to a wandering life and a desultory and predatory warfare against the English. At this point his history again becomes obscure. He is known to have paid a visit to France, with the purpose of obtaining aid for his country from the French king. This visit is narrated with many untrustworthy details by Blind Harry; but the fact is established by other and indisputable evidence. When in the winter of 1303-4 Edward received the submission of the Scottish nobles, Wallace was expressly excepted from all terms. And after the capture of Stirling castle and Sir William Oliphant, and the submission of Sir Simon Fraser, he was left alone, but resolute as ever in refusing allegiance to the English king. A price was set upon his head, and the English governors and captains in Scotland had orders to use every means for his capture. On August 5, 1305, he was taken—as is generally alleged, through treachery—at Robroyston, near Glasgow, by Sir John Menteith, carried to the castle of Dumbarton, and thence conveyed in fetters and strongly guarded to London. He reached London on August 22d, and th



next day was taken to Westminster Hall, where he was impeached as a traitor. To the accusation Wallace made the simple reply that he could not be a traitor to the king of England, for he never was his subject, and never swore fealty to him. He was found guilty and condemned to death. The sentence was executed the same day with circumstances of unusual cruelty.

WALLACE, WILLIAM, mathematician, was born on September 23, 1768, in Fifeshire, Scotland. In 1784 his family removed to Edinburgh, where he himself was set to learn the trade of a bookbinder; but his taste for mathematics had already developed itself, and he made such use of his leisure hours that before the completion of his apprenticeship he had made considerable acquirements in geometry, algebra, and astronomy. He became assistant teacher of mathematics in the academy of Perth in 1794, and this post he exchanged in 1803 for a mathematical mastership in the Royal Military College at Great Marlow (afterward at Sandhurst). In 1819 he was chosen to succeed Playfair in the chair of mathematics at Edinburgh, and in 1838, when compelled by ill-health to retire, he received a government pension for life. He died in Edinburgh, after a lingering illness, on April 28, 1843.

WALLASEY, a town of Cheshire, England. It is about two miles northwest of Birkenhead, of which part of it is practically a suburb. The population of the urban sanitary district (which includes Liscard and Poulton, with Seacomb, the total area being 3,408 acres) in 1901 was 53,580.

WALLA WALLA, the oldest and one of the most substantially-built cities in Washington, and capital of Walla Walla county, is delightfully situated on a river of the same name, which rises among the mountains of the Cascade Range, and, coursing its way through the beautiful Walla Walla valley, finally merges into the Columbia river at Wallula. The surrounding country is described as possessed of unexampled fertility and almost endless agricultural resources. It is highly cultivated, and the large crops of cereals and other products annually gathered in the valley find their market at Walla Walla, whence they are shipped to depots of supply in all parts of the country. The city is also the trade center of northern Idaho and northeastern Oregon, and the business derived from these sources contributes materially to augment the volume of prosperity yearly exhibited. Its location on the Pendleton Division of the Union Pacific places the city in direct communication with Portland and Spokane Falls, and by branches of the same and other railway systems its facilities for promptly meeting the demands of trade and travel are ample and reliable. The mineral resources of the tributary country are equally rich and made up of iron, coal, lime, marble, etc., while the precious metals are to be found in the formations of the Cascade Mountains, for all of which, it is said, Walla Walla is the natural distributing point. In other respects, as a financial, commercial, and educational center, the city is widely known. It contains one private bank, two national and two savings banks, with a total cash capital of more than \$500,000, three daily and two weekly papers, ten churches, schools, hotels, public buildings, court-house, stores, etc., and manufactures of wire-fence, iron, hardware novelties, lumber, sash, doors, and blinds, leather, flour, cheese, beer, etc., being also provided with gas and electric-light works. The population in 1900 was 10,049.

WALLENSTEIN (properly WALDSTEIN), ADALBERT EUSEBIUS VON, duke of Friedland, Sagan, and Mecklenburg, was born in Bohemia, September 15, 1583. His parents were Protestants. After the death

of his parents he was sent by his uncle to the Jesuit college at Olmütz, where he joined the Roman Catholic church. In 1599 he went to the university of Altdorf, which he had to leave in consequence of some boyish follies. Afterward he studied at Bologna and Padua. While in Padua he gave much attention to astrology, and during the rest of his life he seems never to have wavered in the conviction that he might trust to the stars for indications as to his destiny.

For some time Wallenstein served in the army of the emperor Rudolph II. in Hungary. In 1606 he returned to Bohemia, and soon afterward he married a rich widow, Lucretia Nikossie von Landeck, whose lands in Moravia he inherited after her death in 1614. Supporting the archduke Ferdinand in his war with Venice, he became favorably known at court, and his influence was increased by his marriage, in 1616, with Isabella Katharina, daughter of Count Harrach, a confidential adviser of the emperor Matthias.

In the disturbances which broke out in Bohemia in 1618—disturbances which proved to be the beginning of the Thirty Years' War—advances were made to Wallenstein by the revolutionary party; but he preferred to associate himself with the imperial cause, for which he repeatedly fought with marked success. In 1620 he was made quartermaster-general of the army of the League, commanded by Tilly.

The battle of Weissenberg placed Bohemia absolutely at the mercy of the emperor Ferdinand; and Wallenstein, who was a man of insatiable ambition, knew how to turn the prevailing confusion to his own advantage. His possessions he was allowed to form into a territory called Friedland, and he was raised in 1622 to the rank of an imperial count and palsgrave, in 1623 to that of a prince. In 1625 he was made duke of Friedland. In the government of his principality he displayed much vigor and foresight.

The early successes of the emperor Ferdinand in the Thirty Years' War were due chiefly to the army of the League, which he could only indirectly control. When he was threatened with a coalition of the Protestant powers, with Christian IV. of Denmark as his most active enemy, he was anxious to have an army of his own, which should be more devoted than that of the League to the interests of his dynasty. In these circumstances Wallenstein saw that he might have an opportunity of playing a great part in the events of the age; and accordingly, early in 1626, he offered to raise an army for the imperial service. After some negotiations the offer was accepted, the understanding being that the troops were to be maintained at the cost of the countries they might occupy. Wallenstein had always been a popular commander, and great numbers of recruits flocked to his standard, so that he soon found himself at the head of an army of 30,000 men. With this force he marched northward for the purpose of co-operating with Tilly against Christian IV. and Mansfeld. No engagement was fought in 1625; but on April 25, 1626, Wallenstein defeated Mansfeld at the bridge of Dessau, and later in the year Christian IV. was defeated by Tilly at Lutter. Wallenstein pursued Mansfeld into Hungary, where the Protestant general effected a junction with Bethlen Gabor. Before the end of the year Mansfeld died, and Bethlen Gabor came to terms with the emperor.

Having established peace in Hungary, Wallenstein proceeded, in 1627, to clear Silesia of some remnants of Mansfeld's army; and at this time he bought from the emperor the duchy of Sagan, his outlay in the conduct of the war being taken into account in the conclusion of the bargain. He then joined Tilly in the struggle with Christian IV., and afterward took possession of the



duchy of Mecklenburg. He failed to capture Stralsund, which he besieged for several months in 1628. Notwithstanding this check, the imperial cause prospered; and early in 1629 Christian IV. was obliged to accept terms of peace. About the same time Ferdinand issued the famous edict of restitution, which excited deep resentment in every Protestant State in the realm.

Meanwhile Wallenstein had made for himself a host of enemies among the princes of the empire. They regarded him as an upstart, and complained of the incessant exactions of his army. Ferdinand was very unwilling to part with one who had served him so well; but the demand was pressed so urgently by the electors in 1630, that he had no alternative, and in September of that year envoys were sent to Wallenstein to announce his removal. Wallenstein accepted the emperor's decision calmly, and retired to Gitschin, the capital of his duchy of Friedland.

Some months before the dismissal of Wallenstein, Gustavus Adolphus had landed in Germany, and it soon became obvious that he was by far the most formidable of the enemies with whom the emperor had yet had to contend. Tilly was defeated at Breitenfeld and in the battle of the Lech, where he received a mortal wound; and Gustavus advanced to Munich, while Bohemia was occupied by his allies the Saxons. After the battle of Breitenfeld the emperor entreated Wallenstein to come once more to his aid. Wallenstein at first declined; he had, indeed, been secretly negotiating with Gustavus Adolphus, in the hope that he might thus be able to maintain his hold over his great possessions. In the end, however, he accepted the offers made to him by Ferdinand, and in the spring of 1632 he took the field with an army of more than 40,000 men. This army was placed absolutely under his control, so that he assumed the position of an independent prince rather than of an ordinary subject.

His first aim was to drive the Saxons from Bohemia, —an object which he accomplished without serious difficulty. Then he advanced against Gustavus Adolphus, who attacked him near Nuremberg on September 3d, but was driven back. On November 16, 1632, a decisive battle was fought at Lützen, in Saxony. In this battle the imperialists were routed, but Gustavus Adolphus was killed.

To the dismay of Ferdinand, Wallenstein made no use of the opportunity provided for him by the death of the Swedish king, but withdrew to winter quarters in Bohemia. In the campaign of 1633 much astonishment was caused by his apparent unwillingness to attack the enemy. The truth was that he was preparing to desert the emperor. He entered into negotiations with Saxony, Brandenburg, Sweden, and France; and one of his conditions was that the possession of the kingdom of Bohemia should be guaranteed to him. Irritated by the distrust excited by his proposals, and anxious to make his power felt, he at last assumed the offensive, and in October he defeated the Swedes at Steinau. Soon afterward he entered Lusatia and took Görlitz and Bautzen, and dispatched a troop of cavalry as far as Berlin. He then resumed the negotiations, and pressed for a full and final acceptance of his plans. In December he retired with his army to Bohemia, fixing his headquarters at Pilsen.

It had soon been suspected in Vienna that Wallenstein was playing a double part, and the emperor encouraged by the Spaniards at his court, anxiously sought for means of getting rid of him. Wallenstein was well aware of the designs formed against him, but displayed little energy in his attempts to thwart them.

His principal officers assembled around him at a ban-

quet on January 12, 1634, when he submitted to them a declaration to the effect that they would remain true to him. This declaration they signed. On January 24th the emperor had signed a secret patent removing him from his command and requiring the army to obey Count Gallas; and imperial agents had been laboring to undermine Wallenstein's influence. Another patent charging Wallenstein and two of his officers with high treason, and naming the generals who were to assume the supreme command of the army, was signed on February 18th, and published in Prague.

When Wallenstein heard of the publication of this patent he realized the full extent of his danger, and on February 23d, accompanied by several of his most intimate friends, and guarded by about 1,000 men, he went from Pilsen to Eger, hoping to obtain the protection of the Protestant general Bernard of Weimar. After the arrival of the party at Eger, Colonel Gordon, the commandant, and Colonels Butler and Leslie agreed to rid the emperor of his enemy. On the evening of February 25th Wallenstein's supporters, Illo, Kinsky, Terzky, and Neumann, were received at a banquet by the three colonels, and murdered by several dragoons. Butler, accompanied by Captain Devereux and a number of soldiers, then hurried to the house where Wallenstein was staying, and broke into his room. He had just taken a bath, and was standing in his shirt ready to go to bed. He was instantly killed by a thrust of Devereux's partisan. The body was taken to the citadel, and laid beside those of his murdered comrades.

WALLER, EDMUND, enjoyed in the latter half of his long life a high reputation as a poet, which has been partly fixed by the compliments of Dryden and Pope. Waller is a singular and piquant figure in the history of the seventeenth century; his relations with Charles I., with the Long Parliament, with Cromwell, with Charles II., his position as a poet, as a courtier, as a privileged water-drinker among the bibulous Restoration wits, form a combination that has no parallel. The character might be paralleled, but the run of incidents is unique. He was born at Coleshill, in Hertfordshire, March 3, 1605. His father died when he was eleven years old. He entered parliament at sixteen, and sat also in the first and in the third parliament of Charles I.

When he first began to write verses is a doubtful and disputed point. Clarendon says that he began at an age when most men leave off, and if we put this at thirty, there is no published or even probable evidence to the contrary; but, on the other hand, it is argued that he began at the age of eighteen, in 1623, this being the date of the subject of his first poem—Prince Charles' escape from a storm at St. Andero. This earliest date must be increased by at least two years, the whole point of the poem being Charles' marriage with his queen Henrietta, which took place in 1625.

In the struggle between king and parliament, Waller tried at first to mediate, holding the king's demands unconstitutional, but endeavoring through his advisers to induce him to modify them. He made such a mark as a speaker in the Short Parliament that at the opening of the Long Parliament he was chosen by the Commons to conduct the impeachment of Judge Crawley for his ship-money decision. Thereafter, as the struggle became fiercer, with a view apparently to prevent parliament from proceeding to extremities, he engaged in what was known as Waller's plot. He behaved with the most abject meanness when arrested by order of Pym on May 31, 1643, saved himself by at once turning informer and making disclosures that were at least unreserved, and was let off eventually with a fine of \$50,000 and banishment. It was from his exile in Paris, in 1645, that he directed his first publication of poems.



He lived there in high repute as a wit and a munificent host till 1654, when Cromwell, at the intercession of his anti-Royalist relatives, allowed him to return to England, and try to mend his impaired estate. He celebrated the Protector's greatness in a lofty panegyric, and Cromwell is said to have relished his pleasant qualities as a companion.

Upon the Restoration Waller hastened to express his joy, mingled with trembling, "Upon His Majesty's Happy Return," and found little difficulty in making his peace. He met the king's complaint that his congratulation was inferior to his panegyric on the Protector with the famous retort, "Poets, Sire, succeed better in fiction than in truth." He was soon on such terms with Charles that he applied for the provostship of Eton; the king agreed, but Clarendon refused, on the ground that he was a layman, and the refusal was sustained by the council. He thus failed in his only application for substantial evidence of the king's favor, but in every other respect the changed state of things made his old age happy. He died in 1687, at the age of eighty-two, and at the height of his poetic reputation.

WALLINGFORD, a post-town in the township of Wallingford, New Haven county, Conn., is situated on the Quinepiac river, twelve miles northeast of New Haven, and twenty-four miles south of Hartford. It is finely located and handsomely built, and in addition to its importance as a manufacturing town, has become an attractive summer resort. The New York, Hartford and New Haven railroad passes through the town, and the Boston and New York Air Line, in its immediate vicinity, making the town easily accessible and affording to merchants and producers available traffic facilities. The village has four churches, one weekly and one monthly paper, one national and one savings bank, a town-hall, a high-school, a large and handsomely appointed hotel for summer travel, and many stores. The manufactures include silver and plated-ware, rubber clothing, paper boxes, bolts, dippers, bicycles and other commodities. The population in 1900 was returned at 6,737.

WALLIS, JOHN, an eminent English mathematician, logician, and grammarian, was born on November 23, 1616, at Ashford, in Kent, England. Having been previously instructed in Latin, Greek, and Hebrew, he was in 1632 sent to Emmanuel College, Cambridge, and afterward was chosen fellow of Queen's College. His adherence to the Parliamentary party was in 1643 rewarded by the living of St. Gabriel, Fenchurch street, London. In 1644 he was appointed one of the scribes or secretaries of the Assembly of Divines at Westminster. In 1645 he attended those scientific meetings which led to the establishment of the Royal Society. When the Independents obtained the superiority, Wallis adhered to the Solemn League and Covenant. He was in June, 1649, appointed Savilian professor of geometry at Oxford. In 1654 he took the degree of D.D., and four years later succeeded Doctor Langbaine as keeper of the archives. After the Restoration he was named one of the king's chaplains in ordinary. While complying with the terms of the Act of Uniformity, Wallis seems always to have retained moderate and rational notions of ecclesiastical polity. He died at Oxford on October 28, 1703, in the eighty-seventh year of his age.

WALLON, or WALLOON, the collective name of the inhabitants of the southeastern division of Belgium, who are distinguished from the rest of the population chiefly by their Romance speech and darker complexion. The Wallon domain comprises the four provinces of Hainaut, Namur, Liège, and Luxemburg, besides about one-third of Brabant. It forms a nearly regular right-angled triangle, with apex at Maastricht within the

Dutch frontier, the base stretching along the French frontier in a southeasterly direction, from the neighborhood of Lille to Longwy at the southwest corner of German Luxemburg. It coincides almost exactly with the section of the Meuse basin comprised within Belgian territory, and has a total area of 6,000 square miles, or about one-half of the kingdom, with a population (1896) of 2,780,000, or considerably less than half of the entire Belgian population. But from the following figures it is evident that the Romance is steadily gaining on the Flemish (Teutonic) section and will soon be in a majority. In 1830 the Wallon population numbered 1,360,000 as against 1,860,000 Flemish; in 1866 the corresponding figures were 2,040,000 and 2,406,000; and in 1896 they were 2,780,000 and 3,060,000.

WALLSEND, a town of Northumberland, England, on the north bank of the Tyne, four miles east-northeast of Newcastle. There are still some remains of the old church of the eleventh century in the Transition Norman style. At an early period Wallsend was famous for its coals, but the name has now a general application to coal that does not go through a sieve with meshes five-eighths of an inch in size. The colliery, which was opened in 1807, has frequently been the scene of dreadful accidents. There are ship and boat building-yards, engineering works, lead and copper smelting works, cement works, and brick and tile works. The population of the urban sanitary district (area 1,202 acres) in 1901 was 9,351.

WALKING-STICKS. The habit of using a stick, either for a support or merely as a fashion, is of great antiquity, and in modern times the supply of such articles constitutes a large branch of trade. Walking-sticks chiefly consist of the small stems or canes of certain palms, as the Malacca cane, and others called Whangee and Penang Lawyers; the woodstems of some small species of bamboo are also used, besides straight shoots of orange, cinnamon, myrtle, and other shrubs. The preparation and sale of walking-sticks are extensively carried on in this country, and the finer sorts are richly and tastefully mounted. Of late years the relic cane, supposed to be cut from the field of some celebrated battle, or from the under-brush of some historic locality, has been in great demand. Walking-sticks, especially the gold mounted variety, are favorite articles for presents. The affectation of carrying a short cane is much indulged in by the "dude" element, but is far more common in England than in the United States.

WALNUT (*Juglans*), a genus of seven or eight species, natives of the temperate regions of the northern hemisphere, some even extending into Mexico and the West Indies. They are all trees, usually of large size, with alternate stalked, unequally pinnate leaves, and abounding in an aromatic resinous juice.

The fruit is a kind of drupe, the fleshy husk of which is the dilated receptacular tube, while the two-valved stone represents the two carpels. The solitary seed has no perisperm or albumen, but has two large and curiously crumpled cotyledons concealing the plumule, the leaves of which, even at this early stage, show traces of pinnae.

The species best known is *J. regia*, the Common Walnut, a native of the mountains of Greece, of Armenia, of Afghanistan and the northwest Himalayas, and also found in Japan. Traces of the former existence of this or of a very closely-allied species are found in the Post-Tertiary deposits of Provence and elsewhere, proving the former much wider extension of the species. At the present day the tree is largely cultivated in most temperate countries for the sake of its timber or for its edible nuts. The timber is specially valued for cabinet work and for gun-stocks, the beauty



of its markings rendering it desirable for the first-named purpose, while its strength and elasticity fit it for the second. The young fruits are used for pickling. When ripe the seeds are much esteemed as a delicacy, while in France much oil of fine quality is extracted from them by pressure.

Among the American species *J. nigra*, the Black Walnut, is especially noteworthy as a very handsome tree, whose timber is of great value for furniture purposes, but which is now becoming scarce. In Britain it forms a magnificent tree. The White Walnut, *J. cinerea*, is a smaller tree; its leaves are used medicinally.

Closely allied to the walnuts and sometimes confounded with them are the hickories (see HICKORY).

WALPOLE, HORACE, who was born on September 24, 1717, was accepted and recognized throughout his life as the youngest of the six children of Sir Robert Walpole by Catherine Shorter, but by some of the scandal-mongers of a later age, Carr, Lord Hervey, the half-brother of the peer who wrote the *Memoirs of the Court of George the Second*, has been called his father. About 1728 he was sent to Eton, and in 1735 matriculated at King's College, Cambridge. Two years (1739-41) were spent in the recognized grand tour of France and Italy, in company with Gray the poet, whose acquaintance had been made amid the classic groves of Eton and Cambridge. They stopped a few weeks in Paris, and lingered for three months under the shadow of the magnificent portals of the cathedral of Rheims, on the pretense of learning the French language. At Reggio, Walpole and Gray parted in anger. The latter was shy in manners and absorbed in literature, while his more opulent companion lived in society, and only dabbled in antiquities for pleasure's sake. Walpole in after years took the blame of these differences on himself, and it is generally believed that the quarrel arose from his laying too much stress upon his superiority in position. In 1744 the two friends were nominally reconciled, but the breach was not cemented.

During Walpole's absence he was returned to parliament in 1741 for the Cornish borough of Callington. He represented three constituencies in succession, Callington 1741-54, the family borough of Castle Rising from 1754 to 1757, and the more important constituency of King's Lynn, for which his father had long sat in parliament, from the latter date until 1768. In that year he retired, probably because his success in political life had not equaled his expectations, but he continued until the end of his days to follow and to chronicle the acts and the speeches of both houses of parliament. Through his father's influence he had obtained three lucrative sinecures producing at least \$25,000 a year, and for many years (1745-84) he enjoyed a share, estimated at about \$7,500 a year, of a second family perquisite, the collectorship of customs. The possession of these ample endowments and of a leasehold house in Arlington street, which was left to him by his father, enabled him, a bachelor all his days, to gratify every expensive luxury and every costly taste. He purchased in 1747 the charmingly situated villa of Strawberry Hill, near Twickenham, on the banks of the Thames, and six years later began a series of alterations in the Gothic style, not completed for nearly a quarter of a century later, under which the original cottage became transformed into a building without parallel in Europe. Some years after this purchase he established a printing press there for the gratification of his literary tastes, and many of the first editions of his own works were struck off within its walls. His nephew, the reckless third earl, died in 1791, and Horace succeeded to the peerage, but he never took his place in the House of Lords, and sometimes signed his name as "the uncle of

the late earl of Orford." All his life long he was the victim of the gout, but he lived to extreme old age, and died unmarried, in Berkeley Square, London, March 2, 1797.

The pen was ever in Horace Walpole's hand, and his entire compositions would fill many volumes. His two works of imagination, the romance of the *Castle of Otranto* and the tragedy of the *Mysterious Mother*, are now all but forgotten. On the *Catalogue of Royal and Noble Authors of England* Walpole, whose professed liberalism only stopped short of the principles of republicanism, spent many hours of toilsome research. The best edition is that which appeared in five volumes, in 1806. The *Memoirs of the Last Ten Years of the Reign of George II.* was edited by Lord Holland; its successor, *Memoirs of the Reign of King George III.*, was published under the editorial care of Sir Denis Le Marchant, who poured into his annotations a vast store of information; the last volumes of the series, *Journal of the Reign of George III. from 1771 to 1783*, were edited and illustrated by Doran; and to these works should be added the *Reminiscences*, which Walpole wrote in 1788 for the gratification of the Misses Berry. These labors would in themselves have rendered the name of Horace Walpole famous for all time, but his delightful *Letters* are the crowning glory of his life.

WALPOLE, SIR ROBERT, EARL OF ORFORD, prime minister of England from 1721 to 1742, was born on August 26, 1676, and was sent to Eton and to King's College, Cambridge. On his father's decease the electors of the family borough of Castle Rising returned him in January, 1701, to the House of Commons as their representative, but after two short-lived parliaments he sought the suffrages of the more important constituency of King's Lynn (1702), and was elected as its member at every subsequent dissolution, until he left the lower House. From the first he took a keen interest in the business of the House, and not many months passed away before his shrewdness in counsel and his zeal for the interests of the Whigs were generally recognized. In March, 1705, according to the statement of Archdeacon Cox, he was appointed one of the council to Prince George of Denmark, the inactive husband of Queen Anne, and then lord high admiral of England. Complaints against the administration of the navy were then loud and frequent (Burton's *Queen Anne*, ii. 22-31), and the responsibilities of his new position tested his capacity for public life. His abilities proved equal to the occasion, and justified his advancement, in succession to his life-long rival Henry St. John, to the more important position of secretary-at-war (February, 1708), an office of recent creation but in time of war of great responsibility, which brought him into immediate contact with the duke of Marlborough and the queen. With this post he held for a short time (1710) the treasurership of the navy, and by the discharge of his official duties and by his skill in debate became admitted to the inmost councils of the ministry. His energies shone forth with irresistible vigor; both in debate and in the pamphlet press he took up the cause of the ministry, and in revenge for his zeal his political opponents brought against him an accusation of personal corruption. On these charges, now universally acknowledged to have proceeded from party animosity, he was in the spring of 1712 expelled from the House and committed to the Tower. At the dissolution of 1713 the faithful electors of King's Lynn again placed their trust in him, and during this parliament, the last summoned by Queen Anne, he took the leading part in defense of Steele against the attacks of the Tories.



With the accession of George the Whigs regained their supremacy, and for nearly half a century they retained the control of English politics. The prizes fell to the victors, and Walpole obtained the lucrative if unimportant post of paymaster-general of the forces in the administration which was formed under the nominal rule of Lord Halifax, but of which Stanhope and Townshend were the guiding spirits. Halifax died, and after a short interval Walpole was exalted into the conspicuous position of first lord of the treasury and chancellor of the exchequer (October 11, 1715). Jealousies, however, prevailed among the Whigs, and the German favorites of the new monarch quickly showed their discontent with the heads of the ministry. Townshend was forced into resigning his secretaryship of state for the dignified exile of viceroy of Ireland, but he never crossed the sea to Dublin, and the support which Sunderland and Stanhope, the new advisers of the king, received from him and from Walpole was so grudging that Townshend was dismissed from the lord-lieutenancy (April, 1717), and Walpole on the next morning withdrew from the ministry. On the financial crash which followed the failure of the South Sea scheme, the public voice insisted that Walpole should assume a more prominent place in public life. Walpole, as first lord of the treasury and chancellor of the exchequer (April, 1721), became with Townshend responsible for the country's government (though for some years they had to contend with the influence of Carteret), and during the rest of the reign of George I. they remained at the head of the ministry. The hopes of the Jacobites, which revived with these financial troubles, soon drooped in disappointment.

The Continent was still troubled with wars and rumors of wars, but a treaty between England, Prussia, and France was successfully effected at Hanover, in 1725. England was kept free from warfare, and in the general prosperity which ensued Walpole basked in the royal favor. His eldest son was raised to the peerage as Baron Walpole (June 10, 1723), and he himself became a knight of the Bath in 1725, and was rewarded with the Garter in 1726. Next year the first King George died, and Walpole's enemies fondly believed he would be driven from office, but their expectations were doomed to disappointment. The confidence which the old king had reposed in him was renewed by his successor, and in the person of Queen Caroline, the discreet ruler of her royal spouse, the second George, the Whig minister found a faithful and life-long friend. For three years he shared power with Townshend, but the jealous Walpole brooked no rival near the throne, and his brother-in-law withdrew from official life in May, 1730. Walpole's influence received a serious blow in 1733. The enormous frauds on the excise duties forced themselves on his attention, and he proposed some arrangements by which the income resulting to the national exchequer from the duties on wine and tobacco might be largely increased. His opponents fastened on these proposals with irresistible force, and so serious an agitation stirred the country that the ministerial measure was dropped amid general rejoicing. Several of his most active antagonists were dismissed from office or deprived of their regiments, but their spirit remained unquenched, and when Walpole met a new House of Commons in 1734, his supporters were far less numerous. The Gin Act of 1736, by which the tax on that drink was raised to an excessive amount, led to disorders in the suburbs of London; and the imprisonment of two notorious smugglers in the Tolbooth at Edinburgh resulted in those Porteous riots which have been rendered famous in the *Heart of Midlothian*. These events weakened his influence with large classes in

England and Scotland, but his parliamentary supremacy remained unimpaired. His constant friend Queen Caroline died, and the prince of Wales, long discontented with his parents and their minister, flung himself into active opposition.

The minister long resisted the pressure of the opposition for war, but at the close of 1739 he abandoned his efforts to stem the current, and with a divided cabinet was forced, as the king would not allow him to resign, into hostility with Spain. The Tory minority had seceded from parliament, but at the commencement of the session, in November, 1739, they returned to their places with redoubled energies. The campaign was prosecuted with vigor, but the successes of the troops brought little strength to Walpole's declining popularity, and when parliament was dissolved in April, 1741, his influence had faded away. In the new House of Commons political parties were almost evenly balanced. Their strength was tried immediately on the opening of parliament. The voting on the return for Chippenham was accepted as a decisive test of parties, and, as Walpole was beaten on a preliminary point in connection with the return, he resolved upon resigning his places. On February 9, 1742, he was created earl of Oxford, and two days later he ceased to be prime minister. A committee of inquiry into the conduct of his ministry for the previous ten years was ultimately granted, but its deliberations ended in nought, and Walpole was allowed to spend the rest of his days in retirement at Houghton. There he died March 18, 1745.

WALPURGIS, WALPURGA, or WALBURGA, ST., was born in Sussex about the end of the seventh or the beginning of the eighth century, and was educated at Winburn, England, where, after taking the veil, she remained for twenty-seven years. She is commemorated at various times, but principally on May 1, her day taking the place of an earlier heathen festival, which was characterized by various rites marking the commencement of summer. In art she is represented with a crozier, and bearing in her hand a flask of balsam.

WALRUS, or MORSE. In the article MAMMALIA it was shown that the existing members of the Pinniped division of the order *Carnivora* are divided into three very distinct groups, the true seals (*Phocidae*), the sea-bears or eared seals (*Otariidae*), and the *Trichechidae*, containing the walrus alone, in some respects intermediate between the other two, but also possessing, especially in its greatly modified dentition, peculiar characteristics of its own.

*Trichechus* is the almost universally accepted generic name by which the walrus is known to zoölogists, but lately some confusion has been introduced into literature by the revival of the nearly obsolete terms *Rosmarus* by some authors and *Odobenus* by others. *T. rosmarus* is the name of the species met with in the Arctic seas; that of the North Pacific, if distinct, is *T. obesus*. The following description will apply equally to both. A full-grown male walrus measures from ten to eleven feet from the nose to the end of the very short tail, and is a heavy, bulky animal, especially thick about the shoulders. The head is rounded, the eyes rather small, and there are no external ears. The muzzle is short and broad, with, on each side, a group of very stiff, bristly whiskers, which become stouter and shorter in old animals. The tail scarcely projects beyond the skin. The fore-limbs are free only from the elbow; the hand is broad, flat, and webbed, the five fingers being of nearly equal length, the first slightly the longest. Each finger has a small, flattened nail, situated on the dorsal surface at a considerable distance from the end. The hind-limbs are inclosed in the skin of the body almost to the heel. The



free portion, when expanded, is fan-shaped, the two outer toes (first and fifth) being the longest, especially the latter. Cutaneous flaps project considerably beyond the bones of the toes. The nails of the first and fifth toes are minute and flattened; those of the second, third, and fourth elongated, sub-compressed, and pointed. The soles of both fore and hind feet are bare, rough, and warty. The surface of the skin generally is covered with short, adpressed hair of a light, yellowish-brown color, which, on the under parts of the body and base of the flippers, passes into dark reddish-brown or chestnut. In old animals the hair becomes more scanty, sometimes almost entirely disappearing, and the skin shows ample evidence of the rough life and pugnacious habits of the animal in the innumerable scars with which it is usually covered. It is everywhere more or less wrinkled, especially over the shoulders, where it is thrown into deep and heavy folds.

One of the most striking external characteristics of the walrus is the pair of tusks which descend almost directly downward from the upper jaw, sometimes attaining a length, in old animals, of twenty inches, or even more. In the female they are as long or sometimes longer than in the male, but less massive. In the young of the first year they are not visible. These tusks correspond to the upper canine teeth of other mammals.

The principal food of the walrus consists of bivalved molluscs, which, by means of its tusks, it digs up from the mud and sand in which they lie buried at the bottom of the sea. It crushes and removes the shells by the aid of its grinding teeth and tongue, and swallows only the soft part of the animal. Portions of various kinds of algæ or sea-weeds have been found in its stomach, but whether swallowed intentionally or not is still doubtful.

The commercial products of the walrus are its oil, hide (used to manufacture harness and sole-leather and twisted into tiller ropes), and tusks. The ivory of the latter is, however, inferior in quality to that of the elephant. Its flesh forms an important article of food to the Eskimo and Tchukchis. Of the coast tribes of the last-named people the walrus forms the chief means of support.

Geographically the walrus is confined to the northern circumpolar regions of the globe, extending apparently as far north as explorers have penetrated, but its southern range has been much restricted of late in consequence of the persecutions of man. On the Atlantic coast of America it was met with in the sixteenth century as low as the southern coast of Nova Scotia and in the last century was common in the Gulf of St. Lawrence and on the shores of Labrador. It still inhabits the coast round Hudson's Bay, Davis Straits, and Greenland, where, however, its numbers are daily decreasing. It is not found on the Arctic coast of America between the 97th and 158th meridians. Fossil remains of walrus and closely allied animals have been found in the United States, and in England, Belgium, and France, in deposits of Quaternary and late Tertiary age.

WALSALL, a municipal and parliamentary borough and market-town of Staffordshire, England, 8 miles north-northwest of Birmingham and 123 northwest of London. The principal street is spacious and regular, and, although the side streets are generally crooked and mean, the suburbs are for the most part built with regularity and neatness. In the vicinity of the town are extensive coal-mines and limestone quarries. Ironstone is also obtained, and brick clay is dug. The town possesses iron and brass foundries, corn-mills, and tanneries. One of the staple industries is the manufacture of the various kinds of ironmongery required in

the construction of harness and carriages. Locks and keys, bolts, pulleys, and other hardware goods are also largely manufactured. The area of the municipal borough was extended in 1877 to 6,929 acres; the population in 1881 was 58,795. The population of the parliamentary borough (area 7,478 acres) in 1901 was 86,440.

WALSH, WILLIAM, is included among Johnson's *Most Eminent English Poets*, but is justly said to be "known more by his familiarity with greater men than by anything done or written by himself." He was a native of Worcestershire, represented his native county in several parliaments, and was gentleman of the horse to Queen Anne. He was born in 1663, and died in 1709.

WALSINGHAM, SIR FRANCIS, secretary of state under Elizabeth, was born about 1536. After a good private education he entered King's College, Cambridge, but did not take a degree. He remained abroad during the reign of Mary, and the knowledge of foreign languages he thus acquired is said to have commended him to the notice of Cecil, Lord Burghley. In the parliament which met in January, 1558-59, he was returned for Banbury, and in that which met in January, 1562-63, for both Banbury and Lyme Regis; he decided to sit for the latter place. Nothing further is known of his political history, till in 1568 he wrote to Cecil a letter on the Darnley murder, which shows that he enjoyed the confidence of Cecil and the regent Murray, and was fully convinced of Queen Mary's guilt. In August, 1570, Walsingham was selected as special ambassador to France in connection with the negotiations for the toleration of the Huguenots, and in December took up his residence as permanent ambassador at Paris. On December 1, 1577, he was knighted, and on April 22d of the following year made chancellor of the order of the garter. In June following, along with Lord Cobham, he was sent to the Netherlands to assist in arranging a pacification of the States, but the extraordinary vacillation of Elizabeth rendered his mission a total failure. In July, 1581, he was again sent on an embassy to Paris.

From the first Walsingham, equally with Cecil, Lord Burghley, was strongly hostile to Queen Mary of Scotland. By constant watchfulness and the skillful use of spies he succeeded in discovering the inmost secrets of her policy and plans. He permitted the Babington conspiracy to develop until letters passed between Babington and Mary which, if they are to be accepted as genuine, proved that the scheme for the assassination of Elizabeth had Mary's full approval. Mary and her friends declared that Walsingham had counterfeited her ciphers; but that Babington sent her letters informing her of the assassination scheme is beyond denial. Mary's friends, without any proof but her own asseveration, affirm that the letters never reached her, and that Mary's letters in reply, the authenticity of which Babington to the last never doubted, were forged by the agents of Walsingham. The asseveration of Mary is, however, robbed of all value by the fact that, in addition to denying the authenticity of the letters, she denied all knowledge of the Babington conspiracy; for Mendoza, the Spanish ambassador, while the plot was in progress, wrote to Philip II. that Mary had informed him she was fully acquainted with it. The accusation against Walsingham, that he was an accomplice in bringing Mary to the block on false and forged evidence, cannot therefore be entertained, although there cannot be any doubt that he regarded her execution as a happy deliverance from a position of great political embarrassment. He was one of the commissioners on her trial, and on Mary hinting that the incriminating letters



had been written by him, called God to witness that he "had done nothing unbecoming an honest man."

By becoming surety for the debts of Sir Philip Sidney, Walsingham, on account of a flaw in the power of attorney left by Sidney, found himself on Sidney's death unexpectedly involved in pecuniary ruin. But, although one of the ablest and wisest of Elizabeth's counselors, his honesty had frequently ruffled her self-esteem, and she witnessed his embarrassments without deigning to lend him the smallest help. He died at his house in Seething lane, London, April 6, 1590, in circumstances of so great poverty that his friends buried him in St. Paul's at night to save the expense of a public funeral.

**WALTHAM**, a city in Middlesex county, Mass., is in effect a township, containing several bodies of urban population, together with rural districts. It is situated about nine miles west-northwest from Boston, being in fact a suburb of that city. Besides the large village of Waltham, there are comprised in the city five others, viz., Bleachery, Chemistry, New Church, Prospectville, and Robert's Crossing. These have absorbed nearly all the population of the city, the rural inhabitants being comparatively few in number. The population, by the State census of 1890 was 18,707, about one-fourth being of foreign birth. The population in 1900 was returned at 23,481. Waltham is known all over the world for its machine-made watches, of which over 1,400 are turned out daily.

**WALTHAM ABBEY**, or **WALTHAM HOLY CROSS**, a market-town of Essex, England. At Waltham Cross on the great northern road, about a mile west of Waltham, is the beautiful cross erected (1291-94) by Edward I. at one of the resting-places of the corpse of Queen Eleanor on its way to burial in Westminster Abbey. It is of Caen stone and is supposed to have been designed by Pietro Cavallini, a Roman sculptor. It is hexagonal in plan, and consists of three stages, decreasing toward the top, which is finished by a crocketed spirelet and cross. The area of the urban sanitary district of Waltham Holy Cross is 11,017 acres, the population being 5,368.

**WALTHAMSTOW**, a town of Essex, England, now practically a suburb of London, is situated a short distance east of the river Lea, on a branch of the Great Eastern railway. The population of the urban sanitary district (area 4,374 acres) in 1901 was 95,125.

**WALTHER**, **BERNHARD**, astronomer, was born at Nuremberg in 1430. He was a man of large means, which he devoted to scientific pursuits. When **REGIOMONTANUS** (*q.v.*) settled at Nuremberg in 1471, Walther built for their common use an observatory and a printing office, from which numerous calendars and ephemerides were issued, which became of great importance for the voyages of discovery. At this, the first German observatory, clocks driven by weights were first used in astronomical observations in 1484. The observations, continued until Walther's death in May, 1504, were published by Schöner in 1544, and by Snell in 1618, as an appendix to his edition of Landgrave William's observations.

**WALTHER VON DER VOGELWEIDE**, the most illustrious of the German minnesänger, was born in Tyrol between 1165 and 1170. He belonged to a noble family, but had no hereditary possessions. At an early age he seems to have given evidence of an aptitude for poetry, and his genius was developed under the influence of the older poet Reinmar, whom he soon far surpassed. His earliest patron was the young and brilliant Duke Frederick of Austria, at whose court in Vienna he spent several years. After Duke Frederick's death Walther betook himself to King Philip, at whose

coronation in Mainz on September 8, 1198, he was present. In 1217 he was at the court of Duke Leopold of Austria, after whose departure for the Holy Land he appears to have been received first by the duke's uncle, Henry of Medlik, then by Berthold of Andechs, the patriarch of Aquileia. On the return of Duke Leopold, Walther again spent some time with him; but in 1220 he joined the retinue of the imperial vicar Engelbert of Cologne; and Frederick II.'s son, Henry, to whom he seems to have acted as tutor. In 1224 Walther retired to Würzburg, where, although living in privacy, he watched closely the course of public affairs. He may have taken part in the crusade of 1228, but he certainly did not reach Palestine. He died about 1230 at Würzburg.

**WALTON**, or **WALTON-LE-DALE**, a township of Lancashire, England, is situated on the south bank of the Ribble, one and one-half miles southeast of Preston. Cotton-spinning is carried on, and there are market-gardens in the vicinity. The population of the urban sanitary district (area 4,683 acres) 11,286 in 1901.

**WALTON**, or **WALTON-ON-THE-HILL**, a township of Lancashire, England, now practically a suburb of Liverpool, three miles northeast of the central station. It consists largely of villas and the better class of residences. The population of the urban sanitary district (area 1,907 acres) in 1901 was 25,536.

**WALTON**, **BRIAN**, bishop of Chester, and editor of the great London Polyglott Bible, was born at Seymour, in the district of Cleveland, Yorkshire, in 1600. He went to Cambridge as a sizar of Magdalene College in 1616, migrated to Peterhouse in 1618, was bachelor in 1619, and master of arts in 1623. After holding a school mastership and two curacies he was in 1626 made rector of St. Martin's Organ in London (1626). In 1642 he was ordered into custody as a delinquent; thereafter he took refuge at Oxford, and ultimately returned to London to the house of Dr. Fuller, dean of Ely, whose daughter Jane was his second wife. In this retirement he planned and executed his great work, a Polyglott Bible which should be complete, cheaper, and provided with a better critical apparatus than any previous work of the kind (see **POLYGLOTT**). The proposals for the Polyglott appeared in 1652, and the book itself came out in six great folios in 1657, having been printing for five years. He was consecrated bishop of Chester in December, 1660. In the following spring he was one of the commissioners at the Savoy Conference, but took little part in the business. In the autumn of 1661 he paid a short visit to his diocese, and returning to London he fell sick and died on November 29th.

**WALTON**, **IZAACK**, author of *The Compleat Angler*, hooked a much bigger fish than he angled for when he offered his quaint treatise to the public. There is hardly a name in literature, even of the first rank, whose immortality is more secure, or whose personality is the subject of a more devoted cult. Not only is he the *sacer vates* of a considerable sect in the religion of recreation, but multitudes who have never put a worm on a hook—even on a fly-hook—have been caught and securely held by his picture of the delights of the gentle craft and his easy leisurely transcript of his own simple, peaceable, lovable, and amusing character. He was born at Stafford in August, 1593; the register of his baptism gives his father's name as Jervis, and nothing more is known of his parentage. He settled in London as a shopkeeper. In 1624 he had a shop in Fleet street opposite the Temple, and was described as a linen-draper. In 1632 he bought a lease of a house and shop in Chancery Lane, and was described as a "sempster" or milliner. The last forty years of his



long life seem to have been spent in ideal leisure and occupation, and he died in 1683.

The first edition of *The Compleat Angler* was published in 1653, but the peaceful angler continued to add to its completeness in his leisurely way for a quarter of a century. There was a second edition in 1656, a third in 1661 (identical with that of 1664), a fourth in 1668, and a fifth in 1676. In this last edition the thirteen chapters of the original have grown to twenty-one, and a second part was added by his loving friend and brother angler, Charles Cotton, who took up "Venator" where Walton had left him, and completed his instruction in fly-fishing and the making of flies. Walton did not profess to be an expert with the fly; the fly-fishing in his first edition was contributed by Mr. Thomas Barker, a retired cook and humorist, who produced a treatise of his own in 1659; but in the use of the live worm, the grasshopper, and the frog, "Piscator" himself could speak as a master. The famous passage about the frog—often misquoted about the worm—"use him as though you loved him, that is, harm him as little as you may possibly, that he may live the longer"—appears in the original edition.

WALTZ (Ger. Walzer, literally, roller), a national German dance, said to have originally come from Bohemia. It first became a fashionable dance in the other countries in the early part of the nineteenth century. It is danced to music of three-quarter time by any number of couples, who, with the gentleman's right arm round his partner's waist, wheel rapidly round on an axis of their own, advancing at the same time round the room. Some time ago the Valse a Deux Temps was generally adopted—a form of the waltz not so graceful as the older one, because not so correspondent to the rhythm of the music—but this has now given place to the Valse a Trois Temps.

WAMPUM, a name given to shells and shell beads, used as money, and worn for ornaments in strings and belts by the North American Indians.

WAN-CHOW-FU, a prefectural city in the Chinese province of Ché-keang, and one of the ports opened by treaty to foreign trade, is situated on the south bank of the river Gow, about twenty miles from the sea. Its present name, which signifies the "mild district," and which is correctly descriptive of the climate, though not of the inhabitants, was given to it during the last dynasty (1368-1644). The walls, which were built in the tenth century, are about six miles in circumference, thirty-five feet in height, and twelve feet broad at the top. The gates, seven in number, were put up in 1598. Wan-chow is about 1563 miles by road from Peking and 600 from Hankow. The country in the neighborhood of the town is hilly and pretty, while opposite the north-west gate "Conquest Island" forms a picturesque object. The island is, however, more beautiful than healthy. The port, which was opened to foreign trade in 1876, has not justified the great expectations which were formed of its probable success as a commercial center.

WANDERING JEW. See JEW, WANDERING.

WANSTEAD, a village of Essex, England, now really a London suburb, eight miles by rail northeast of Liverpool street station. It possesses the usual characteristics of the better-class eastern suburbs of London. Wanstead Park, 184 acres in extent, was opened in 1882. The population of the urban sanitary district (area about 1,072 acres) in 1901 was 7,362.

WAPITI (*Cervus Canadensis*), a species of deer, nearly allied to the stag, but considerably exceeding it in size, being four and a half feet in height at the shoulder. It is a native of North America, found as far south as Carolina, and as far north as 56° or 57° N. latitude. It is yellowish brown on the upper part;

the sides gray; a pale yellowish patch on each buttock, bounded by a black line on the thigh; the neck, a mixture of red and black, with long, coarse black hair falling down from it in front, like a dewlap; a black mark at each angle of the mouth. The hair is crisp and hard, but there is a soft down beneath it. The antlers are large, much like those of the stag, but the first branch bends down almost over the face. The wapiti is called elk and gray moose in some parts of America, although very different from the true elk, or moose deer. It is found chiefly in low grounds, or in parts of the forest adjacent to savannahs and marshes. Its flesh is coarse and dry. The hide makes excellent leather.

WAR. Whatever definition of the word "army" (see ARMY) be adopted, the fact that it is a body of men organized for the effective employment of arms is the essence of it. Hence the nature of the most effective organization and employment of armies in active warfare at any given period has always turned upon the nature of the arms in use at the time. The laboratory and workshops of science in recent years have in fact produced and forced on a change in the nature of fighting, of a kind which it is safe to say never entered the mind of any one of the inventors whose skill made it necessary. And yet the change is of such a kind that, though due to the development of very material things, as, for instance, the greater rapidity of fire, the greater range of weapons, and the like, it is much more remarkable in its effect on the spirit of armies and the nature of fighting discipline than in almost any other aspect.

In all periods of war, under all conditions of arms, the moral forces which affect armies have been the great determining factors of victory and defeat. From a date much earlier than the day when Cæsar, defeated at Dyrrachium, gained the empire of the world by so acting as to restore the morale of his army before the great contest at Pharsalia, it has been on this nice feeling of the moral pulse of armies that the skill of great commanders has chiefly depended. In that respect there is nothing new in the modern conditions of war. It was this stability of morale that enabled the Southern armies, in the late Civil war between the States of the Union, to endure the hardships and privations which beset them, and to gain the splendid victories which they did in the face of, sometimes, overwhelming odds, and always superior equipment. Whenever the confidence of the soldiers in their leaders was destroyed or diminished the result was at once apparent in their fighting qualifications. So long as Jackson led his brigade it was the "Stone-wall" brigade. With him at their head they were invincible, because they were confident. Without him, they did not do half so well.

The history of the army of the Potomac furnishes another commentary of the same nature. For the entire period of the war prior to the assumption of command by Grant the career of this army had been one of almost continuous disaster, and the reason alleged was the lack of confidence in its commanders, both by the soldiers composing the army and the government at Washington. McClellan furnishes a noticeable instance, on the one hand, and Hooker and Burnside on the other. McClellan, in his correspondence with the secretary of war, openly charged Mr. Stanton with having done his best to destroy the army by fomenting distrust and encouraging criticism of, if not insubordination to, the commanding general.

It is among the first of these principles that for success in our days careful peace practice, adapted to the actual conditions of fighting, must precede the entry on a campaign. When letters from the seat of

war in 1866 brought home to Europe the effect which the breech-loader was producing in determining the contest, the first impression was that of simple consternation. It was supposed that Prussia, by the possession of that weapon alone, had made herself mistress of Europe. Gradually it came to be known that the secret of Prussian power lay, not in her breech-loader alone, but at least as much in her perfect organization. In 1870 her scarcely less startling successes tended for a time to produce an effect almost as blinding upon the eyes of those who watched them. There was a disposition to assume that whatever had been done in the war by the Prussians was, by the deliberate choice and determination of the best and most successful soldiers in Europe, shown to be the best thing that could be done under the circumstances. The exhaustive statement of facts contained in the Prussian official narrative and in the regimental histories, and the evidence of eye-witnesses innumerable, have, however, gradually made it evident that, valuable as the experiences of the 1870 campaign unquestionably are for soldiers of all nations, the Prussian successes were certainly not due to the carrying out of what are now regarded by the best Prussian officers themselves as the principles of action which ought to determine practice in future wars. But during the course of the war itself the Prussian army, prepared by the soundest peace training to adapt itself to whatever conditions it met with, was continually and progressively modifying its practice under the experience of conditions which it had been impossible fully to anticipate.

The essential change which appears to have come over modern war may be stated thus: Under the conditions of the past, the general in command of an army relied upon its perfection in drill and in formal maneuvers for enabling him to direct it with success against the weak points of an adversary. Now he must depend instead upon the perfection of its organization and of a training adapted to make each man ready when required to apply sound principles in every emergency, and, above all, as soon as possible, voluntarily to place himself under authority again, so as to secure unity of action. To summarize this statement in a single sentence, and employing the word organization in the larger sense explained above, the change consists in the substitution of organization for drill as a means of battle-action. In other words, a living organism must take the place of a mechanical instrument.

It is necessary, in discussing the application of past experience to modern war, to make intelligible the distinction between these two fields of experience, because, undoubtedly, the changes wrought by time affect the two great parts of the art of war in very different ways and in a very different degree. But in fact there are many parts of the study of tactics which are not strictly included within its province when that is limited to the field of battle. The distinction between the two provinces having been understood as a general idea, it will be seen at once how it has happened that in the varied incidents of warfare it has become necessary to apply the terms "tactics" and "strategy" to other matters. For no army can determine for itself or know beforehand absolutely what will be a field or a day of battle. Hence it is necessary throughout almost the entire course of a campaign to take those precautions and take into account those considerations which apply properly to the period of actual combat. Thus, though an enemy may in fact be many marches distant, it is necessary to provide against his possible attack, by having some troops always on the alert while others are marching with all the ease and security which the protection of these procures for them. It is necessary also

in a similar manner to have protection for the repose of an army, and to detail troops for this purpose.

It must be always a question how far the circumstances of our own time have so changed as to limit the period within which it is worth while to devote very careful study to the wars of the past. On the one hand, the greater number of officers in any army will never find time exhaustively to study all the great campaigns which would be of value if they had really so known them as to acquire the experience, as far as may be, of the various actors in them, and it is therefore of special importance that the most modern experiences at least should be completely known to them. On the other hand, even after all the campaigns which have taken place since breech-loaders and rifle-guns have become the determining factors of battles have been carefully studied, it can hardly be claimed for them that they present a picture approximately complete of all the possibilities of modern war. To any one who tells us that nothing applicable to the wars of the future is now to be learned from the campaigns of Napoleon, or even from the events of the Peninsular war, we are prepared to reply by adducing, either from almost any one of Napoleon's most important campaigns or from the Peninsula, specific lessons, for the most part experiences of human nature, and illustrations of the mistakes which men are liable to make, which have in no wise been diminished in value by the changes which have come over the face of war.

In many respects, no doubt, even the Roman armies in the time of Hannibal acted on strategical principles that are applicable in our own time. Yet the change in the conditions under which armies began to live in the field was so great from the moment when, in order to facilitate and hasten their movements, they began to be thus supplied from a particular "base," and along these "lines of communication," that the art of handling them in campaigns changed almost as completely as tactics ever changed. New combinations became possible. Skill was turned into a new direction. In other words, strategy, like tactics, changes when its implements or weapons change. If now it be asked whether since the days of Napoleon and Wellington the implements of strategy have not changed almost as completely as those of tactics, it must be answered that the change has been even more complete. Nowhere has the truth of this statement been more apparent than in the late war in the United States. The most complete revolution of tactics and manipulation of war material in naval operations that the world has witnessed began with the construction of Ericsson's *Monitor*, and affected not only America, but the entire world, as this article will later on fully show.

Not only have we to deal with new material conditions, but, as already observed, the armies which have to be led under these new circumstances have themselves been profoundly changed, not only in their armament but in the very spirit, discipline, and organization by which they are held together. What is true of the private, of the sergeant, of the captain, in his relation with superiors, is even truer of the leader of the brigade, of the division, of the army-corps, of the coöperating army. The whole method of the Prussian discipline and organization, as it showed itself in 1870, implied an intelligent independence of action in all ranks that most seriously affected the strategical operations. In fact, in that campaign two very noteworthy points may be observed. From the first battle at Weissenburg up to and including Gravelotte, the peculiar feature of the war was that the German successes at each action—Weissenburg, Wörth, Spicheren, Colombey-Nouilly, Mars-la-Tour—were much more important in their strategical



than in their tactical aspect—much more important, that is to say, in their general influence on the campaign than in the severity of the losses in men and material inflicted on the enemy. The losses in battle were in fact greater on the side of the victors than on that of the vanquished. Yet, secondly, each of these actions, up to but not including Gravelotte, was brought on by the determination of subordinate leaders, and was not designed beforehand either by the king's headquarters or by the headquarters of any one of the three armies. It cannot of course be denied that there was an element of danger in this way of managing a campaign. But the general who attempts to carry out a modern campaign without having realized the nature of this strictly strategical experience is reckoning without his host. Armies now occupy, even when in numbers similar to those of the past, distances vastly greater than was the case in former times. One of two things must happen: either a general must attempt to prescribe the action of his subordinate leaders with a rigidity which nowadays will continually prevent them from carrying out what would be his wishes could he be on the spot to advise them; or he will find that he has, as best he may, to make his strategical movements fit into events which have not been previously designed by himself. The Prussian headquarters, realizing fully the dangers involved in the plan which they, in fact yielding to necessity, accepted, found no fault with the generals who had initiated battles which had proved successful, fearing to do more injury to the spirit of the army than would be compensated by any other advantage. Nevertheless the notes of warning thrown out in the official history of the war are clear and unmistakable. To us it appears that this condition of things is an element in modern war to be foreseen and prepared for, that it represents, not an accident of the 1870 campaign, but an almost inevitable consequence of the present condition of armies. It was their high spirit, their high training, their knowledge of war, which made the German leaders so hard to keep within the leash when they saw the prey before them, and realized that it was a matter of moments whether it could be seized or not. There is nothing like this campaign, in the peculiar mode in which its strategical aspects developed, in all the past history of war.

The character of all military operations, whether those of strategy or tactics, is mainly determined by the nature of the armies engaged in them. An army as it exists in the field owes its constitution largely to those military institutions which have been fully described for each of the armies of our time under ARMY. But an army in the field differs considerably in each case from that which has been described as "the machine in a state of rest." This will be obvious at once if we consider the first question which attracts the attention of a commander about to lead an army in war. He has to choose the line of operations along which his army will act. The considerations which determine his choice are mainly connected with the necessity he is under of providing at all times for the supply of his army with food, forage, and ammunition, while he directs it against the point at which he is to strike.

In order that, for actual fighting purposes and during war, "that vast and complicated machine," an army, may so act, "that the whole aggregate force of its numerous parts may be exerted in any direction and on any point required," the necessities of the individual soldier must be so provided for as not to hamper its working. A body of even thirty thousand men occupies a very considerable space, and requires an amount of food that completely disturbs the ordinary peace arrangements of most places at which it arrives in the

course of its movements. Hence, apart from the large means of transport, such as a great fleet or ample railway communication, which may be sometimes used to carry a whole army to a given destination, an army requires what is known as "transport" for an altogether different purpose. The food and ammunition must be distributed to the several battalions of soldiers composing the army from the points at which it has been collected, and within the battalions it will often be necessary to distribute it by transport to the men. Similarly for the conveyance of the sick and wounded of an army transport is required. In former days the arrangements which were made to provide an army with what was needed in this way were clumsy in the extreme. But now that the great nations of the continent of Europe have adopted a system by which all the population is available for military service, the result is that from the moment of declaration of war a modern army enters upon a campaign with the whole of its "transport," using the term in the sense we have employed, as definitely a part of the disciplined army as its infantry, its cavalry, or artillery are. It is scarcely possible to exaggerate the importance of this change in facilitating the operations of an army in the field.

The difficulty in rapidly transferring an army, chiefly because of its attendant departments, affects all strategical movements by railway. The embarking of troops on a railway, and their disembarking from the carriages, is an operation of such slowness that for comparatively short journeys it is actually quicker for troops to march than to move by railway. The miscalculations and mistakes which were made so recently as 1870 by the French army, from failure to understand these facts, led often to the most disastrous consequences. In one instance Gambetta, insisting on sending troops by railway which Aurelle de Palladines had wished to march, hampered the operations of that veteran by the delay which was thus imposed upon certain portions of the army. There is, in fact, between the distance to be moved over and the number of troops to be moved by a line of railway, a proportion which determines whether it is a more rapid operation to march or to travel by railway.

An army in the field, however, in addition to having transport present with it for distribution, needs to be able to replenish its supplies; and, though in fertile countries like France the feeding of the army may be greatly assisted by requisitions or by opening markets, it is impossible to depend for existence on these alone. Fresh supplies of ammunition at least must be continually received from a secure source, and the means must be available for feeding the army in case the resources of the country fail. Nowadays, and in most countries, the main line of supply is carried along lines of railway; but, as these are always liable to be destroyed by a retreating enemy, transport, independent of that which is required merely for distribution, must be provided in the form of wagons, carts, or pack animals sufficient to supply, for at least some days, the entire army.

The source from which an army is supplied is usually spoken of as its "base" or its "base of supply." The direction in which a general proposes to advance, and along which it will be necessary to arrange for supply, is spoken of as his "line of operations." The direction along which the army, having already advanced to some distance from its base, is supplied, is spoken of as its "line of communications." Now, as the line of communications may come to be of great length as an army advances, and as the army needs to have its fighting strength available in the front when it is engaged with the enemy, it is clear that the long lines of road or

railway along which the food and ammunition are moving forward, while parties of sick and wounded men are going backward, become weak points in its condition, which must be jealously guarded, but are difficult adequately to protect throughout their length, without detracting too much from the force in the front. In modern war the effort of the general is directed to maintaining in its full efficiency "the vast and complicated machine" which he handles, and to breaking up and destroying the efficiency of that to which he is opposed. This is the central fact to be kept in mind. Generals and soldiers, long accustomed to look at war from this point of view, frequently embody their whole conception of strategy in a phrase which to a reader, taking it in its simple form, is apt to seem like a mere truism—that the great principle of strategy is to concentrate the largest possible force at the right moment at the decisive point. So stated, strategy may seem to have nothing exceptional in its nature, and to involve no study of the nature of the great organizations of men with which it is concerned. But, in fact, this study and this knowledge are presupposed by those who thus explain their art. It is because armies are not mere gatherings of armed men, but have a vitality of their own, that some very heavy blows may be struck against them without affecting a vital point, while a more skillfully directed stroke may destroy their whole future power of action. An army, then, as it stands in the field, is of this character, that, while the fighting force directly opposed to the enemy is an organism which depends for its vitality upon the trained spirit of order, discipline, and enthusiasm or devotion which holds it together, and on the trained capacity for mutual and effective fighting co-operation which makes it act like one man, it has also, reaching far behind it, a long and weak tail, on the safety of which its very existence depends.

Now, if by employing a large portion, or the whole of his own force, against a smaller portion of the enemy's, a general can break up and defeat it, the advantage gained depends on the fact that he has broken up the organic unity of this portion. Even if, as may easily happen, he has lost more men than the enemy during the effort, that very little affects the importance of the result on the future of the campaign. The strength of armies cannot be measured by counting heads within the theater of war. It depends upon the organized force that the general is able to use and to direct. During the earlier battles of the 1870 campaign, for instance, the Germans lost very many more men than the French, but at Weissenburg they broke up the organic efficiency of a French division of about 8,000 men. At Wörth they broke up the organic efficiency of 40,000 men at least. After Wörth the French army which had fought there had for the time being ceased to be an effective fighting body at all. Throughout the campaign it never recovered efficiency. The German forces, on the other hand, though they had lost more fighting men than the French, had actually increased their own effective power. Their organic unity was retained, and the spirit which inspired it had been incalculably raised by victory. But if a general can in any way interfere with the source from which an enemy is obtaining his supplies of food, ammunition, and fresh men, he can diminish his fighting power as effectually as if he broke up the organic unity in battle. A body of men who are starving can as little be held in the bonds of organization as a body of men who are dispersed. Hence the slightest movement which threatens that long and weak tail already described obliges the general whose line of communications is threatened to take steps for its protection.

At first sight it is not very obvious, since each army possesses lightly movable troops—cavalry, mounted in-

fantry, and the like—why these should not be able to pass round the front of the opposing army, and get at the unguarded parts of the roads and railways along which the supplies are moving. To some extent, during the Civil war, this was actually done by the great leaders of horsemen on either side—Sheridan and Stuart. In all probability a similar attempt will be made in future wars by the great bodies of Russian Cossacks, and perhaps by the cavalry of Germany, France, and Austria. But what facilitated the raids of the American cavalry of either army was the fact that they were moving in a country where all the people spoke the same language as themselves, and where they were sure to find sympathizers to supply them with needed information. Under ordinary circumstances the difficulty is that each army faces the other without any approach to complete knowledge of the distribution of the troops opposed to it. The part of the enemy's line of communication which is nearest to you is also the part nearest to the main body of that enemy's own army. In order to get at some parts of his communications which would be out of reach of support from the main army, it would be necessary to send the assailing light troops to points several marches in rear. This involves a long détour, an elaborately prepared march, and the risk that the enemy may become aware of what is designed.

The situation is altogether changed if, instead of the two armies fronting one another directly, one of the two is able to make its movements in such a way that, while it securely covers its own line of communications, its direct march forward threatens to strike the line of communications of the enemy. Then the light troops can at once strike the most exposed parts in all security. Under those circumstances the army whose communications are threatened is obliged immediately, for fear of losing its means of existence, to turn to face its opponents. The advantage so gained by the army which has obliged its enemy to conform to its movement is very great. For the choice of position can no longer be made by the assailed army solely with the view to gaining success in battle. It may be obliged to fight in a position tactically disadvantageous, and if it is defeated the defeat is almost certain to be fatal: for it will be driven away from the means of replenishing supplies. On the other hand, the army to which it is opposed, if obliged by ill-success in action to retreat, falls securely back upon fresh supplies, and suffers only to the extent of its actual defeat on the battle-field.

Discipline is the very life-blood of an army, and it is on the field of battle, that is, within the province of tactics, that it shows its potency. To interfere in any way with this spirit, as it determines the power of the commander over his men in the presence of the enemy and under the stress of battle, to introduce the least malignant influence into it, is to blood-poison the army. Therefore, as no army can nowadays hope, in presence of a modern enemy armed with the weapons of to-day, to carry out a system of maneuvers in which discipline can be maintained with the old facility, and under conditions so favorable to it as those of the past, we must approach the subject with a caution proportioned to its vital importance. The American Civil war seemingly furnishes a contradiction to the proposition here laid down; for in the Confederate army, composed as it was of material of so high a class—men restive under all restraint of arbitrary nature—discipline in the sense here used was impossible; and yet no superior fighting aggregation of men was ever gotten together in the history of war, ancient or modern. In the Northern armies also, discipline was, to a less degree, impossible. These military organizations were composed almost



entirely of volunteers, and were officered by civilians, whose knowledge of military duties was very vague, and who were content to allow each man to act as a unit on the field of battle, so long as there was no absolute call for concert. This condition of affairs gave rise to the much resented remark of a veteran European strategist that the armies of the Civil war were nothing but armed mobs in conflict, and not armies in battle. Curiously enough it is from an English scientific author, from Mr. Darwin, that one of the ablest of recent German writers on war has borrowed the penetrating phrase which sums up the essential element, common to the discipline of the past with that of the present, which it is vital to us not to shake or to impair. The engrained habit of mutual confidence among all ranks of a regiment is the factor in its strength which attracted Mr. Darwin's attention as the cause of its incalculable superiority in power over an armed mob. Baron von der Goltz accepts the statement as true, without reserve. When, however, we come to consider what has enabled armies to acquire this engrained habit, we are met by some very curious experiences. In the first place, the instinctive habit of obedience to a word of command, as coming from one who has the right and the duty to give that command, has to be carried into the very limbs of a man.

Now the capacity to act together under the orders of one man can never be dispensed with under any of the conditions of modern war. The instinctive obedience of a rank of soldiers to the order to turn "Right about," when that order sends them back into the ground where shells are bursting and where bullets are raining, has been a power in fighting too great ever to throw it away. In proportion as men understand war they value this effect, and would be unwilling even to diminish at a given moment actual loss of life if that diminution were secured by any sacrifice of this power. But, under the modern conditions of war, the loss inflicted within a given time by the terrible weapons now in the hands of all armies is so great that the formations under which on a parade ground the armies of the past prepared to move in actual fighting under the orders of their commanders are mechanically as much as morally dissolved. Not even can the voice of the captain or the subaltern be heard, much less that of the lieutenant-colonel, above the din of breech-loaders and of shrapnel shells. The great problem of modern tactics, in so far as it concerns actual fighting, which regulates everything else, is how to maintain the old unity under the new conditions which make it so difficult.

This much at least we know, that from the moment that infantry are actually involved in a modern breech-loader fight all maneuvering has ceased to be possible. The natural and the necessary deduction from this is that the only influence which can be exercised upon such a fight by any but very subordinate leaders is to throw into it fresh bodies of men who till then have been retained in close formations. Now the experience of the 1870 battles showed clearly that the effect of fresh bodies thus thrown into a fight is very great indeed. Moreover, that experience showed further that the direction in which the fresh force is thrown into a contest already engaged between two bodies of infantry is vitally important in determining how great the effect of the blow so delivered will be. The tendency of any great fight is to break up into a series of partially independent actions. Therefore it almost always happens that in each of these there are on both sides certain weak points, which present opportunities to a skillful assailant. These arise either from circumstances of ground or from the inevitable disconnection produced by isolated action of particular bodies of troops. Skill

now consists in taking advantage of these opportunities, in anticipating the conditions under which they are likely to occur, in preparing to escape from similar dangers, and in pressing home a success. Here then is the way in which the organization spoken of above as the means of battle action makes itself felt. It is impossible now for the commander-in-chief of a great army to be ready at each part of a battle for one of these emergencies. Scarcely can the commander of a division of 10,000 men, or even the commander of 3,000, meet all the local incidents that occur. At each stage of the hierarchy there is needed a man who, in proportion to the extent of the opportunity or the danger, is ready to seize or to meet it.

Cavalry striking by sudden surprise on the flank of unprepared infantry or artillery, engaged with other enemies, may produce an effect, great to an extent of which as yet we have no adequate example in modern war. That is the conclusion drawn from their own experiences of the 1870 campaign by the most experienced leaders who were employed in it. Count Von Moltke in 1882, and Prince Kraft of Hohenlohe-Ingelfingen in his letters on cavalry published in 1887, have alike pronounced decisively on the subject, and it would be easy to show that the whole weight of the best military opinion in all countries except Russia is on the same side.

The practical possibility on most fields of battle of cavalry being thus employed depends on two facts—on the one hand the extent to which almost all ground presents opportunities to a skillful leader for moving his men unobserved from point to point of a great battle-field, and on the other that absorption in the intense excitement of a modern fight which prevents men from observing what is taking place anywhere beyond the immediate range of their own employment.

It follows from this that the utmost possible skill in the handling of cavalry as a mounted arm will be required if cavalry is to take advantage of such chances as modern fight will present to it. Now, in all periods since the invention of firearms, there has been a tendency, as improvements in weapons has taken place, to attempt to put cavalry on a level in point of firearms with the infantry with which it has had to contend. Invariably, when that rare development of armies, a great cavalry leader, has arisen, he has swept away all attempts of the kind, and has employed his cavalry with their proper weapon, the "arme blanche," sword or lance.

Nothing is more noteworthy throughout the 1870 campaign than the extraordinary superiority of the German artillery over the French. There were no doubt certain technical reasons for this; but by far the most important reasons were these:—(1) the German batteries had been trained habitually so to coöperate that a French battery almost always found itself opposed to a German brigade of six batteries when it came to fighting; and (2) at all their maneuvers the Germans had been training for war, while the French artillery had not. The German artillery had never fired off a gun which had not been properly laid at an assigned object, with the range determined, the nature of the projectile declared, and the fuse to burst the shell so far fixed that, had it been necessary actually to fire in earnest, every man would have gone through an almost exactly similar experience. The French, on the other hand, had piqued themselves on their dashing battery maneuvers, and had been content to fire off a blank cartridge as rapidly as possible, no matter how the gun was laid, or what would have happened about the shell.

Ordinarily a battle will now begin by artillery opening fire at a range which is fixed by the necessity of the

attacking artillery not exposing itself during the time that it is coming up to the enemy's effective fire with shrapnel shell. This is reckoned at about 3,800 yards. From that point the artillery, as soon as it has been able sufficiently to occupy the fire of the enemy to make further advance possible, pushes in to a distance of from 2,200 yards to 2,700 yards. Infantry in the meantime will have been pushed on sufficiently to protect the ground thus to be occupied by the artillery from direct attacks from the enemy. At this point an artillery duel is practically the certain beginning of the regular battle. The artillery will fire at any of the other arms as soon as it is able to bring any effective fire to bear on them. It is no easy matter for infantry to attack other infantry until the artillery has prepared the way for them by a heavy fire. But the artillery will hardly ever be able to do this until it has established such an ascendancy over the enemy's artillery that the latter is either silenced or at least temporarily withdrawn.

So far we have spoken of what may properly be called the minor tactics of the three arms, though that name is often applied in quite a different sense. There can be little doubt that it is in that portion of tactics that the complexity and difficulty of the present stage of the question lie. As regards the larger handling of armies, the tendency of recent wars has been rather to simplification than to increased difficulty. The employment of artillery in great masses, never in isolated batteries, is, so far as that arm is concerned, its most important law. So much so is this the case that, even when as many as eighty-four guns were collected together at Wörth, the Germans found it to answer best to turn all of them at once upon a single French battery, and then upon another, and so on. Wherever possible, some at least of the guns will take up an enfilading position; that is, they will fire from flank to flank of the troops they assail, in preference to firing directly at them. It is always advantageous to the fire of artillery to have great depth rather than great extent to fire at, because range is much more difficult to fix correctly than direction.

The principles regulating the marches of armies which precede battles are determined by the conditions of a modern battle itself. As a rule nowadays the cavalry of an army will be certainly pushed far forward in advance of the main body. Therefore, with the exception of small parties of horsemen employed as orderlies, for keeping up the connection between one part of an army and another, and to aid the infantry in the immediate work of local security, the marching body will in ordinary country consist of artillery and infantry. The tendency for every action to begin by artillery fire continually leads more and more to the pushing forward of that arm to the front of the column, only sufficient infantry being placed before it on the road to give protection in case of sudden attack, and to furnish the necessary troops for the defense of the guns at the beginning of an action. The exact order of march will therefore necessarily vary with the character of the country through which the army moves. In very mountainous districts, in which collision with an enemy may occur at any moment, it may be necessary to push forward infantry instead of cavalry. In all cases where mountain defiles have to be passed, detached infantry must gain possession of the heights before the main body enters the defile.

Since the great object of all marches is to deliver the army in fighting order on the battle-field, it is necessary that the force should not be dispersed too widely on the march, but it is quite as necessary with large bodies of troops that the march should not be made upon too few roads. An army corps with its attendant wagons occu-

pies in depth about twenty-five miles on a single road. As under most circumstances a day's march is about thirteen or fourteen miles, it is clear that, if an army corps were moving in the ordinary road formation on a single road, the rear of the column would scarcely be able to arrive on the same day that the head of the column was first involved in action. Nor is it always possible to place the whole of the fighting force in front and to leave the whole mass of wagons in rear. Ambulances and surgeons at least, as well as ammunition columns, are required at the very moment of battle. Therefore it is advisable to employ as many roads as possible that are within convenient reach of one another. The difference between the lengths of march that have been done by troops under favorable and unfavorable conditions is so great that it is impossible to fix any specific length as the march that can under all circumstances be relied on. Good spirits, good roads, high training, and favorable weather on the one hand, and depression, deep mud, storms, and want of marching condition on the other, are elements that must be taken into account in all such matters. Of the difficulties which a large number of troops marching on a single road encounter, a striking illustration is afforded by an incident of the 1866 campaign. According to the Austrian official account, the men marched eight abreast in order to diminish the length of road occupied. Yet, though this unusually wide marching front was taken up by the infantry, and corresponding formations were as far as possible taken by the other arms, the length of the longest column, according to Von der Goltz, was, when actually on the road, from front to rear, sixty seven and a half miles in length. In this case about three corps were marching together. Hence it is always desirable when possible to allow one road at least to each division. Another striking illustration both of the size of modern armies and of the length occupied by troops on a road is given by Von der Goltz. He calculates that, if the present German army were placed on one road, it would reach from Mainz to the Russian frontier, the whole distance being densely packed with men, guns, and wagons. Again, he shows that either the present French or German army extended in battle array would occupy the entire length of the common frontier of the countries.

The subject of outposts is also one which, for its full explanation, would require a volume to itself. The general principle on which their use is based is that a slender cordon of men shall so surround an army when at rest that no enemy can approach its quarters unobserved, and that this cordon shall be supported by pickets from which the actual sentries for the cordon are taken, and these again by stronger but less numerous bodies, serving to connect together the different parts, so that, if the enemy attempts to drive in the outposts at any point, he meets with a continually increasing resistance. In this broad indication of the method, the principle is equally applicable to cavalry and to infantry outposts. In general, however, the security of a modern army, when not in actual contact with an enemy preparatory to battle, depends chiefly on the early information gained by cavalry pushed far out beyond the rest of the army. The cavalry will be at a distance of at least one or two days' march in advance and on the flanks scouring the country in all directions.

The introduction of steam, armor, the torpedo, and other modern changes must necessarily have produced modifications in naval strategy and tactics since the days of the last great naval war. In the course of the last eighty years wars on land, both in Europe and elsewhere, have been frequent, and soldiers have thus been enabled to keep pace with modern inventions, and to accommodate their strategy and tactics to the ever chang-



ing conditions of the problem. But since 1805, when Great Britain, by her victory of Trafalgar, placed herself in undisputed command of the seas, and, having rendered herself superior to all possible combinations against her, was thus enabled to found unmolested her colonial empire, the world has seen no naval war of sufficient magnitude to enable seamen to lay down maxims of strategy and tactics founded on actual experience. It does not follow, however, that we must necessarily give up the problems as insoluble; we are entitled to reason by analogy. The lessons of history, if not followed too slavishly, will act as a useful guide; and when we have made due allowance for the superseding of sail by steam power, and the consequent limits to the mobility of all fighting ships dependent on their supply of coal, when we have taken into consideration the cutting of the Suez canal and the possibility of another through Panama, and when we have given due weight to the possession by various nations of certain strategic points on the surface of the globe where coal may be obtained, we shall be able to construct some not altogether imaginary theories of future naval strategy, and shall probably find that the problem bears a striking family resemblance to that which presented itself in the past.

The effective blockade of an enemy's ports would of itself provide for the protection of commerce, for if no hostile ships could escape there would be nothing to prey upon the commerce. Such experience, however, as was gained during the American Civil war, supported by numerous peace trials and general nautical experience on the subject, tends to show that a perfectly effectual blockade is impossible, as against steamers: some vessels of high speed will certainly find means of escaping on dark nights or during thick weather, so that it becomes necessary for a rich commercial nation, whose merchant ships cover every sea, to make arrangements for providing cruisers of superior speed and greater coal endurance, to look after every one of the hostile raiders which may escape the blockade and endeavor to adopt the tactics of the famous "Alabama." Some half-dozen Confederate cruisers of feeble power and insignificant speed succeeded in driving the merchant flag of the United States off the ocean, and deprived this country of the large share of the carrying trade of the world which it then possessed.

If naval strategy has been modified by the recent inventions and alterations in warlike materials and the motive power of ships, it is certain that the same causes have had a still greater effect upon all preconceived notions of naval tactics. Weather gauge will no longer be sought for as an advantage. In fact in all cases of attack by surprise, such as an assault by torpedo boats, or other light craft, for the purpose of harassing a fleet, the attacking force would certainly approach from the leeward, by which tactics the smoke from every gun fired by the fleet would act as a screen to hide their movements, and protect them from machine gun fire; for not even the beams of the electric light can penetrate smoke. A large amount of speculative writing has lately been indulged in, by both English and French writers, as to the naval tactics of the future. We hear of "ramming tactics," "the end-on attack," "the *melée*," and various other somewhat vague phrases, used to express the views of theorists as to the probable tactics of a future naval battle; and, while the torpedoist tells us that his weapon (meaning the locomotive torpedo) will certainly decide an action, and forbid ships to approach near enough for ramming, the artilleryist laughs to scorn the inaccuracy and limited range of torpedoes moving in such a dense medium as water, and maintains that his weapon, of far greater accuracy,

almost equal destructive power, and immensely greater range, will as of old decide the battle.

It is probable that all three weapons, ram, gun, and torpedo, will play a part in future naval battles, though many thoughtful and practical seamen seem to be coming to the conclusion that the ram will not be deliberately used, except perhaps to give the *coup de grace* to a ship with her engines already disabled; and this even would appear to be a wanton destruction of a ship which might become a valuable prize; and an inhuman sacrifice of lives no longer capable of exercising any material influence on the battle. It seems to be thought that ramming, when it takes place in action, will be as often accidental as deliberate; and indeed the present high speed and great size and weight of ironclads would probably forbid practical seamen from adopting that mode of attack. Two ships of from ten to thirteen thousand tons, meeting end-on at a speed of twenty-eight knots an hour (assuming the speed of each to be fourteen knots), would certainly produce mutual destruction, with loss of the lives of almost all on board, and it seems difficult to believe that any two men who still retained calm judgment and reason would deliberately adopt such a suicidal method of fighting, if indeed it be possible to steer two large ships at high speed with such accuracy as to cause a direct collision—a point which many practical seamen doubt.

On the other hand, a ship striking another on the broadside, or at any angle approaching a right angle, would probably cause the destruction of the latter, with but trifling injury to herself, supposing her bows to be properly constructed for ramming; but, in order to place a ship in a situation to strike such a blow (both ships proceeding at speed), she would herself have to assume a very critical position; that is to say, she would have to expose her broadside, or in other words, she would have to place herself almost as much across the assumed path of her adversary as the adversary was across hers; in which position the miscalculation of a few seconds in time, a knot or two in speed, or even a small touch of the helm of either ship at the last moment, would turn the would-be rammer into the victim. It is probable therefore that, if ramming takes place in action, it will be more frequently by accident than design.

WARANGAL, or WORUNGUL, an ancient town in the Nizam's Dominions, or Hyderabad State, situated eighty-six miles northeast of Hyderabad City, and containing in 1901 a population of 4,347. It was the ancient capital of the Hindu kingdom of Telingāna, founded by the Narapati Andhras, of which now little remains to denote its former grandeur except the four gateways of the temple of Siva.

WARASDIN. See VARASD.

WARBECK, PERKIN, a pretender to the crown of England, was born in London, though said to have been the son of a Jew of Tournay, where he spent his boyhood. In 1490 he appeared at the court of the Duchess of Burgundy, sister of Edward IV. of England; and here professed to be the duke of York, the younger of the two sons of Edward IV., murdered in the tower. In 1492 he landed at Cork, where he was welcomed. Subsequently he was received at the court of Charles VIII. of France, as duke of York; and from the court of Burgundy, where he was treated as nephew of the Duchess, he went to Kent, and attempted a rising against Henry VII. He next went to Scotland, where James IV. gave him the daughter of the Earl of Huntly in marriage.

In 1498 he came to Cornwall, took the title of Richard IV. of England, was taken prisoner, escaped from

prison, was retaken, was detected in a plot, and finally executed at Tyburn, November 23, 1499.

WARBLER, in ornithology, the name bestowed in 1773 by Pennant on the birds removed, in 1769, by Scopoli from the Linnæan genus *Motacilla* to one founded and called by him *Sylvia*—the last being a word employed by several of the older writers in an indefinite way—that is to say, on all the species of *Motacilla* which were not Wagtails. "Warbler" has long been used by English technical writers as the equivalent of *Sylvia*, and consequently generally applied to all members of the Family *Sylviidae* thereof raised, which has since been so much subdivided as to include a vast number of genera, while species almost innumerable have from time to time been referred to it.

The birds known as "American Warblers," forming what has now for a long while been almost universally recognized as a distinct family, *Mniotiltidae*, possess but nine instead of ten primaries, and are peculiar to the New World. More than 130 species have been described, and these have been grouped in twenty genera or more, of which members of all but three are at least summer visitants to North America. As a whole they are much more brightly colored than the *Sylviidae* (*Malurus*, if it belongs to them, always excepted); for, though the particular genus *Mniotilta* (from which, as the fortune of nomenclature will have it, the family takes its right name) is one of the most abnormal—its colors being plain black and white, and its habits rather resembling those of a TREE-CREEPER (*g.v.*)—in other groups chestnut, bluish gray, and green appear, the last varying from an olive to a saffron tint, and in some groups the yellow predominates to an extent that has gained for its wearers, belonging to the genus *Dendroica*, the name of "Golden" Warblers. In the genus *Setophaga*, the members of which deserve to be called "Fly-catching" Warblers, the plumage of the males at least presents yellow, orange, scarlet or crimson.

WARBURTON, ELIOT BARTHOLOMEW GEORGE, traveler and novelist, born in 1810 near Tullamore, Ireland, made a hit with his first book, *The Crescent and the Cross*. It was a book of Eastern travel, in Turkey, Syria, Palestine, and Egypt, and fairly divided public attention with Mr. Kinglake's *Eothen*, which appeared in the same year, 1844. His first success as an author tempted him to try again, but he had unhappily a short career, and did not again equal *The Crescent and the Cross*. His most substantial work was a *Memoir of Prince Rupert*, published in 1849, enriched with original documents, and written with eloquent partiality for the subject. He produced another historical novel, *Darien, or The Merchant Prince* (1851). The knowledge therein shown of the inhabitants of the isthmus led to his selection by the Atlantic and Pacific Company to explore the country and negotiate a treaty with the Indian tribes. He sailed on this mission in the *Amazon*, which perished by fire with nearly all on board on January 4, 1852.

WARBURTON, WILLIAM, bishop of Gloucester, was born on December 24, 1698. In 1723 he was ordained deacon by the archbishop of York, and on March 1, 1727, received priest's orders from the bishop of London. He had occupied the interval in various literary labors, the most important being the notes he contributed to Theobald's edition of Shakespeare. He received from Sir Robert Sutter the small living of Griesley, in Nottinghamshire, exchanged next year for that of Brant Broughton, in Lincolnshire, and was made an honorary M.A. of Cambridge. Here for eighteen years he spent his time in intense study, the first result of which was his celebrated treatise on the "Alliance between church and state," published in 1736.

His next performance, the famous *Divine Legation of Moses Demonstrated on the Principles of a Religious Deist*, the first part of which was published in 1738, will long preserve his name as the author of the most daring and ingenious of theological paradoxes. The deists had made the absence of any inculcation of the doctrine of a future life an objection to the divine authority of the Mosaic writings. Warburton boldly admits the fact, and turns it against the adversary. No human legislator, he contends, would have omitted such a sanction of morality; *ergo*, the legislation was divine. It may be doubted whether the argument ever convinced any one; and its cogency was not assisted by the multitude of minor paradoxes with which it was interwoven, such as the identification of the scenery of the sixth book of the *Æneid* with the exhibitions of the Eleusinian mysteries. But the author's extraordinary power, learning and originality were acknowledged on all hands, though he excited censure and suspicion by a circumstance highly honorable to him, his tenderness to the alleged heresies of Conyers Middleton. The second volume of the work appeared in 1741. In 1757 he was made dean of Bristol, and in 1760 bishop of Gloucester. His last important act was to found, in 1768, the Warburtonian lecture, "to prove the truth of revealed religion from the completion of the prophecies in the Old and New Testament which relate to the Christian church, especially to the apostasy of Papal Rome." After the death of his only son in 1776 he fell into a lethargic languor, which was terminated by death on June 7, 1779.

WARD. See INFANT.

WARD, EDWARD MATTHEW, history and genre painter, was born at London in 1816. Among his early boyish efforts in art was a series of clever illustrations to the *Rejected Addresses* of his uncles Horace and James Smith, which was followed soon afterward by designs to some of the papers of Washington Irving. In 1830 he gained the silver palette of the Society of Arts; and in 1835, aided by Wilkie and Chantrey, he entered the schools of the Royal Academy. In 1836 he went to Rome, where in 1838 he gained a silver medal from the Academy of St. Luke for his Cimabue and Giotto, which in the following year was exhibited at the Royal Academy. The young artist now turned his thoughts to fresco-painting, which he studied under Cornelius at Munich. Among the more important of his works may be named *Charlotte Corday Led to Execution* (1852), *The Last Sleep of Argyll* (1854), *The Emperor of the French Receiving the Order of the Garter* (1859), painted for the queen; *The Ante-chamber at Whitehall during the Dying Moments of Charles II.* (1861), *Doctor Johnson's First Interview with John Wilkes* (1865), and *The Royal Family of France in the Temple*, painted in 1851, and usually considered the artist's masterpiece. For several years before his death Ward suffered from ill-health and mental depression, which led to temporary aberration of intellect. He died at Windsor, on January 15, 1879.

WARD, JAMES, animal painter and engraver, was born in London, on October 23, 1769. His *Landscapes with Cattle*, acquired for the National Gallery at a cost of \$7,500, was painted in 1820-22 at the suggestion of West, in emulation of the *Bull* of Paul Potter at The Hague. His *Boa Serpent Seizing a Horse* was executed in 1822, and his admirable *Gray Horse*, shown in the Old Masters' Exhibition of 1879, dates from 1828. Ward also produced portraits, and many landscapes like the *Gordale Scar* and the *Harlech Castle* in the National Gallery. Sometimes he turned aside into the less fruitful paths of allegory, as in his unsuccessful *Pool of*



*Bethesda* (1818), and *Triumph of the Duke of Wellington* (1818). He was a frequent contributor to the Royal Academy and the British Institution, and in 1841 he collected 140 examples of his art, and exhibited them in his house in Newman street. He was elected an Associate of the Royal Academy in 1807, and a full member in 1811, and died at Cheshunt on November 23, 1859.

WARD, WILLIAM, mezzotint-engraver, an elder brother of James Ward (see above), was born in London in 1766. In 1795 he began to exhibit in the Royal Academy, of which in 1814 he was elected an associate engraver. He also held the appointment of mezzotint-engraver to the prince regent and the duke of York. He executed six plates after Reynolds, engraved many of the works of his brother-in-law, George Morland, and his mezzotints after Andrew Geddes, which include the full-lengths of Sir David Wilkie and of Patrick Brydone, are of great merit. His engravings are full of artistic spirit, and show fine feeling for color; and they are excellently tender and expressive in their rendering of flesh. He died suddenly on December 1, 1826.

WARDEN, an officer appointed for the naval or military protection of some particular district of country. In order to keep the districts of England adjoining to Scotland and Wales in an attitude of defense, great officers, called Lords Warden of the marches, were appointed, to whom the duty of protecting the frontier was committed. From this source originated the name Ward, applied to the subdivision of the counties of Cumberland, Westmoreland, and Durham, a term afterward extended to the divisions of a city, town, or burgh, adopted for municipal purposes. The custodian of Dover Castle was created by William the Conqueror warden of CINQUE PORTS (*q.v.*), and guardian of adjacent coasts; an office comprising extensive jurisdiction, civil, naval, and military, the greater part of which was taken away in 1856, as to the Lord Warden of the Stannaries.

WARDHÁ, or WURDA, a British district in the chief commissionerhip of the central provinces of India, with an area of 2,401 square miles. Wardhá is hilly in the north, and intersected by spurs from the Satpura range. The central portion includes the three peaks of Málegáo (1,726 feet), Nándgáo (1,874 feet), and Jaitgarh (2,086 feet). The Wardhá, and its affluent the Waná, are the only rivers of any importance.

The census of 1901 disclosed a population of 387,221 (males 195,564, females 191,657), Hindus numbering 328,523, Mohammedans 14,200, Christians 96, and aboriginals 41,933. The district contains five towns with a population exceeding 5,000. Wardhá (5,816), the chief town, has wide and regular streets, having been built in 1866.

WARDLAW, RALPH, D.D., the most celebrated preacher and theologian in the roll of Scotch Independents was a seceder by extraction, and studied in connection with the Associate Secession church. Before he had completed his curriculum, however, he had convinced himself that Congregational independency was the scriptural system of church government. In 1800 he began to preach, and after some time settled in Glasgow as pastor of an Independent church. In 1811 he was appointed professor of theology to the congregational body in Scotland in conjunction with the Rev. Greville Ewing; an office he retained along with his pastorate to the period of his death, which happened December 17, 1853. Wardlaw's life was a very laborious and earnest one. Besides discharging ably and faithfully the duties of the pulpit and the professor's chair, he was a voluminous author, often involved in theological controversy, and a public actor in the religious and philanthropical movements of the day.

WARDSHIP, in English feudal law, was the guardianship which the feudal lord had over his vassal's land, while the latter was an infant or minor. Until the majority of the infant, the lord, out of the profits, provided a fit person to render the services incumbent on the vassal.

WARE, an ancient market town of Herts, England, is situated in a valley on the north side of the river Lea, and on a branch of the Great Eastern railway, two miles east-northeast of Hertford, and twenty-two and one-quarter north of London by rail. The principal street is the spacious High street, running east and west by the river. The houses are chiefly modern, but there are a few of the old timber frame houses. The Lea, by means of which there is good water communication, is crossed by an iron bridge erected in 1845. The New River Head is half a mile distant. The famous "great bed of Ware" referred to in Shakespeare's *Twelfth Night*, which formerly was at the Saracen's Head, has been removed to Rye House, two miles distant. The town possesses breweries and brick-fields, and there is a large trade in malt. The population of the urban sanitary district (area about 641 acres), in 1901 was 7,277. Ware is the "town of fame" alluded to by Cowper in his "John Gilpin." William Godwin was for some time minister of the independent chapel there. William of Ware was the teacher of Duns Scotus.

WARE, a representative and flourishing town of Hampshire county, Mass., largely engaged in the manufacture of cotton and woolen fabrics, is located on the Ware River railroad, thirty-seven miles from Winchendon and twenty-one miles from Springfield. The Ware river, upon which the town is also situated, furnishes valuable water power. Two weekly papers are published, and two banks, one of which has a capital of \$300,000, together with half a dozen churches, schools, hotels, and a large number of stores, are included among the established undertakings, besides manufactures of hosiery, denims, flannels and other woolen goods, paper, flour, lumber, boots and shoes, and iron products. The population in 1900 was 8,263.

WAREHOUSING SYSTEM is a plan for lessening the pressure of excise or customs duties by postponing payment of them until the goods they are laid on pass to the consumer, or at all events to the retail dealer. A merchant who might import a thousand dollars' worth of wine and tobacco, if he only paid duty on it by installments as it went out to the dealer, would be quite unable to import so much if he had to pay somewhere from one to five thousand dollars of duty on its arrival. The system of bonded warehouses was hence adopted. The taxable commodity thus came to be locked up in a government warehouse, and the duty to be paid on its removal, along with a proportional fee or rent for the custody of the article, or its accommodation in government premises. This process by which the government holds in custody the goods of private persons has produced some curious effects on mercantile law and trading practices. When transactions have taken place about bonded goods, should they be injured or destroyed it may come to be a question of nice adjustment who is to bear the loss, seeing there is not possession to show ownership; and still nicer questions sometimes arise as to whether such goods are or are not part of a bankrupt estate. There is a difficulty in securing money upon goods without transferring their absolute possession, as in the case of pledging or pawning.

The warehousing system, however, by retaining the goods for the owner, whoever he may be, has created a complete system of paper money in the transference of the title deeds, as they may be called, of such goods.

the dock-warrants or other documents, the possession of which is equivalent to possession of goods.

**WARM-BLOODED ANIMALS.** Under this title are included those vertebrates which possess a four-chambered heart and spongy lungs, being so arranged that the venous or impure blood is propelled over a large but closely packed capillary area of the lungs by successive contraction of a special ventricle, receiving it from a distinct auricle (these being called the right or pulmonary ventric and auricle), while the blood thus purified by the action of the air in the lungs is conveyed to another auricle, and propelled over the whole system by a second distinct ventricle (these being known as the somatic auricle and ventricle). The only animals which exhibit these structural peculiarities are mammals and birds. In man and in the ox, the mean temperature of the body is 100 degrees; in the mouse it is 99, while in the whale it is 103 degrees; in birds it ranges in different species from 103 to 112 degrees. The warm-blooded animals present, however, gradations of the heat-making power. In the hibernating animals there is commonly a loss of heat of from 10 to 20 degrees during the winter sleep, and in the bat the temperature falls 40 degrees. In the cold-blooded animals, the fishes, amphibians and reptiles, the temperature of the blood rarely exceeds that of the surrounding medium.

**WARMINSTER**, an ancient market-town of Wiltshire, England. It consists chiefly of one street about a mile in length. The town possesses a large silk mill, engineering and agricultural implement works, and malt works. There is a considerable agricultural trade. The population of the urban sanitary district (area 6,370 acres) in 1901 was 7,640.

**WARP**, in weaving, signifies the yarn or thread which runs lengthwise in the cloth.

**WARPING**, a mode of improving land practiced where rivers bring down large quantities of mud, or where mud is brought up from estuaries from the tide. It is practiced in some of the valleys of the Alps, and the rich soil brought down from the mountains is thus arrested and made to increase the fertility of the fields. It is practiced in England on the tidal waters of the Ouse, Trent, and other rivers falling into the Humber, and of late years in some of the Southern States. About a century ago warping began to be practiced by means of small tunnels made through embankments; the water being allowed to remain and deposit its sediments of earthy particles, before the sluices were opened for it to flow off. Warping has now been carried on upon a larger scale with large canals, embankments, and flood-gates. Land previously sterile and worthless has been covered with good soil, and has become very productive. The compartment which is embanked around in order to do warping is generally only fifty acres or less, the farmer only warping one field in a season, because, in the meantime, it is unproductive. In some cases, however, 500 or 600 acres have been warped in one season. In the river which flows into the Humber, the water coming down the river is unsuitable for warping and contains no such quantity of sediments as the tidal waters.

**WARRANT**, in law, an authority empowering a person to act in a way which would not be lawful without such authority. The term occurs very early in constitutional documents; it is found in the Assize of Clarendon and the Assize of the Forest, both in the reign of Henry II. A warrant must be under the hand and seal of the person issuing it, unless such formalities be dispensed with by statute. By the constitution of the United States and of almost all the States, warrants are not to issue but upon probable cause, supported by oath or affirmation, and particularly describing the

place to be searched and the person or thing to be seized. These provisions have been held not to mean that there shall be no arrest without warrant, but to confine the right of arrest to circumstances similar to those which justify it in English law. The constitutions of some States forbid general warrants. A warrant is generally necessary for the payment of money out of the United States or a State treasury.

**WARRANTY** is etymologically another form of **GUARANTEE**, (*q.v.*) It is used, however, in a rather different sense. The sense common to both words is that of a collateral contract, under which responsibility for an act is incurred, and for a breach of which an action for damages lies. Warranty generally expresses the responsibility of the person doing the act, guarantee the responsibility of some other person on his behalf.

Warranty in conveyance of real estate is expressly abolished by statute in many States. In some States warranty is implied on the transfer and indorsement of negotiable instruments.

**WARREN, SAMUEL**, author of *Ten Thousand a Year*, was born in Denbighshire in 1807. He entered at the Inner Temple in 1828, and was successful in his profession. Very early in his career, before he was called to the bar, he had begun to write for *Blackwood*. His *Passages from the Diary of a Late Physician* appeared in that magazine between August, 1830, and October, 1831, being collected into two volumes in 1832. A third volume was published in 1838. But his great success was *Ten Thousand a Year*, which ran in *Blackwood* from October, 1839, to August, 1841, and was published separately immediately on its conclusion. In 1847 he made another venture, but *Now and Then* was not a success. *The Lily and the Bee*, a squib on the Crystal Palace, published in 1851, though it had the honor of translation into Italian, was a signal failure. A pessimistic dissertation on *The Intellectual and Moral Development of the Age*, published in 1853, also fell flat, and thenceforth Warren, after publishing his *Works, Critical and Imaginative*, in four volumes, in 1854, retired on his laurels. He died at London, July 29, 1877.

**WARREN**, the capital of Trumbull county, Ohio, and an extensive manufacturing center, is situated on the Mahoning river, fourteen miles northwest of Youngstown, and fifty-two miles southeast of Cleveland. The New York, Pennsylvania and Ohio division of the New York, Lake Erie and Western, the Ashtabula and Pittsburgh, and the Pittsburgh and Western railroads occupy separate depots and complete a well-organized and sustained traffic system which adds to the city's importance as the competitor of adjoining and distant cities in special lines of productive industry. It is located in the midst of a rich agricultural and lumber country, also contiguous to mines of bituminous coal, petroleum and iron ore, also to quarries of what is commercially known as "Berea Grit," valuable for grindstones, the output from all of which sources of supply is shipped from Warren. The city contains three national banks with an aggregate capital of \$400,000, one daily and three weekly papers, ten churches, a comprehensive and effective educational system, five finely appointed hotels, one opera-house, and public halls, also a large number of stores, jobbing houses, and other commercial ventures. The manufactures comprise foundries and machine shops, stoves, boilers, oil tanks and pumps, gratings and hardware specialties generally, flour, lumber and woolen mills, paints, carriages, furniture, gloves, cigars, etc. Gas and electric light are utilized, and the city otherwise offers substantial and desirable inducements for investments for business or residence purposes. The present (1890) population is returned at 6,036.



**WARREN**, the capital of Warren county, Penn., is located on the Dunkirk, Alleghany Valley and Pittsburgh, the Pennsylvania Central, and the Rochester and Pittsburgh division of the Western New York and Pennsylvania railroads, and at the junction of the Alleghany and Conewango rivers. The city is on the direct route from Lake Erie to the coal fields of Pennsylvania, in close proximity to the oil regions of the State, and otherwise advantageously situated for purposes of trade and manufacture. The streets are broad and cross each other at right angles, being also well shaded and highly improved; while the buildings, both in the business and residence portion of the city, are substantial and attractive structures. The city contains three banks with a combined capital of \$300,000, and a total surplus of \$200,000, two daily and five weekly papers, a court-house, a high school and union school, a public library, eight churches, together with stores, shops, hotels, public halls, etc.; the manufactures consisting of carriages, chairs, carpets, cigars, carbons, doors, sash and blinds, boilers, harness, handles and spokes, lubricating oils, lumber, flour and feed, the industries including in addition iron works, petroleum refineries, electric light works, and other productive enterprise enterprises. The population of the city in 1900 was 8,043.

**WARRENSBURG**, the capital of Johnson county, Mo., is situated on Black river in Warrensburg township, thirty miles west of Sedalia, sixty-four miles southeast of Kansas City, and 218 miles from St. Louis. It is the center of an extensive and highly productive agricultural country, and in the immediate vicinity of an extended range of quarries from which a superior article of sandstone is obtained. This latter commodity is much used for building purposes in all the leading cities of the State, and forms a staple article of shipment. Flour, woolen and iron products are largely manufactured, while native wines, put up in the county, enjoy a reputation for purity and other qualities of more than local importance. The city contains three weekly papers, one monthly periodical, three banks, a commodious and well arranged steam-elevator, several churches and schools, being also the location of the State Normal School for southern Missouri, with nearly 500 students, together with a full complement of hotels, stores and other commercial undertakings. The population (1900) was 4,724.

**WARRINGTON**, a municipal and parliamentary borough and market-town of England, chiefly in Lancashire but partly in Cheshire, 18 miles west-southwest of Manchester, 20 miles east of Liverpool, and 182 from London. Warrington, in the period before the introduction of railways, possessed special advantages through its connection with the Mersey and Irwell navigation, and it now enjoys unusual facilities for the transit of heavy goods both by canal and railway, while its situation, midway between Manchester and Liverpool, and on the main line of the London and North-Western railway, forms one of the chief sources of its prosperity. Perhaps it is now best known for its trade in heavy leather, the tanneries in its immediate neighborhood consuming on an average about 10,000 hides a week. It has also a great variety of important iron manufactures, including iron in bar, hoop, and wire rod, and files and tools and pins. There are, besides, soap factories, breweries, maltings, cotton mills, and glass-works. The population of the parliamentary borough (area 3,783 acres) in 1901 was 64,241. The population of the municipal borough (area 1,442 acres) in the same year was 61,452.

**WARSAW**, a government of Russian Poland, occupies a narrow strip of land to the left of the lower

Bug, and of the Vistula from its junction with the Bug to the Prussian frontier, and is bounded by the Polish governments of Plock and Lomza on the north, Siedlce on the east, and Radom, Piotrkow, and Kalisz on the south. It has an area of 5,623 square miles, and in 1898 the population was 1,933,689, of whom 538,209 were then reckoned as living in the capital. It occupies the great plain of central Poland and Mazovia, and is low and flat with only a few hills in the south, and along the course of the Vistula in the northwest, where the terraces on the left bank descend by steep slopes to the river. Terrible inundations often devastate the region adjacent to the confluence of the Vistula with the Narew and Bug, and marshes cover the low-lying grounds. The soil, which consists either of boulder clay, lacustrine clays, or sandy fluvial deposits, is not particularly fertile. The Vistula traverses the government from southeast to northwest, and is joined by the Narew and Bug from the right, and by the Bzura from the left. \*It is an important channel of communication (see POLAND).

The government is divided into thirteen districts, the chief towns of which are WARSAW (4,211), Blonie (1,370 inhabitants), Góra Kalwaria (2,630), Gostynin (8,870), Grojec (3,500), Kutno (13,210), Lowicz (8,720), Novo-Minsk (1,830), Radziejewo (7,680), Radzymin (4,200), Skierniewice (3,720), Sochaczew (5,130), and Wloclawek (20,660). Nowy Dwor (4,420), Nieszawa, (2,330), Gombin (3,000), and several others have municipal institutions.

**WARSAW** (*Warszawa*), capital of Poland, and chief town of the above government, is beautifully situated on the left bank of the Vistula, 395 miles to the east of Berlin, and 700 miles to southwest of St. Petersburg. It stands on a terrace nearly 100 feet in height, which stretches far to the westward, and descends by steep slopes toward the river, leaving a broad beach at its base. The suburb of Praga on the right bank of the Vistula, here from 450 to 880 yards broad, is connected with Warsaw by two bridges, the railway bridge, which passes right under the guns of the Alexandrovsk citadel to the north, and the Alexandrovsk bridge in the center of the town.

With its population of nearly 638,209, its beautiful river, its ample communications and its commerce, its university and scientific societies, its palaces and numerous places of amusement, Warsaw is one of the most pleasant as well as one of the most animated cities of eastern Europe. In Russia it is excelled in importance by the two Russian capitals only.

The streets of Warsaw are very animated, and are adorned with many fine buildings. The present university, founded as the "Główna Szkola," in 1816, but closed in 1832, was again opened in 1864; it has a remarkable library of more than 350,000 volumes, rich natural history collections, a fine botanic garden, and an observatory well known for its astronomical work. There are 75 professors and nearly 1,000 students. The teaching is in Russian, and mostly by Russians, and the close intercourse which used to exist between the university and the educated classes of Poland is becoming a thing of the past. The rich university library, one of the largest in the world, was confiscated in 1794, and transferred to St. Petersburg, where it became the nucleus of the present imperial public library; and, after the insurrection of 1831, it was again ransacked for the same purpose. The medical school, which enjoys high repute in the scientific world, still retains the right of teaching in Polish, and has about 220 students.

Warsaw is semicircular in plan, the diameter, nearly five miles in length, lying along the Vistula. The

central point of the life of the place is the castle (Zamek Królewski) on Sigismund Square. It was built by the dukes of Mazovia, enlarged by Sigismund III. (whose memorial stands opposite) and Ladislaus IV., and embellished by Stanislaus Augustus. At present it is inhabited by the "governor-general of the provinces on the Vistula," and its pictures and other art treasures have been removed to St. Petersburg.

The suburb of Praga, on the right bank of the Vistula, is poorly built and often flooded; but the bloody assaults which led to its capture in 1794 by the Russians under Suwaroff, and in 1831 by Paskevitch, give it a name in history.

Warsaw has of late become industrially important, and now has more than 320 establishments, employing nearly 20,000 workmen, and producing to the amount of nearly 40,000,000 rubles annually. The leading industries are the production of plated silver-ware, with a wide market throughout Russia, machinery and engines, chemicals, musical instruments, especially pianos, carpets, boots and shoes, largely exported, carriages, woolen cloth, leather wares, spirits and beer. The trade of Warsaw is considerable.

The events associated with the name of Praga have been already alluded to. Among other battlefields in the neighborhood of Warsaw is that of Grochowo, where the Polish troops were defeated in 1831 after a gallant fight. Raszyn saw its fields covered with blood in the war of 1809, with Austria; at Maciejowice, fifty miles up the Vistula, Kosciuszko was wounded and taken by the Russians in 1794; and twenty miles down the river stands the fortress of Modlin, now Novogeorgievsk, fortified by Napoleon, taken in 1813 by the Russians, and the last stronghold of the Poles during the insurrection of 1831.

The history of Warsaw from the sixteenth century onward is intimately connected with that of POLAND, *(q.v.)* The precise date of the foundation of the town is not known. From the seventeenth century possession of it was continually disputed by the Swedes, the Russians, and the Brandenburgers and the Austrians. Charles Gustavus of Sweden took it in 1655 and kept it for a year; the Poles retook it in July, 1656, but lost it again almost immediately. Augustus II. and Augustus III. did much for its embellishment, but it had much to suffer during the northern war. Charles XII. took it in 1702, but in the following year peace was made between the Swedes and Stanislaus Leszczyński, and it became free again. The disorderly rule of the Rzecz Pospolita opened a large field for Russian intrigue, and in 1764 the Russians took possession of it and secured the election of Stanislaus Poniatowski, which led, in 1773, to the first partition of Poland. In November, 1794, the Russians took it again, after the bloody assault on Praga, but next year, in the third partition of Poland, Warsaw was given to Prussia. In November, 1806, the town was occupied by the troops of Napoleon, and after the peace of Tilsit, was made the capital of the independent duchy of Warsaw; but the Austrians took it on April 21, 1809, and kept it till June 2d, when it once more became independent, but only for a few years. The Russians finally took it on February 8, 1813, since which time they have always retained it. On November 29, 1830, Warsaw gave the signal of the great, but unsuccessful insurrection which lasted nearly one year; it was taken after great bloodshed, by Paskevitch, on September 7, 1831. Deportations on a large scale, executions, and confiscation of the domains of the nobility followed, and until 1856 Warsaw remained under severe military rule. In 1862 a series of demonstrations began to be made in Warsaw in favor of the independence of Poland, and after a bloody

repression a general insurrection followed in January, 1863, the Russians remaining, however, masters of the situation. The Russian Government now decided to take the most stringent measures to crush the powers of the clergy, the landed nobility and the turbulent Warsaw artisans and educated classes. Executions, banishment to the convict prisons of Siberia, and confiscation of estates followed. Deportation to Siberia and the interior of Russia was carried out on an unheard-of scale. Scientific societies and high schools were closed; monasteries and nunneries were emptied. Hundreds of Russian officials were called in to fill up administrative posts, the schools and the university; the Russian language was rendered obligatory in official acts, in all legal proceedings, and even, to a great extent, in trade. The very name of Poland was expunged from official writings, and, while the old institutions were abolished, the Russian tribunals and administrative institutions were introduced. The serfs were liberated. (See POLAND.)

WARSAW, the county seat of Kosciuszko county, Ind., is situated on the Tippecanoe river, in Wayne township, 108 miles south of Chicago, on the Pittsburgh, Fort Wayne and Chicago railroad, at its junction with the Cincinnati, Wabash and Michigan road. The country in this vicinity is undulating, and the scenery is attractive and varied, small lakes interspersed with forests of hard-wood appearing at frequent intervals. The soil is fertile, and the large crops of cereals annually produced are stored at Warsaw for consumption and shipment, making the city an important and active trade and business center. One daily and three weekly papers, together with two monthly magazines are regularly issued at Warsaw, the city also containing three banks, six churches, a court-house, a high school and graded schools, an opera house, with a seating capacity of nearly 1,000, three first-class hotels, several grain elevators, and a long list of mercantile and manufacturing establishments. Among the latter are embraced an iron foundry, furniture factory, three saw-mills, flour and woolen mills, pulley works, and other plants of lesser importance. The population of the city was 3,987 in 1900.

WARSAW, the capital of Wyoming county, N. Y., and the chief town in one of the most beautiful of the many beautiful valleys that follow each other in rapid succession in the western portion of the State, is situated on Allen's creek at the intersection of the New York, Lake Erie and Western, and the Rochester and Pittsburgh railroads. The village is eligibly located, and the romantic scenery in the vicinity, embracing a number of cataracts, one of which has a perpendicular fall of nearly 100 feet, gorges between cliffs of great height, and other picturesque features, together with its accessibility, have made the village a well known and favored summer resort. It is also situated contiguous to large salt deposits which employ a large force of operatives and are sources of large revenues. The village has two banks, a union school-house costing nearly \$50,000, three weekly papers, seven churches, three hotels, also a sanitarium, and is otherwise provided with stores, warehouses, etc., requisite to its position as a business center. There are four salt-work plants conducted here, besides one foundry, grist and planing mills, wooden-ware factory, cigar factory, and other substantial manufacturing enterprises. The population approximated 3,048 in 1900.

WART is a papillary excrescence of the surface, most commonly of the skin, but in special circumstances also of the transitional and mucous membranes. The ordinary broad and flat warts of the skin occur mostly upon the hands of children and young persons.



a long pendulous variety occurs about the chin or neck of children who are constitutionally delicate (it used to be thought a mark of scrofula) and on the scalp in adults. Both the broad sessile warts of the fingers and hands and the thin hanging warts of the neck and head are apt to come out in numbers at a time; a crop of them suddenly appears, to disappear after a time with equal suddenness. Hence the supposed efficacy of charms. A single wart will sometimes remain when the general eruption has vanished. The liability to crops of warts runs in families. In after life a wart on the hands or fingers is usually brought on by some irritation, often repeated, even if it be slight. A special form has been observed on the hands of those much occupied with anatomical dissection. Chimney-sweeps and workers in coal-tar, petroleum, etc., are subject to warts, which often become cancerous. Ordinary innocent warts occur singly in later life on the nose or lips or other parts of the face, sometimes on the tongue. Toward old age there are apt to be broad and flattened patches of warts on the back, of a greasy consistence and brownish color.

A wart consists essentially of a framework or ground-plan of small blood-vessels supported by bands of fibrous tissue, and a more or less thick covering of epidermic scales. When the wart is young, the surface is a rounded and even knob; as it gets rubbed and worn the surface appears cleft into thread-like projecting points. It is owing to its vascular ground-plan that a wart is liable to come back after being shaved off; the vessel or vessels are cut down to the level of the skin, but the current of blood is still forced into the stem, and the branches tend to be thrown out beyond the surface as before. This fact has a bearing on the treatment of warts. If they are shaved or snipped off, the blood-vessels of the stem should be destroyed at the same time by caustic, or made to shrivel by an astringent. The same end is served by a gradually tightening ligature (such as a thread of elastic pulled out from an old brace) round the base or neck of the wart; an ordinary thread is apt to cut too deep and may cause suppuration. The best treatment is to rub an astringent, or acid, or caustic substance into the surface of the wart.

WARTON. Three authors of this name, a father and two sons, were leaders of reaction against the didactic poetry of Pope's school, and did much to help forward the descriptive and romantic revival.

THOMAS WARTON, born in 1688, was vicar of Basingstoke in Hampshire, and professor of poetry at Oxford. He published nothing during his lifetime, but after his death, in 1745, his son Joseph published some of his poet y under the title *Poems on Several Occasions*, 1748.

JOSEPH WARTON, eldest son of the preceding, was born at Dunsford, in Surrey, in 1722, and sent to Winchester school in 1736. Collins was already there, and the school seems to have been at the time quite a nest of singing birds quickened into unusual ambition by a visit from Pope. Collins and Warton became close friends, read Milton and Spenser together, and wrote verses which they sent to the *Gentleman's Magazine*, verses of such promise that Johnson formally criticised them. The two friends went to Oxford together, and took the degree of B.A. in the same year (1743). Warton was far from having the genius of Collins but he had abundance of poetical enthusiasm, and they were at one in their impatience under the prevailing taste for moral and ethical poetry. He became an active and prominent man of letters, produced an edition of Virgil in 1753, with distinguished coadjutors, and a translation of the *Eclogues* and the *Georgics*, and a prepara-

tory essay by himself; made the acquaintance of Johnson, and wrote papers on Shakespeare and Homer in *The Adventurer*. The last three years of the critic's life were spent in preparing an edition of Dryden, which was completed and published by his son in 1811. He died in London in February, 1800, at the age of seventy-eight.

THOMAS WARTON, the younger brother of Joseph; at least as active and influential as he in enlarging the poetic ideas of the eighteenth century, was born at Basingstoke in 1728. He was still more precocious as a poet than his brother—translated one of Martial's epigrams at nine, and wrote *The Pleasures of Melancholy* at seventeen—and he showed exactly the same bent. The first proof that he gave of his extraordinarily wide scholarship was in his *Observations on the Poetry of Spenser*, published in 1754, when the author was twenty-six. The first volume of his monumental work, *The History of English Poetry*, appeared twenty years later, in 1774, the second volume in 1778, and the third in 1781. His busy and convivial life was ended by a paralytic stroke in May, 1790.

WARWICK, a midland county of England, is bounded on the north by Stafford, on the east by Leicester and Northampton, on the south by Oxford and Gloucester, and on the west by Worcester. Its greatest length from north to south is fifty miles, and its greatest breadth thirty-three miles. Its area is 566,458 acres or about 879 square miles.

*Surface and Geology.*—The surface of the county is of a gently undulating nature. For a description of the scenery and early history the reader is referred to the article SHAKESPEARE.

The chief elevations are the Edge Hills on the southern border of the county, where they rise in some places to about 800 feet above sea-level.

The lofty elevation of the county in general is evidenced by the fact that rivers flow from it in several directions, contributing to each of the three systems of the Severn, Trent, and Thames. According to the report of the Coal Commission in 1871, the area of the Warwickshire coal-field is thirty square miles, the thickness of the coal being from twenty-six to thirty feet. The quantity mined in 1885 was 1,281,724 tons. The minerals of the county are limestone, freestone, iron, blue flagstone, marl, and blue clay.

The climate is generally mild and healthy. The soil is on the whole good, and consists of various loams, marls, gravels, and clays, well suited for most of the usual crops. It is rich in pasture-land, and dairy farming is increasing. It has excellent orchards and market-gardens, and possesses some of the finest woodlands in England. Nearly all the farm buildings are good; and many of the cottages of the laborers are exceedingly picturesque. There are many charming villages in the county.

The principal seats of manufacture in the county are BIRMINGHAM and COVENTRY (*qq.v.*) Suffice it to say here that in Birmingham almost every article of use, from a pin to a steam-engine, is produced, and that Coventry has long been famous for its ribbons and watches, and has recently won a well-merited reputation for bicycles and tricycles.

The county is well supplied with excellently preserved roads. There are also a great number of canals giving access to the Trent, the Mersey, the Thames, and the Severn. The London and North-Western, the Great Western, the Midland, and various branch railways traverse the county in various directions. The population in 1901 was 347,691 (177,321 males and 170,370 females). The population of Birmingham is now separately estimated.

WARWICK, the county town of Warwickshire, and a municipal and parliamentary borough, is finely situated on the Avon, 8 miles northeast of Stratford-on-Avon and 108 northwest of London. The glory of Warwick is still its castle, which has been truly pronounced to be the "most magnificent of the ancient feudal mansions of the English nobility still used as a residence." Its position is at once commanding and picturesque, standing as it does on a rock overhanging the Avon.

WARWICK, a town of Kent county, R. I., with a population in 1900 of 21,316. It is made up of several villages lying on the Pawtuxet river and near Narragansett Bay. The various towns are principally devoted to cotton manufacturing.

WARWICK, RICHARD NEVIL, EARL OF, was born between 1420 and 1430. He was descended from a family of note in the north of England, that of the Nevils, who enjoyed for many generations the title of the earls of Westmorland. His descent from John of Gaunt made him naturally a member of the Lancastrian party, but the marriage of his aunt, Cicely Nevil, to Richard, duke of York, connected him also with the Yorkist house. As first cousin of Edward IV. and second cousin of Henry VI. he was well fitted for the double part he was destined to play in English history. When the struggle between the Roses began he and his father threw in their lot with the Yorkists. The first attempt of the duke of York (in 1450) to assert his claims proved unsuccessful, but three years later the final loss of Guienne, coupled with the king's imbecility, enabled him to renew his efforts. The duke became protector, but the king's recovery drove him from power and forced him to take up arms a second time. He was now joined actively by Warwick and his father, the former of whom raised a body of troops and contributed largely to the Yorkist victory at St. Albans (1455).

When in 1459 the duke of York took up arms for the third time, Warwick and his father, the earl of Salisbury, joined him at Ludlow. The king retired northward and intrenched himself at Northampton, where he was defeated with much loss by Warwick, and taken prisoner. Warwick returned with his captive to London, and the duke of York at once claimed the crown. After much debate the king was induced to consent to a compromise, by which he was to retain the crown during life, and the duke of York and his heirs were to succeed him. The queen, however, refused to sanction this arrangement, and assembled an army in the north. The duke of York, marching against her, was defeated and killed at Wakefield (December, 1460). The Yorkist victory of Mortimer's Cross (1461) did not stop the queen's march on London, and Warwick, attempting to bar her progress, was entirely defeated at the second battle of St. Albans. The king fell into the hands of his own party, but Warwick escaped. The Lancastrian triumph was, however, short-lived. The citizens of London, already devoted to the house of York, were exasperated by the excesses of the Lancastrian troops, and when Warwick, with Edward, earl of March, raised another army and marched toward the capital, the queen was forced to retire to the north. Warwick and Edward entered the city, and the latter was proclaimed king under the title of Edward IV. The sanguinary battle of Towton (March, 1461), in which the victory was greatly due to the skill and energy of Warwick, secured the crown for Edward, and gave the nation peace for several years.

For some time Warwick did his best to maintain Edward on his throne. An attempt on the part of the

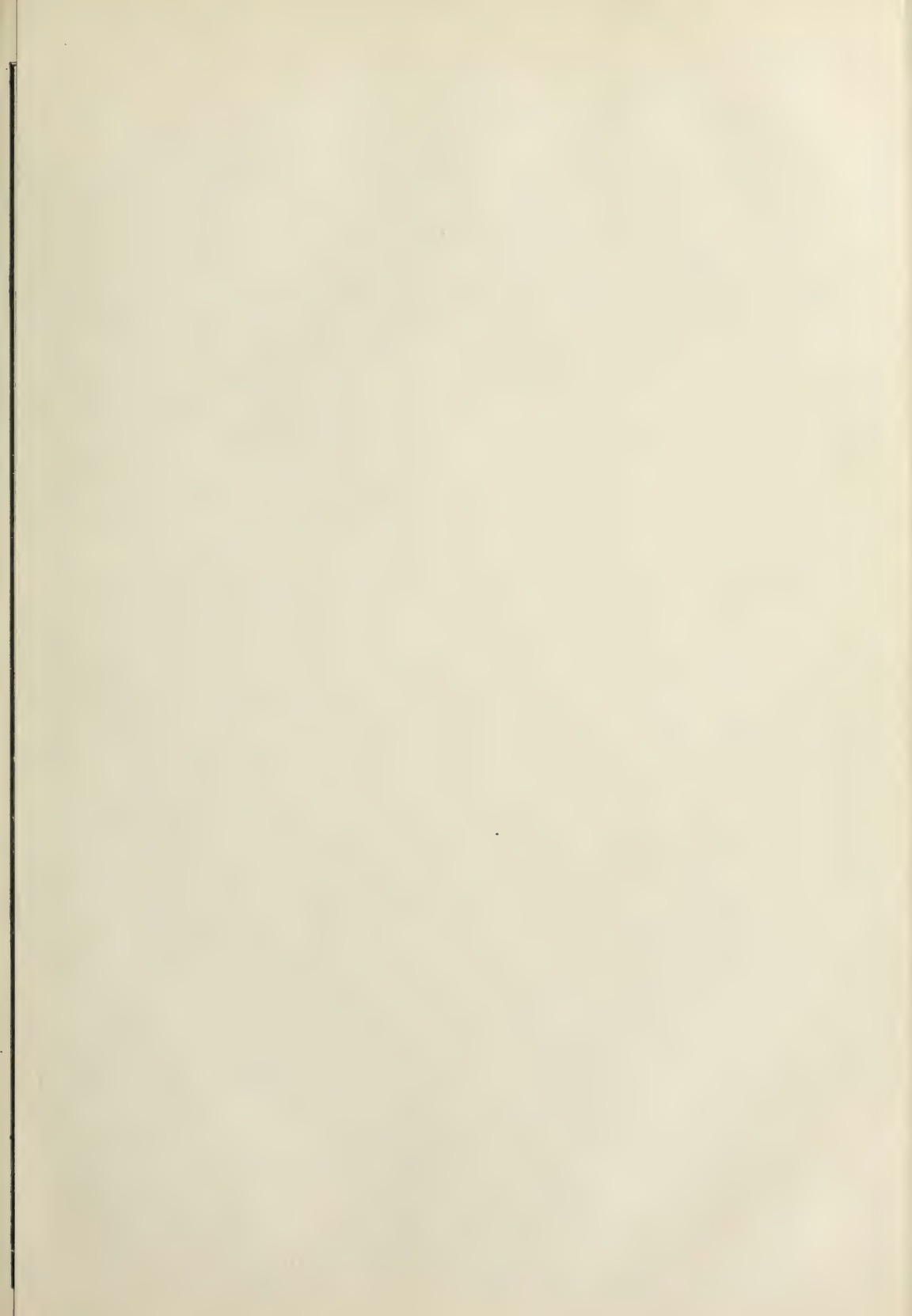
Lancastrians in 1463 to recover their power was put down by the united efforts of the Nevils. Montague defeated Percy at Hedgeley Moor and Somerset at Hexham, while Warwick besieged and took Bamborough Castle, which was held by Sir Ralph Grey. Soon afterward Henry VI. was taken prisoner and was lodged by Warwick in the Tower.

But the power and ambition of Warwick were too great to allow the good understanding between the king-maker and the king to be of long duration. The first difference between them arose on the question of the king's marriage. A period of intrigue and insurrection followed. Edward, whose troops were defeated at Edgecote, fell into Warwick's hands, and was confined in Warwick's castle at Middleham. When, however, the opposing faction took advantage of the disruption between Warwick and Edward and rose in insurrection, Warwick quickly subdued them, and Edward was released and a temporary reconciliation followed. The situation had, however, by this time become intolerable. Fresh insurrections broke out, and it was clearly proven that Warwick was the instigator. The king at once marched against the conspirators, and Warwick retreated to Calais, but was denied admittance into the fortress by his own lieutenant. Thereupon he took refuge with the king of France, and resolved openly to side with the Lancastrians. This measure naturally caused a coolness between him and some of his allies. However, Warwick, having obtained assistance from the French king, landed in the south of England and compelled the king of England to flee to Flanders; but this success was only evanescent. The Lancastrian king had only been a few months on the throne upon which he had been set by the earl of Warwick, when a fresh insurrection broke out and the Yorkist king was enabled to return, and on Easter day, 1471, at Barnet, the forces of the king and earl of Warwick joined battle. The royalists were victorious, and the earl was slain in battle.

WASHING AND WASHING-MACHINES. Although domestic washing is a simple enough process, yet it may be useful to give a brief description of the most efficient way of conducting it, in so far as experience and correct principles can guide such an operation. The first essential is suitable water, in other words, soft water. Yellow soap being the kind chiefly used in washing linen, it is well to bear in mind that it is not desirable to purchase it very pale in color, or very low in price. In order to gratify the desire for a light color, soapmakers are obliged to reduce the strength of good dark soaps with adulterants; and it will give some idea of how easily the demand for cheapness may be met to state that hard soap, which should not contain so much as 25 per cent. of water, can be made with as much as 75 per cent. Soap, as is well known, improves by keeping. Soft or potash soap is sometimes used to wash coarse things, on account of its being stronger than hard soap, but its smell is objectionable. Soda is easily procured good; and with respect to washing powders, as their merit depends on the amount of alkali which they contain, suffice it to say that to buy them is only a dear way of buying soda.

In arranging clothes for washing, it is desirable to sort them into kinds most suitable for washing together; such as lace, nets, and fine muslin into one heap; white body linen into another; colored things of the nature of prints and gingham into another, and so on. It is also desirable to wash clothes as soon as possible after they are soiled. Previous to washing, all white articles should be soaked for a night in cold water, in which a little soda has been dissolved, as the steeping in alkaline water greatly aids in removing all dirt of a greasy

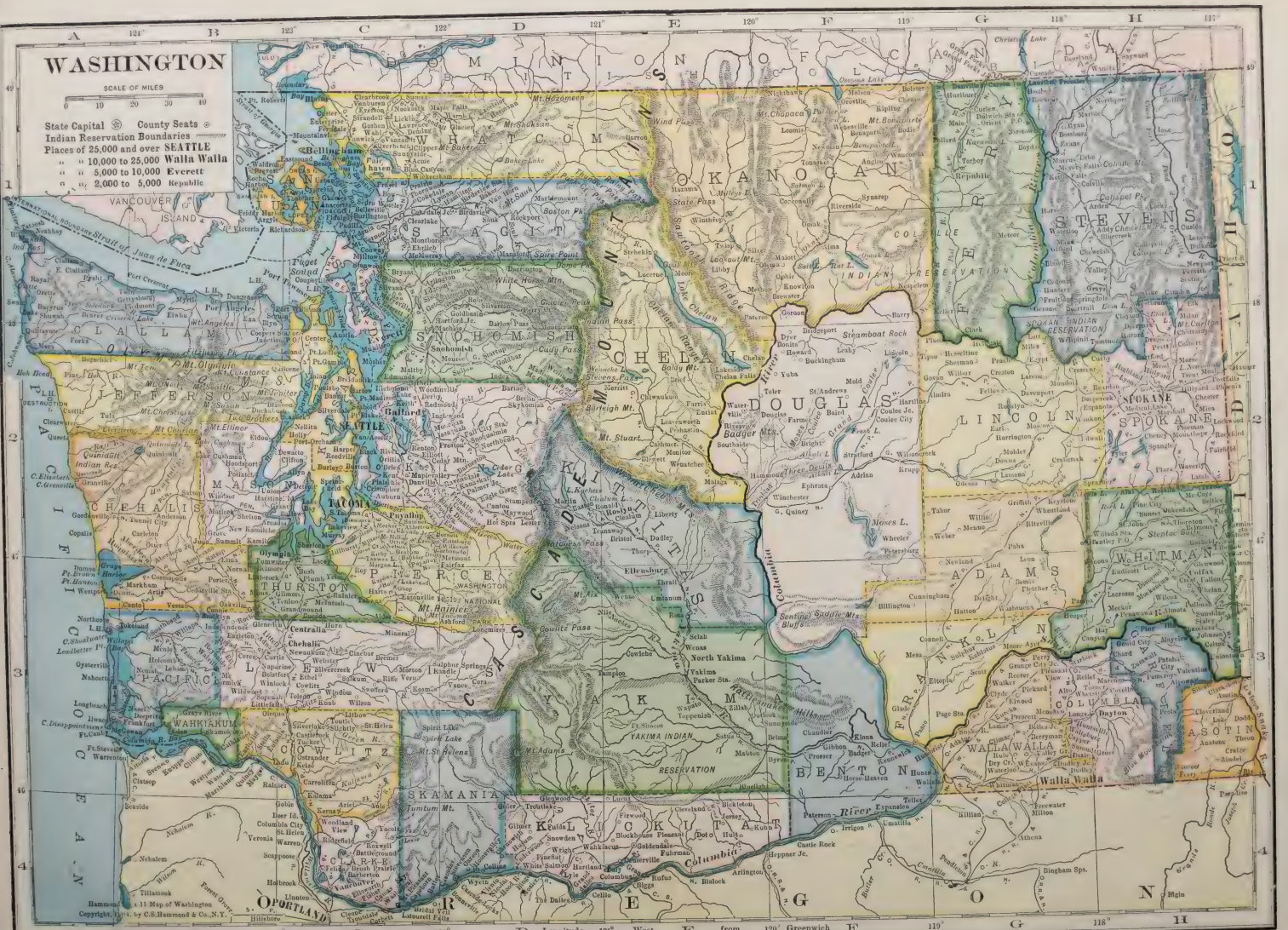




# WASHINGTON

SCALE OF MILES  
0 10 20 30 40

State Capital • County Seats •  
Indian Reservation Boundaries  
Places of 25,000 and over SEATTLE  
" 10,000 to 25,000 WALLA WALLA  
" 5,000 to 10,000 EVERETT  
" 2,000 to 5,000 REPAUBLIC





nature. The clothes should then be washed twice in clean tepid water, with a sufficient supply of soap. If the water is quite cold, the dirt is taken off with difficulty; and if too hot, it is apt to fix it into the fiber of the cloth. The clothes should next be examined for spots and stains, so as to remove them, if possible, by an additional rubbing, after which they are boiled for at least fifteen minutes in soap and water. Ink-stains or iron-molds require to be taken out with oxalic acid, or the essential salts of lemon (oxalate of potash); and fruit stains by boiling the stained parts with pearlash. After being boiled, the clothes are rinsed twice in cold water; and in the second rinsing, a little bluing is added, to neutralize any yellowness occasioned by the washing. When this is done, they are wrung, and hung out to dry.

For the washing of flannels, it is even more desirable that the water should be soft than for linen or cotton; and it should contain no soda or potash in any form, as, although a little alkali would more effectually remove dirt, yet it always turns woollens yellow, and at the same time thickens them. It is well to remember also that all rubbing, wringing, or squeezing tends to make woollen goods shrink by facilitating their tendency to felt or mat into thicker fabric. With respect to ladies' colored dresses made of fine wool, such as merino, it is considered best to wash them in soft warm water with ox-gall, say a pint in a tubfull of water. Ox-gall is a soap in its chemical nature, and it clears and brightens the colors.

The washing of printed colored fabrics, especially muslins, has of late years become a difficult operation, on account of the fugitive nature of some of the dye-stuffs employed. The beautiful hues produced by the aniline or coal-tar colors, and by the archil lakes in imitation of them, have led to their being extensively used in calico printing as well as in the dyeing of silk and wool. These dyes can scarcely be said to be permanent on any fabric; but on cotton they require to be fixed by mordants, such as albumen (white of egg), which will scarcely stand washing at all, and to which hot water is utter destruction. The same thing is true of some other dyes, such as the light blue produced by artificial ultramarine. If economy is to be studied, it is far better to have printed dresses done in fast colors—the reds and purples from madder for example—as they, although less attractive at first, can be washed without injuring their appearance. All such articles should be washed in soft warm water; that which has been used for flannels, if not too dirty, will do. When thoroughly cleansed, rinse them well in clean cold water, and do not allow them to remain long in contact before they are hung up to dry. White silk articles, as stockings and gloves, should be washed with soap, first in milk-warm, and afterward in nearly boiling water. They will be improved if hung up for a short time in the fumes of burning sulphur (sulphurous acid) while still damp.

We have now to notice the domestic washing-machines which have of late years come into rather extensive use. A machine of this kind, when in motion, ought to produce at least as much agitation as will keep up a constant change in the detergent solution in contact with the linen, and at the same time cause the clothes to slide over each other in a somewhat analogous manner to hand-washing. There is an old form of washing-machine called the dolly-tub, which has been in use in Yorkshire, England, for a century. It consists essentially of a presser or dolly, which is simply a round piece of wood, say ten inches in diameter, with from three to five legs, rounded at the ends; the whole exactly resembling a foot-stool, but with the addition of an upright rod or spindle from its center, with a cross-

piece at the top for working it. Any vessel such as a tub, barrel or box, may be used to hold the clothes, which are washed by moving the dolly first one way and then the other, at the same time a certain pressure being exerted on them against the sides and bottom of the vessel.

Of recent washing-machines, a certain class of them are modifications of the dolly machine, with spring ribbed boards, on which the linen is rubbed by a swinging motion. Another class consists of boxes which also oscillate upon the axes, but operate by jerking the clothes and water from side to side. A third, and perhaps the most efficient class, are made upon the principle of the dash wheel, so much used in large bleach-works. In this machine, the materials to be washed are lifted by internal ribs of the rim of a large wheel, and allowed to fall with some force from fully half its height into the cleansing liquid, this being of course repeated as the wheel rotates.

Washing by steam, though little known formerly, is now practiced to a considerable extent. The French chemist, Chaptal, first brought the process to perfection. Besides a saving of fuel, soap, and manual labor to the extent of at least one half, the wear and tear of the linen attending rubbing and beating is avoided. The efficacy of steam in washing depends upon its penetrating and dissolving property. The clothes are first steeped in a ley of soda or potash, or in a mixture of alkali and soap, and then hung in a wooden vessel kept full of steam by a pipe communicating with the boiler. On a small scale, a large cask, made air-tight, will answer, and a common tea-kettle will produce steam enough. There must be an aperture to allow the air to escape when the steam first enters; the air being expelled, the aperture is shut. In half an hour the dirt is sufficiently loosened to wash out with ease, and the linen is found to be extremely white.

WASHINGTON, one of the United States, the forty-second in order of admission, having been admitted by proclamation of President Harrison November 11, 1889. It is the extreme northwestern political subdivision of the Union (except the detached Alaska), and is bounded on the north by the Canadian province of British Columbia, on the east by Idaho, on the south by Oregon and on the west by the Pacific Ocean. It lies between  $45^{\circ} 40'$  and  $49^{\circ} 0'$  N. latitude, and  $117^{\circ} 0'$  and  $124^{\circ} 44'$  W. longitude, and has a total land area within its boundaries of 66,880 square miles and a water area of 3,114 square miles; its average length from east to west is 330 miles and from north to south is 220 miles. The State is divided by the Cascade Mountains into two unequal sections, which have very different climatic and physical characteristics and commercial and business interests. The climate is very mild, on account of the warm oceanic current from Japan which flows south along the coast. The moisture-bearing winds, moving inland from the ocean, are chilled against the Cascade Mountains, and cause the western section of the State to have a very heavy annual rainfall (about fifty-three inches) which is quite unevenly distributed throughout the year. The rainy season begins about October and continues till May, during which time rain falls about as frequently as snow falls in the East, whole weeks of pleasant weather at times intervening between storms. The summers are generally dry, though occasional showers occur. Thunder and lightning and cyclones are unknown in this part of the State. The temperature ranges from  $10^{\circ}$  above zero in winter to  $85^{\circ}$  above in midsummer. The summers are cool and pleasant and the winters mild; flowers bloom in the open air every month in the year, and the nights in summer are always cool and refreshing. The climate

in the western section is similar to that of southern England. That of the eastern section is remarkable for clearness and brightness; it is hot and dry in summer, and has a brief and severe winter. The climate is tempered by a remarkable balmy wind, called the Chinook wind, coming over the mountains from the great Japanese current of the Pacific. In the summer it is a cool wind tempering the heat, and in the winter it is a warm wind, before which snow and ice disappear with marvelous rapidity.

The Cascade range is the local name of the extension through the State of the Sierra Nevadas, the great and sharply-defined mountain chain which extends at a distance from shore of about 100 miles through the Pacific States and Territories. To the north of the Columbia river the range widens out considerably into a region of high grassy mountain plateaus, of deep cañons, heavily timbered slopes, and high peaks of volcanic origin, furnishing mountain scenery of indescribable grandeur. The western slopes are covered with magnificent forests, principally of fir, the trees growing to an immense size. The mountain plateaus are from 3,000 to 5,000 feet in elevation, untimbered and covered with excellent grass, furnishing a large extent of valuable pasture land. On the eastern slope the forests are more open, and consist principally of bull and yellow pine, tamarack, fir, and white cedar. The Northern Pacific railroad reaches the sea by two routes, one of which goes down the Columbia river, and the other crosses the Cascade range by the Stampede Pass in 47° 20' N. latitude; this pass has an elevation of 3,600 feet, and is in a region of beautiful deeply-embosomed lakes, the high cliff-like banks of which are crowned with splendid evergreen forests. To the north of the Stampede Pass the range becomes higher, and more rough and rugged than it is farther south. There seems to have been a volcanic center between the Yakima and Wenatchee rivers and about midway between the upper Yakima lakes and the Columbia, the highest peak of which is known as Mount Stuart, from which poured a grand flood of lava to the east and south, forming the elevated range between the Yakima and Wenatchee known as the Wenatchee Mountains, and crossing the present channel of the Columbia and forming Badger Mountain on the east. To the north of the 48th parallel, which is about the line of the Spokane river and the westward-flowing portion of the upper Columbia, the country changes, becoming more independent in its mountain formations, and the eastern jutting ranges of the Cascades meet and join with the earlier rock materials of the western spurs of the Rocky Mountains. Here the great interior basin may be considered as ending, for to the north the Rocky and Cascade ranges approach, and are blended in inextricable confusion. The principal rivers having their sources in the Cascade Mountains on the west are the Nooksack, Skagit, Stillaguamish, Snohomish, Puyallup, and Nisqually flowing into Puget Sound, the Chehalis flowing into Gray's Harbor, and the Cowlitz and Lewis rivers flowing into the Columbia; while on the east are the Methow, Chelan, Wenatchee, Yakima, and Klickitat, flowing into the Columbia. The mountains are well stocked with large game, as deer, bear, mountain sheep, mountain goats, wolves, panthers, foxes, etc., the valleys, plateaus, and lakes with feathered game, and the streams and lakes with trout and salmon.

The western section of the State lying between the Cascades and the ocean is the smaller of the two, and is covered with timber throughout nearly its entire extent. The principal natural feature is Puget Sound—one of the most beautiful sheets of salt water in the

world, if not indeed *the* most beautiful. It is an arm of the sea joining the waters of the Gulf of Georgia and Strait of Juan de Fuca, and stretching about 100 miles to the south into the heart of the country; it has a great number of bays, coves, inlets, and channels branching off from the main sound, altogether forming a collection of harbors unsurpassed in the world. The total area of the Sound is about 2,000 square miles, with a shoreline of about 1,800 miles. The water is very deep, in places more than 800 feet, the ordinary depths in the inlets and channels being from 300 to 600 feet. These depths in some places continue right up to the shore, so that vessels of the deepest draught could go and tie up to the trees on the banks as to a wharf. The tides in Puget Sound vary ordinarily from about nine feet at Port Townsend to fifteen feet or more at Olympia and the remote inlets. Along the shores, and for many miles back, the country is covered with the densest growth of very fine timber. The region of the Olympic Mountains lying between Puget Sound and the Pacific has never been explored to any extent, owing to the enormous difficulties of penetrating the forests, which, besides the standing trees, consist of masses of fallen timber and undergrowth. No rivers or creeks navigable for canoes penetrate any distance into it. There is no doubt that Puget Sound once extended much farther south, and occupied the Willamette valley of Oregon. Its retrogression has left large areas of low-lying land bordering the Sound and between it and the Columbia, which, when brought under cultivation, are found to be remarkably fertile. There are large areas of these low-lying lands covered with water at the highest tides which could be easily reclaimed by dyking; about 30,000 acres have been so reclaimed, and it is estimated that 150,000 acres besides can be thus improved. There are two fine harbors on the Pacific coast, Gray's and Willapa, and several others along the shore of the Strait of Juan de Fuca.

Western Washington is specially adapted to raising all the grasses, oats, hops, the root-crops, and fruits; whatever requires great heat does not ripen well. Eastern Washington differs in a very marked manner and in almost every material respect from the western section. South of the forty-eighth parallel and east of the Cascades it is essentially a prairie country, which owes its origin to the great lava flow that covered northeastern Oregon. This lava has disintegrated in the course of ages, and produced a soil which is unsurpassed in the world for richness. The region lying between the Blue Mountains and the Snake river, known as the Walla Walla country, and that between the Snake and the Spokane, known as the Palouse and Spokane countries, are noted for their fertility. This is also the case with the regions along the eastern foot-hills of the Cascades known generally as the Yakima and Kittitas valleys. In these valleys almost every product of the temperate zone is grown in the greatest abundance and of the finest quality; though the rainfall here is so light that some irrigation is necessary. Besides the cereals, such as wheat, oats, barley, flax, etc., there are grown grapes, apples, cherries, peaches, prunes, potatoes, both white and sweet, tobacco, cotton, broom corn, sorghum, peanuts, egg plants, etc. Over a large part of this eastern section, however, the rainfall is not sufficient, and irrigation must be resorted to. With irrigation properly conducted it is safe to say that nearly every foot of land now classed as desert will be found to be as productive as the regions more favored by rain.

That part of eastern Washington north of the Columbia and Spokane rivers is a region of low-timbered mountains and fertile valleys. This is mostly given up to the Indians, there being the two large reservations



called the Columbia and Colville reservations stretching from the Cascade mountains eastward to the southward-flowing portion of the Columbia, and embracing 7,880 square miles of land. North of Spokane river is the Colville country, which is open to settlement, and in which are much good land and large quantities of valuable timber.

The most important natural feature of eastern Washington is the Columbia river, which enters the State from British Columbia at about  $117^{\circ} 30'$  W. longitude, and pursues nearly a southerly course to the "Big Bend," a distance of 110 miles, where it takes a westerly course, which it keeps for 93 miles until it receives the waters of the Okanogan, where it changes its course again to the south, keeping it for 224 miles, until it unites with its greatest tributary, the Snake river; from this point it keeps a westerly course, breaking through the Cascades, and entering the Pacific in latitude  $46^{\circ} 15'$ . It forms the boundary between Washington and Oregon for this latter part of its course. The lower portion of the Columbia is described under OREGON, (*q.v.*) The upper part may be briefly described as a deeply cañoned river with numerous rapids and falls. Above the mouth of the Okanogan it is unnavigable and in all probability incapable of improvement except in short stretches. The Kettle Falls, near the northern boundary, are the most marked on the river, being about twenty-five feet at low water. Here each year the Indians from all directions gather on neutral ground to take salmon for their next year's subsistence. A salmon chief is elected, whose duties are to keep order and to divide equitably all the fish taken. The fish are taken in baskets as they try to jump the falls, those that fail falling back into the baskets. That part of the Columbia from the northern boundary-line to the "Big Bend" is the most beautiful portion of the river within the State, except where it breaks through the Cascades. Throughout this portion there is considerable bottom-land, and this and the neighboring hills and mountains are well covered with fine open timber, with charming little grassy prairies scattered here and there. Below the Big Bend the cañon of the Columbia becomes more prominent, the timber recedes from the banks, and the channel narrows between basalt rocks, and in places is highly dangerous to anyone who intrusts himself upon the waters. The general depth of the cañon is about 2,000 feet. Much gold is found in the sand bars and low terraces along the river.

The principal tributaries of the Columbia within the State are Clarke's Fork, the outlet of Lake Pend d'Oreille, an unnavigable stream flowing through a deep cañon, which enters the Columbia just above the northern boundary of the State. The Spokane river, one of the most important tributaries, is the outlet of Lake Cœur d'Alene, which drains a large extent of the Bitter Root Mountains. The Spokane, from the lake to Spokane Falls, a distance of about thirty miles, flows just below the level of a lovely prairie country; at the falls the river takes a plunge of 156 feet, and from there to the Columbia it flows through a deep cañon. These falls of the Spokane furnish one of the finest, most accessible, and most easily controlled water-powers in the world, and already they are utilized to a considerable extent for manufacturing purposes. The Okanogan is the next important tributary; it rises in British Columbia and flows southward through Lakes Okanogan and Osoyoos, and enters the State in  $119^{\circ} 30'$  W. longitude. Its course lies through a rich and inviting country. At its mouth was one of the most important of the old Hudson's Bay Company's trading posts. The Methow river, Lake Chelan and its outlet, and the Wenatchee

are rivers of considerable magnitude, draining the eastern slopes of the Cascades. They are in a mountainous country presenting few attractions to the settler. The Yakima, which also comes from the Cascades, is of far greater importance, as about its headwaters is a large amount of fine agricultural land, and the river itself and its tributaries will ultimately furnish the water for irrigating an enormous extent of very fine land now virtually desert. Already large irrigating canals, having a total length of 325 miles, are projected, and work on them has been commenced.

The largest tributary of the Columbia, the Snake, joins it about eight miles below the mouth of the Yakima. The Snake is navigable for the whole 150 miles of its course through the State, but has some difficult rapids. It flows through a cañon 1,000 to 2,000 feet deep, which it has cut for itself through the lava deposits.

An area nearly encircled by the Columbia, below the Big Bend and the Snake, in the last fifty miles of its course, is known as the Great Plain of the Columbia. Its southern part is an alkaline, nearly waterless desert, the principal vegetation being sage brush; the northern part is somewhat more elevated, and is for the most part a rich, rolling, grassy country intersected here and there by *coules*, or deep and almost vertical cuts through the basalt rock underlying the soil. They indicate the former presence of large streams of water.

**Forests.**—Very valuable forests exist in every part of western Washington and in the northern part of eastern Washington. In 1900, the sawmills of Washington (fifth state of the Union in the lumber industry), produced cut lumber to the amount of 2,300 million feet, valued at \$30,000,000. The principal timber is yellow and red fir, ordinarily known as "Oregon pine," which constitutes the bulk of the forest; white and red cedar, spruce, and larch also abound. White pine of magnificent size grows on the upper benches of the Cascade Mountains; white fir and hemlock are also found. Alder, maple, ash, oak, and cottonwood occur in abundance on the bottom-lands of western Washington. The ash and oak are of inferior quality, but the alder, maple, and cottonwood are superior to woods of their kind grown elsewhere. Bull pine, yellow pine, and tamarack grow on the eastern slopes of the Cascade range, and constitute the bulk of the forests of eastern Washington. They make a fair quality of lumber, but greatly inferior to the products of the western slopes and the Pacific coast regions.

**Fisheries.**—The salmon fisheries of the Columbia river, Willapa Harbor, Gray's Harbor, and Puget Sound form one of the leading industries of the State. The preservation of salmon in cans was commenced in 1866 on the Columbia river, and the business rapidly increased, so that now the annual value of the pack is from \$2,000,000 to \$2,500,000. Halibut, cod, sturgeon, flounder, herring, and smelt abound in the Pacific off the coast of Washington, and in the waters of Puget Sound, though the catch is as yet very small.

**Mines and Mining.**—The mineral resources of the State are very great upon both sides of the Cascade Mountains. There are large tracts of valuable coal-lands between Puget Sound and the Cascades, stretching all the way from Bellingham Bay on the north to the Columbia river on the south. The veins at present worked vary from five to twenty-four feet in thickness, and in quality from lignite to bituminous coal, some of which produces gas and coke of superior excellence. Mines are also worked on the eastern slope of the Cascades about the head of the Yakima river. The present known area of coal-lands in the State is about 180,000 acres, and the total product for the year 1899

amounted to 2,029,881 tons, valued at \$3,603,989. The supply of coal for the Pacific coast is mainly drawn from the beds in Washington and their continuation in British Columbia.

There are large deposits of valuable iron ore in the western part of the State and in the Cle-elum region east of the mountains. Brown hematite iron ore is found in Skagit county, magnetic ore in King county, and bog iron ore of the best quality in several counties, notably Jefferson, King, and Pierce; but these deposits have not yet been worked to any great extent. There can be no question, however, that the existence of coal, iron, and timber in the near vicinity of Puget Sound must make this a great manufacturing and shipbuilding center. Limestone is found in great abundance on San Juan Island, in the Puyallup valley, and in the northeastern part of the State. Copper, lead, and tin are found in different localities.

The northern part of eastern Washington abounds in mines of the precious metals, and these are now being worked on quite an extensive scale. In the Colville district (between the Columbia, Clarke's Fork, and Spokane rivers) the prevailing country rock is limestone, and the prevailing mineral is argentiferous galena; at some points gray copper ore is found carrying both silver and lead, and in others silver chlorides are found. The development of these mines has been delayed by lack of railway facilities, but this will be remedied in a short time by lines now projected and incorporated.

The Kettle river district lies to the west of the Columbia, and in regions about the headwaters of the river. The mines are very varied in their character, comprising placer gold, gold quartz, copper, and galena with carbonates. Some of the placer mines have yielded heavily, the gold being coarse and obtained by ground sluicing. Very valuable quartz ledges, assaying eighty to 2,000 ounces of gold per ton, have been discovered in a formation of granite and slate.

The Okanogan district comprises the mines in the vicinity of the Okanogan, Salmon, and the Similkameen rivers and Osoyoos lake. Here the formation is granite, syenite, and porphyry, and the ores are galena, gray copper, and quartz, carrying sulphurets and native silver.

The cities of Tacoma on Puget Sound, and of Spokane Falls in the eastern part of the State, are the distributing points for all these mines, as well as for the Cœur d'Alene mines in northern Idaho.

*Shipbuilding.*—Shipyardsexist at Seattle and Tacoma, and at other points on Puget Sound, at Gray's Harbor and Willapa Harbor, and on the Columbia river. The vessels constructed are mainly schooners for the fishing and lumber-carrying trade; many of them also are provided with auxiliary steam-power. All raw materials for their construction are found in the vicinity. The yellow fir of the Pacific coast is stronger than oak and more durable, and is recognized as a superior timber for shipbuilding by the famous builders of the Clyde and of Marseilles, as well as of our own country. Vessels of 4,854 tons were built during 1896, and the industry is rapidly growing.

*Commerce.*—The principal articles of export are lumber, coal, wheat, and salmon, and their annual value is from \$30,000,000 to \$31,000,000. In the year from December, 1899, to November, 1900, the total flour exports at Puget Sound were 1,037,583 barrels as compared with 688,535 in the previous year.

*Railways.*—Washington was the last of the political subdivisions of the United States to be reached by railroads. In 1887 the Northern Pacific was completed through the Cascades and direct rail connection secured with the East. The mileage is now (1902) 2,965 miles.

*Education.*—There are 1,944 common schools in the State, under the supervision of a superintendent of public instruction and a board of education of three persons, all of whom are appointed by the governor. In each county, county superintendents and a board of county examiners visit the schools and report to the superintendent of public instruction. There is held each year a territorial teachers' institute, and local teachers' institutes are also held in different sections. These common schools are supported by county taxes and by certain criminal fines. Special taxes are also permitted in counties under certain conditions. There were in 1900 about 100,000 children under instruction, at a cost of \$1,795,795.

The general government has set aside for educational purposes one-eighteenth of all the land in the State, comprising about 2,500,000 acres. All children must attend school at least three months in the year.

There is a university at Seattle, supported by annual appropriations of the legislature. It has four departments at present:—literature, science, and the arts; law; medicine; and military instruction. There is a seminary for young ladies at Tacoma, which ranks as one of the first institutions of its kind on the coast. There is also a college under the management of the Methodist church in the same city. There are also twenty-four higher institutions of learning scattered throughout the State, consisting of colleges, seminaries, and academies, most of which are under sectarian control, and some of which have already a liberal endowment.

*Churches.*—All the leading Christian sects are well represented in the State, their membership and value of church property being about in the order given below:—Methodist Episcopal, Roman Catholic, Protestant Episcopal, Congregational, Baptist, Presbyterian, Christian, Lutheran, German Reformed, and Unitarian.

*Government.*—The executive power of the State is vested in a governor, lieutenant governor, secretary of state, treasurer, auditor, attorney general, superintendent of public instruction, and commissioner of public lands, who hold office for four years; and the legislature consists of a senate and house of representatives, the former of thirty-five and the latter of seventy members. The sessions of the legislature are biennial.

*Population.*—The total population was 518,103 in 1900 (304,178 males, 213,925 females), according to the census of that year, classified as follows:—whites, 496,304; negroes, 2,514; Chinese, 3,629; Japanese, 5,617. In addition to these there are about 10,000 Indians. The census population in 1890 was 349,390. The capital is Olympia, and the chief city is Tacoma (pop. 1900, 37,714), both on Puget Sound. Seattle has a population of 80,671.

*Banks.*—There were in 1900 in the State 79 national banks, with a capital of \$3,250,000, and 27 State and savings banks, with a capital of \$1,349,960, and also a number of private banks.

*History.*—The first event in history relating to Washington was the discovery, in 1592, of the Strait of Juan de Fuca by an old Greek pilot of that name in the service of Spain. In 1775 Captain Hecata, a Spanish navigator, discovered the mouth of the Columbia, but was unable to enter the river. Captain Kendrick, an American navigator, in 1780 sailed into the Strait of Fuca and through the Gulf of Georgia and Queen Charlotte Sound to the Pacific, and was the first to clearly make known the character of these inland waters. On the 11th of May, 1792, Captain Gray, of the American ship *Columbia*, sailed into and explored for about fifteen miles the great river to which he gave the name of his ship. This first entrance into the Columbia river gave the United States



their principal claim to the territory drained by the river, and is thus a very important episode in the history of the Oregon region, which formerly comprised the present States of Oregon, Washington, and Idaho. In October of the same year (1792), an Englishman, Lieutenant Broughton, sailed up and examined the Columbia for about 100 miles from its mouth. The coast soon became quite well known, and the government of the United States fitted out a number of expeditions to obtain a knowledge of the interior. The most important of these was that of Lewis and Clark, who were directed to ascend the Missouri, cross the Rocky Mountains, and trace the Columbia from its sources to the sea. They began the ascent of the Missouri in 1804, and spent the winter of 1804-5 at Fort Mandan. In the next season, after incredible hardships and great sufferings, they crossed the Rocky Mountains, and reached the Clearwater river. Here they made boats and proceeded down it, the Snake river, and the main Columbia, reaching the Pacific in December, 1805. They returned by nearly the same route.

The next important era in the history of the State was the attempt of J. J. Astor to establish a fur-trading empire on the Columbia and its tributary lands and streams. Two expeditions were sent out in 1810 for this purpose, one by land and one by sea. The latter reached the Columbia in 1811, and established a trading post at Astoria near the mouth of the river. The land expedition reached this post in 1812. In the meantime, in hopes of forestalling Astor's expeditions, the North-West Fur Company sent a party in 1810 to cross the mountains and reach the mouth of the Columbia before them. This expedition experienced great difficulty in crossing the mountains in 52° N. latitude, but in the spring of 1811 they reached the Columbia, and went down to its mouth, where they found Astor's sea party already established. This North-West Fur Company's expedition was the first to navigate the upper Columbia, or to traverse any part of the country drained by it. In 1813 the fortunes of war compelled the transfer of the Astor Fur Company to the North-West Fur Company. Henceforward for many years the history of the State is the history of the operations of the great North-West and Hudson's Bay Companies, and of the effort of private parties to get a share in the profits of the fur trade. A number of trading posts were built, and exploring and trading expeditions sent into all parts of the country. Missionaries began to arrive, and emigrants to drift in by sea and land.

During all the years in which this region was first being explored and settled, a dispute had been going on between the United States and Great Britain in regard to its ownership, which at different times waxed so fierce as to threaten war. Finally an arrangement was arrived at, and in 1846 the treaty was signed fixing the boundary-line at the 49th parallel. The Territory of Oregon (comprising Washington, Idaho, and Oregon) was formed in 1848, and Gen. Joseph Lane, the first Territorial governor, arrived in 1849, after which United States courts were established. The Territory of Washington was established in 1853, and its first governor was Isaac I. Stevens.

The number of manufacturing establishments in 1900 was 3,631, employing \$52,649,760 of capital and 35,000 wage-earners. The value of the manufacturing products for the year was \$86,795,051, the cost of materials used being \$49,099,182.

WASHINGTON, the capital of Washington county, Penn., is situated on Chartiers creek, and is famed both as an educational and business center. The tributary country is very fertile, and its mining

resources, consisting of bituminous coal and limestone, are equally productive. The city is also located on the Wheeling and Pittsburgh branch of the Baltimore and Ohio road, equidistant between Wheeling and Pittsburgh, on the Pittsburgh, Cincinnati and St. Louis, the Waynesburg and Washington railroads and the National road, rendering it easily accessible and provided with unrivaled facilities for rapid communication with all parts of the State and United States. The city contains a court house and other county buildings, ten churches, three national and two private banks, one daily, one semi-weekly, and four weekly papers, besides two monthly publications, a high-school and graded schools, with other educational advantages, including a female seminary and the Washington and Jefferson college, the latter established by the Presbyterians in 1802, and now having a library of more than 10,000 volumes. The city also contains a number of desirable hotels, public halls, stores, etc., and in addition to the usual complement of manufacturing enterprises, Washington is the location of glass plants, woolen mills, tank and jack factories and other industries connected with the production and refinement of petroleum. Coal and wood are extensively exported, and the city is provided with every facility for the conduct of the large and growing business of which it is the base of operations. The population in 1900 was stated at 7,670, an increase of nearly 3,000 during the ten years previous.

WASHINGTON, the capital of Davies county, Ind., is located on the Ohio and Mississippi railroad, at the crossing of the Evansville and Terre Haute road, 58 miles north of the Ohio river, 80 miles from Terre Haute, 20 miles from Vincennes, and 173 miles east of St. Louis. It is situated in the midst of a bituminous coal district, among the richest in the State, and of an agricultural territory fully as productive of wheat and other cereals, while the surrounding country is covered with a thick growth of hardwood timber. Under the influence of aids so substantial and valuable the development of Washington has kept pace with the times, and its growth has been steady and permanent. It now contains one daily and three weekly papers, two national banks, a court-house and administrative offices, four hotels, public halls, stores, etc., together with an excellently managed graded school system, provided with all necessary conveniences and appliances, and a full representation of the various religious organizations and a number of houses of worship. Coal mining is extensively carried on, and the manufacturing plants embrace nearly all of the representative and leading industries. The population in 1900 was 8,551.

WASHINGTON, the capital city and seat of government of the United States, is situated on the left or east bank of the Potomac river, at the junction of the Anacostia, or Eastern branch, the head of navigation and tide, 106½ miles from Chesapeake Bay, and 185 from the Atlantic Ocean. The latitude of Washington (naval observatory) is 38° 53' 38" N., longitude 77° 3' 1.35" west of Greenwich. The city forms a part of the District of Columbia, which is under the immediate control of the United States Government. The charters of Washington and Georgetown were abolished by congress in 1871. Under the act of 1874 the management is in the hands of three commissioners appointed by the president, consisting of two residents (civilians) and one army officer of the Corps of Engineers. The salary of the commissioners is \$5,000 per year.

The District of Columbia, since the retrocession to the State of Virginia, has an area of sixty-five square miles, and its population is increasing. Population of the city, 278,718. Most of its area is a plateau, elevated 300 to 400 feet above the river, and traversed by the

Anacostia river and Rock creek. Just above the mouth of the former stream the bluffs which form the descent from the plateau recede from the river, leaving an area of bottom land about six square miles in extent between that stream and the Potomac. This bottom-land is undulating, much of it being but slightly elevated above the river, while the highest parts are scarcely more than 100 feet above high tide. The city of Washington is built upon this bottom-land, while its immediate suburbs extend up the bluffs and over the plateau to the northward. The bluffs return to the river immediately above the city, and upon their slopes is built the old city of Georgetown, which is practically continuous with Washington. There are several suburban villages scattered over the district, including Mount Pleasant, Tenallytown, Brightwood, Le Droit Park, and Uniontown.

The climate of Washington is characterized by great humidity, long-continued but not excessive heat in summer, with mild winters. Snow does not often fall, and never lies long on the ground.

Three railroads enter the city, the Baltimore and Ohio and the Pennsylvania, which afford communication with the north and west, and the Richmond and West Point Terminal, which extends southward. Besides its railroad connections, regular lines of steamers ply to northern and southern ports during most of the year.

The plan of the city is regular and symmetrical. Radiating from the Capitol are three streets, running north, south, and east, and known respectively as North, South, and East Capitol streets. These, together with a line of public parks running west from the Capitol, divide the city into quarters, known as the northwest, northeast, southeast, and southwest quarters. The streets run in the cardinal directions, the north and south ones being designated by numbers, and the east and west ones by the letters of the alphabet—the numbers increasing eastward and westward from the meridian of the Capitol, the letters progressing northward and southward from a parallel through that building. In addition to these streets, there is a system of avenues, which run diagonally to the cardinal directions, and which bear the names of States. The intersections of the streets and avenues have given opportunity for the construction of many small parks in the forms of triangles, circles, quadrilaterals, etc., which, with the numerous larger parks scattered about the city, add greatly to its beauty and healthfulness.

The streets and avenues have a total area of 1,501 acres, the pavements 150 acres, the public reservations and parks 790 acres. Aggregate length of streets, 279 miles; of avenues, 65 miles. The thoroughfares are wider than in any other city on the globe, the avenues ranging in width from 120 to 160 feet, while the streets range from 80 to 120 feet. The area comprised in the streets, avenues, and public parks is considerably more than half the area of the city. As the width of the streets is in most cases in excess of the demands of travel, a portion of this width has, in the residence streets, been left between the sidewalks and the houses, and has been improved as a public parking. In some cases, similar parking has been left in the middle of the streets. Of the avenues and streets, 30 per cent. are paved with smooth pavements, either asphalt, coal-tar, concrete, or asphalt blocks; 10 per cent. are paved with granite or trap blocks, and an equal extent with cobble or rubble;  $4\frac{1}{2}$  per cent. are macadamized, and 14 per cent. are graveled, while the remainder are unimproved. The paved streets are swept by machinery at frequent intervals. With the exception of the business streets every street is lined with shade trees, which, arching over the pavements, form continuous

shade for miles. The trees are mainly elms and maples.

The river is crossed by three bridges—the Long Bridge, by which the city is directly connected with the Virginia shore, the Aqueduct Bridge, so named because it formerly carried the Chesapeake and Ohio canal, and the Chain Bridge, farther up the river.

The water supply of the district comes from the Potomac. It is taken out of the river at the head of a cataract known as Great Falls, about sixteen miles above the city, where it is collected in the receiving reservoir, capacity 163,000,000 gallons. It is brought to the distributing reservoir, capacity 300,000,000 gallons, thirty-three acres in area, just above Georgetown, in an aqueduct, passing through a receiving reservoir on the way, and is thence brought to Washington and Georgetown through iron mains. No pumping is done, except to supply the suburbs on the bluffs. The water is excellent and the supply ample. In order to give a stronger head in certain sections of the city a tunnel has been constructed to conduct a part of the supply from the distributing reservoir to a third reservoir, north of the middle of the city. The sewer system of the city was not, like its streets, planned in advance, but was suffered to grow up, and is in consequence imperfect. There are three main outlet sewers, one emptying into the Potomac just above the Long Bridge, another near the mouth of the Anacostia, while the third, after skirting the city at the base of the bluffs, empties into the Anacostia. The houses are generally connected with the sewers. The city is fairly well lighted with gas and electric lights.

The district has an excellent common school system, modeled after that of New England; it is managed by a board of trustees appointed by the commissioners. Separate schools are maintained for white and colored pupils. Legislation for the district is enacted by congress. The district has courts of its own, the judges being appointed by the president. The people have no voice in the management of affairs. Thus is presented the singular spectacle of the capital of a great republic governed by an absolute power. Still more singular, perhaps, is the fact that this is the best governed municipality in the United States.

The real estate and personal property in the District of Columbia is valued at \$254,189,536, thus classed: Taxable property, \$112,802,101; belonging to the United States, \$120,589,684; belonging to district government, \$2,258,872; churches, etc., exempt, \$6,604,634; taxable personal property, \$11,934,245. The yearly expenses of the district government are about \$4,800,000, of which the United States pays one-half.

The death rate among the white population is less than in any other American city approaching Washington in size.

The public buildings are scattered widely over the city. The Capitol stands upon an eminence toward the eastern edge of the thickly settled portion, in the midst of extensive grounds. It consists of a central building, surmounted by a dome, and flanked by two wings, in which are the chambers of the two houses of congress. The length of the building is 751 feet, while its breadth ranges in different parts from 121 to 324 feet. It covers nearly  $3\frac{1}{2}$  acres. Its extreme height, from the ground to the top of the statue of Liberty, which stands upon the dome, is 307½ feet. The material of the central building is sandstone, that of the wings marble, while the dome is of iron. The entire cost of the building has been \$13,000,000. Besides the two houses of congress, the Capitol is occupied by the United States Supreme Court and the library of congress. For the latter a separate building is now in



process of erection, upon ground just east of the Capitol.

The treasury is situated one and a half miles west of the Capitol, at the corner of 15th street and Pennsylvania avenue; it is built mainly of granite, in the ionic style, and measures 468 by 264 feet, with a court in the interior. It contains some 500 rooms, and cost \$6,000,000. The building occupied by the state, war, and navy departments is just west of the treasury, separated from it by the president's residence, which is known as the White House. It is built entirely of granite, is 567 feet long by 471 feet wide, and 128 feet in height, and cost \$10,000,000. The interior department building is on F Street North, nearly equidistant from the Capitol and treasury. It occupies two squares of the city, being 453 by 331 feet, with an interior court. It is simple in its proportions and in the Doric style. It is built in part of freestone, in part of marble, while the interior is of granite. This building cost \$2,700,000. The post-office department building is directly opposite the interior department, and occupies a whole square. The style is Corinthian, and the material is marble. The dimensions are 300 by 204 feet, with an interior court, and its cost was \$1,700,000.

Running westward from the Capitol grounds to the river is a line of public reservations, having a breadth of four squares, from B Street North to B Street South. Within these extensive grounds are several public structures, the botanic gardens, the buildings of the fish commission, the army medical museum, the national museum, the Smithsonian Institution, the department of agriculture, and the Washington monument. All these are of brick, with the exception of the Smithsonian Institution, which is of brown sandstone, and the monument, which is of marble. This is a plain obelisk, fifty-five feet square at the base and 555 feet in height. The White House is situated between the treasury and the building of the state, war, and navy departments, on Pennsylvania avenue, in the midst of ample grounds. It is of sandstone, 170 feet long by 86 feet wide. Among the other public buildings are the naval observatory, the government printing office, the navy yard, artillery barracks, marine barracks, naval hospital, the city hall, the bureau of engraving and printing, and the pension office. Outside the former city limits are the government asylum for the insane, the national college for the deaf and dumb, the reform school, and in the midst of a large and beautiful public park the soldiers' home, a retreat for aged and disabled soldiers.

It was the design of those who laid out the city that its principal growth should be east of the Capitol. Certain causes, however, prevented this result, and sent the wealth and fashion into the northwestern quarter. This quarter contains at present more than half the population and over three-quarters of the taxable property of the District. In this section are many thousands of residences of fine and varied architecture, the display of which has been much encouraged by the freedom of the building regulations.

Washington is one of the most cosmopolitan of cities. Its population is not only drawn from all parts of the United States, but every civilized nation has its representatives there. Its social life is characterized by a degree of variety and freedom rarely enjoyed elsewhere. It has become in recent years the American center of scientific thought, and is rapidly gathering men of letters.

Washington was selected as the site for the federal capital in 1790. The States of Maryland and Virginia had ceded to the general government a tract of land ten miles square, lying on both sides of the Potomac, for

that purpose. The Virginia portion was subsequently retroceded to that State. In 1790 Georgetown was a city of considerable importance, but upon the site of Washington there were very few settlers. The plan of the city was drawn by Major l'Enfant, and the city laid out in accordance therewith by Andrew Ellicott. At that time the greater part of the site lying west of the Capitol was a morass, well-nigh impassable. The machinery of the government was moved to Washington in 1800, when it was "a backwoods settlement in the wilderness." It existed principally upon paper, and the magnificence of the plan only served to emphasize the poverty of the execution. In 1814, during the second war with Great Britain, it was captured by the British troops, and the Capitol, together with most of the other public buildings, was burned. In 1839 it was described as a "large straggling village reared in a drained swamp." Indeed, in 1871, although it had attained to considerable size, it was exceedingly backward in all municipal improvements. The public buildings and grounds were neglected. The streets were deep in mud, or clouded with dust; the unbuilt portions were morasses, and the sewerage was worse than useless. In that year Congress abolished the charters of the two cities, and instituted a form of territorial government, with a governor and legislative assembly. The matter of municipal improvement was placed in the hands of a board of public works, with authority to carry out a comprehensive scheme. The work was commenced and pushed forward with the greatest energy, and almost fabulous results were achieved. In a very few years the appearance of the city was revolutionized. The cost of these improvements was, however, enormous, and it was increased greatly by the rapidity with which the work was done. Much of it, too, was badly executed, so that it has been necessary to replace it. But, in spite of these drawbacks, the fact that Washington is one of the most beautiful and comfortable cities in the world is principally due to the first governor of the District and his board of public works. This government lived too fast to live long. In 1874 Congress abolished the territorial form, and established the present government by three commissioners.

The following figures illustrate the growth of the District in population: 1800, 14,093; 1820, 33,039; 1840, 43,712; 1860, 75,080; 1870, 131,700; 1880, 177,624; 1885, 203,459. Washington had 109,199 inhabitants in 1870, 147,293 in 1880, and 278,718 in 1900.

WASHINGTON COURT-HOUSE, the capital of Fayette, one of the leading counties in the southern part of Ohio, is situated on what is known as Sugar or Paint creek and is important as a manufacturing center, as also for the amount and value of the business annually transacted there. Its location as a railway distributing point is equally conspicuous, the city being a place of meeting for trains on the Columbus, Cincinnati and Midland, on the Ironton division of the Dayton, Ft. Wayne and Chicago, the Cincinnati and Muskingum Valley and other traffic lines, by which it is afforded unrivaled advantages for shipments to the eastern, western and southern markets. It was settled at a comparatively early day and the improvements since made, of a character both substantial and handsome, are rendered additionally attractive by the beauty of their surroundings. The various departments of the press, schools, finance, and mercantile endeavor are prominently represented and ably maintained. One daily and three weekly papers are published, three banks are actively in operation, and in the busy seasons the monetary transactions represent large amounts. The town also contains six churches, a large and thoroughly organized union school, and three hotels, besides stores and depots of supply generally

and manufactures of gas-machines, patent fire-grates, phosphates, lumber and lumber products, tile, boots and shoes, brooms, soap, chewing-gum, sifters, furniture, etc. The population was 5,751 in 1900.

WASHINGTON, GEORGE, the first president of the United States, was born in Westmoreland county, Va., February 22, 1732. His ancestry can be traced no further back than his great-grandfather John, who settled in Virginia about 1657. His father died when George was but twelve years old, and George inherited the homestead in Stafford county, Va., nearly opposite Fredericksburg. Very little is known of Washington's early life, probably because there was little to tell. The story of the hatchet and cherry tree are quite apocryphal, having been invented by his subsequent biographers. George's life was not different from that common to Virginia families in easy circumstances. Hunting, fishing, plantation affairs, and a little reading made up its substance. His education was but elementary and very defective, except in mathematics, in which he was largely self-taught. Sparks has "edited" the spelling, grammar, and rhetoric of Washington's *Writings* to such an extent as to destroy their value as evidence. About 1748 we begin to know something of Washington's life. He was then at Mount Vernon with his half brother Lawrence, who was his guardian. Lawrence was the son-in-law of his neighbor Lord Fairfax, with whom he had served at Carthage, and had made the acquaintance of Admiral Vernon, from whom Mount Vernon was named. A commission as midshipman was obtained for George through the admiral, but the opposition of the boy's mother put an end to the scheme. As a substitute, the appointment as surveyor of the enormous Fairfax property was given to Washington at the age of sixteen; and the next three years of his life were spent in this service. He seems already to have impressed others with a belief in his force of mind and character, for at the age of nineteen, when the first indications of the "French and Indian war" appeared, he was appointed adjutant of the Virginia troops, with the rank of major; in 1753, when he had barely attained his majority, the young man was made commander of the northern military district of Virginia by the new lieutenant-governor, Dinwiddie.

At the outbreak of the French and Indian war in 1753-54 Washington was the agent sent by Governor Dinwiddie to warn the French away from their new forts in western Pennsylvania; the command of the Virginia troops who began hostilities fell to him, and his vigorous defense of Fort Necessity immediately made him so prominent a figure that in 1755, at the age of twenty-three, he was commissioned commander-in-chief of all the Virginia forces. He served in Braddock's campaign, and in the final defeat showed for the first time that fiery energy which always lay hidden beneath his calm and unruffled exterior. He ranged the whole field on horseback, making himself the most conspicuous mark for Indian bullets, and, in spite of what he called the "dastardly behavior" of the regular troops, brought the little remnant of his Virginians out of action in fair order. In spite of this reckless exposure he was one of the few unwounded officers. For a year or two his task was that of "defending a frontier of more than 350 miles with 700 men;" but in 1758 he had the pleasure of commanding the advance guard of the expedition which captured Fort Du Quesne and renamed it Fort Pitt. The war in Virginia being then at an end, he resigned his post, married Mrs. Custus, a widow, and settled at Mount Vernon.

Washington's life for the next twenty years was merely that of a typical Virginia planter, a consistent

member of the Established (Episcopal) Church, a large slaveholder, a strict but considerate master, and a widely trusted man of affairs. His extraordinary escape in Braddock's defeat had led a colonial minister to declare in a sermon his belief that the young man had been preserved to be "the saviour of his country." If there was any such impression it soon died away, and Washington gave none of his associates reason to consider him an uncommonly endowed man.

Like others of the dominant caste in Virginia, he was repeatedly elected to the legislature, but he is not known to have made any set speeches in that body, or to have said anything beyond a statement of his opinion and the reasons for it. That he thought a great deal, and took full advantage of his legislative experiences as a political education, is shown by his letter of April 5, 1769, to his neighbor George Mason, communicating the Philadelphia non-importation resolutions, which had just reached him. Without speech-making, he took a prominent part in the struggles of his legislature against Governor Dunmore, and his position was always a radical one. He even opposed petitions to the king and parliament, on the ground that the question had been put by the ministry on the basis of right, not of expediency, that the ministry could not abandon the right and the colonists could not admit it, and that petitions must be, as they had been, rejected. In 1774 the Virginia Convention, appointing seven of its members as delegates to the Continental Congress, named Washington as one of them; and with this appointment his national career begins.

Washington's letters during his service in Congress show that he was under no delusions as to the outcome of the taxation struggle, and that he expected war.

His associates in congress recognized his military ability at once, and most of the details of work looking toward preparations for armed resistance were by common consent left to him. Even in the intervals of his congressional service he was occupied in urging on the formation, equipment, and training of Virginia troops, and it was generally understood that, in case of war, Virginia would expect him to act as her commander-in-chief. History was not to be cheated in that fashion. The two most powerful colonies were Virginia and Massachusetts. War began in Massachusetts; New England troops poured in almost spontaneously; it was necessary to insure the support of the colonies to the southward; and the Virginia colonel who was at the head of all the military committees was just the man whom the New England delegates desired. When Congress, after the fights at Lexington and Concord, resolved to put the colonies into a state of defense, the first practical step was the unanimous selection, on motion of John Adams of Massachusetts, of Washington as commander-in-chief of the armed forces of the United Colonies. Refusing any salary, he accepted the position, asking "every gentleman in the room," however, to remember his declaration that he did not believe himself to be equal to the command, and that he accepted it only as a duty made imperative by the unanimity of the call. He reiterated this belief in private letters even to his wife; and there seems to be no doubt that, to the day of his death, he was the most determined skeptic as to his fitness for the positions to which he was called in succession. He was commissioned June 19, 1775, and reached Cambridge, Mass., July 2d, taking command of the levies there assembled for action against the British garrison of Boston. The battle of Bunker Hill had already taken place, and Washington's work until the following spring was to bring about some semblance of military discipline, to obtain ammunition and military stores, to correspond with con-



gress and the colonial governors, to guide military operations in the widely separated parts of a great continent, to create a military system and organization for a people who were entirely unaccustomed to such a thing and impatient under it, and to bend the course of events steadily toward driving the British out of Boston. It is not easy to see how Washington survived the year 1775; the colonial poverty, the exasperating annoyances, the selfishness or stupidity which cropped out again and again from the most patriotic of his coadjutors, were enough to have broken down most men. They completed his training. If he was not a great man when he went to Cambridge, he was a general and a statesman in the best sense when he drove the British out of Boston in March, 1776. From that time until his death he was the foremost man of the continent.

The military operations of the remainder of the war are given elsewhere (see UNITED STATES). Washington's retreat through the Jerseys; the manner in which he turned and struck his pursuers at Trenton and Princeton, and then established himself at Morristown so as to make the way to Philadelphia impassable; the vigor with which he handled his army at Chad's Ford and Germantown; the persistence with which he held the strategic position of Valley Forge through the dreadful winter of 1777-8, in spite of the misery of his men, the clamors of the people, and the impotence of the fugitive Congress—all went to show that the fiber of his public character had been hardened to its permanent quality. It was a serious addition to his burdens that the spirit which culminated in Benedict Arnold chose this moment to make its appearance. Many of the American officers had been affronted by the close personal friendship which had sprung up between La Fayette and Washington, and by the diplomatic deference which the commander-in-chief felt compelled to show to other foreign officers. Some of the latter showed no gratitude. The name of one of them, Conway, an Irish soldier of fortune from the French service, is attached to what was called "Conway's Cabal." He formed a scheme for replacing Washington in the command by Gates, who had just succeeded in forcing Burgoyne to surrender at Saratoga; and a number of officers and men in civil life were mixed up in it. The treaty of 1778 with France put an end to every such plan. It was a flat absurdity to expect foreign nations to deal with a second-rate man as commander-in-chief while Washington was in existence, and he seems to have had no more trouble of this kind. The prompt and vigorous pursuit of Clinton across the Jerseys toward New York, and the battle of Monmouth, in which the plan of battle was thwarted by Charles Lee, another of the foreign officers, closed the direct military record of Washington until the end of the war. The enemy confined their movements to other parts of the continent, and Washington did little more than watch their headquarters in New York city. It was more than appropriate, however, that he who had been the main-spring of the war, and had borne far more than his share of its burdens and discouragements, should end it with the campaign of Yorktown, conceived by himself, and the surrender of Cornwallis. The war was then really over, but the commander-in-chief retained his commission until December 28, 1783, when he returned it to Congress, then in session at Annapolis, Md., and retired to Mount Vernon.

By this time the canonization of Washington had fairly begun. He occupied such a position in the American political system as no man could possibly hold again. He had become a political element, quite apart from the Union, the States, or the people of either. In a country where communication was still slow and

difficult, the general knowledge that Washington favored anything superseded argument and the necessity of information with very many men. The army, at the end of the war, was justly dissatisfied with its treatment. The officers were called to meet at Newburgh, and it was the avowed purpose of the leaders of the movement that the army should march westward, appropriate vacant lands, leave congress to negotiate for peace without an army, and "mock at their calamity and laugh when their fear cometh." It was the less publicly avowed purpose to make their commander-in-chief king, if he could be persuaded to aid in establishing a monarchy. Washington put a summary stop to the whole proceeding. Their letter to him detailed the weakness of a republican form of government as they had experienced it, their desire for "a mixed government," with him at its head, and their belief that "the title of king" would be objectionable to few and of material advantage to the country. His reply was peremptory, and even angry. He stated in plain terms his abhorrence of the proposal; he was at a loss to conceive what part of his conduct could have encouraged their address; they could not have found "a person to whom their schemes were more disagreeable;" and he threatened them with exposure unless the affair was stopped at once. His influence, and that alone, secured the quiet disbanding of the discontented army. His influence was as powerful after he had retired to Mount Vernon as before his resignation.

When the Federal Convention met at Philadelphia in May, 1787, to frame the present constitution, he was present as a delegate from Virginia, though much against his will; and a unanimous vote soon made him its presiding officer. He took no part in the debates, however, beyond such suggestive hints as his proposal to amend a restriction of the standing army to 5,000 men by forbidding any enemy to invade the United States with more than 3,000. He approved the constitution which was decided upon, believing, as he said, "that it was the best constitution which could be obtained at that epoch, and that this or a dissolution awaits our choice, and is the only alternative." All his influence was given to secure its ratification, and his influence was probably decisive. When it had been ratified, and the time came to elect a president, there was no more hesitation than if the country had been a theocracy. The office of president had been "cut to fit the measure of George Washington," and no one thought of any other person for it. The unanimous vote of the electors made him the first president of the United States; their unanimous vote re-elected him in 1792-93; and, even after he had positively refused to serve for a third term, two electors obstinately voted for him in 1796-97. The public events of his presidency are given elsewhere (see UNITED STATES). One can hardly follow them without receiving the conviction that the sudden success of the new system was due mainly to the existence at that time of such a character as Washington. He held the two national parties apart, and prevented party contest until the new form of government had been firmly established. It seems hardly possible that the final result should have been balked, even if "blood and iron" had been necessary to bring it about. It would be unwise to attribute the quiet attainment of the result to the political sense of the American people alone, or to use it as an historical precedent for the voluntary assumption of such a risk again, without the advantage of such a political factor as Washington.

The unconscious drift of Washington's mind was toward the Federal party; his letters to La Fayette and Henry, in December, 1798, and January, 1799, are enough to make that evident. When the Republican

party was formed, about 1793, it could not have been expected that its leaders would long submit with patience to the continual interposition of Washington's name and influence between themselves and their opponents; but they maintained a calm exterior. Some of their followers were less discreet. The president's proclamation of neutrality between France and Great Britain excited them to anger; his support of Jay's treaty with Great Britain roused them to fury. Forged letters, purporting to show his desire to abandon the revolutionary struggle, were published; he was accused of drawing more than his salary; hints of the propriety of a guillotine for his benefit began to appear; some spoke of him as the "stepfather of his country." The attacks embittered the close of his term of service; he declared, in a cabinet meeting in 1793, that "he had never repented but once the having slipped the moment of resigning his office, and that was every moment since." Indeed, the most unpleasant portions of Jefferson's *Ana* are those in which, with an air of psychological dissection, he details the storms of passion into which the president was hurried by the newspaper attacks upon him. These attacks, however, came from a very small fraction of the politicians; the people never wavered in their devotion to the president, and his election would have been unanimous in 1796, as in 1789 and 1792, if he had been willing to serve.

All accounts agree that Washington was of imposing presence. He measured just six feet when prepared for burial; but his height, in his prime, as given in his orders for clothes from London, was three inches more. LaFayette says that his hands were "the largest he ever saw on a man." Curtis says that his complexion was "fair, but considerably florid." His weight was about 220 pounds. The various and widely-differing portraits of him find exhaustive treatment in the seventh volume of Winsor's *Narrative and Critical History of the United States*. The editor thinks that "the favorite profile has been unquestionably Houdon's, with Stuart's canvas for the full face, and probably Trumbull's for the figure." Stuart's face, however, gives the popular notion of Washington, though it has always been a subject of curious speculation to some minds how much of the calm and benign expression of the face was due to the shape of Washington's false teeth.

Washington was childless: said the people of his time, he was the father only of his country. Collateral branches of the family have given the Lees, the Custises and other families a claim to an infusion of the blood, but no direct descendants of Washington can claim his honors, or disgrace his name. His estate of Mount Vernon was acquired in 1856 by an association, and has been practically national property ever since.

Retiring from the presidency in 1797, Washington resumed the plantation life which he most loved, the society of his family, and the care of his slaves. He had resolved some time before never to obtain another slave, and "wished from his soul" that his State could be persuaded to abolish slavery; "it might prevent much future mischief." He was too old, however, to attempt further innovations. In 1798 he was made commander-in-chief of the provisional army raised in expectation of open war with France, and was fretted almost beyond endurance by the quarrels of Federalist politicians about the distribution of commissions. In the midst of his military preparations he was struck down by sudden illness, which lasted but for a day, and he died at Mount Vernon, December 14, 1799. The third of the series of resolutions introduced in the house of representatives five days after his death, by John Marshall, and passed unanimously, states exactly, if a trifle rhetorically, the position of Washington in

American history: "First in war, first in peace, and first in the hearts of his countrymen."

Washington's disorder was an oedematous affection of the wind-pipe, contracted by careless exposure during a ride in a snow-storm, and aggravated by neglect afterward, and by such contemporary remedies as excessive bleeding, gargles of "molasses, vinegar, and butter" and "vinegar and sage tea," which "almost suffocated him," and a blister of cantharides on the throat. He died without theatrical adieus; his last words were only business directions, affectionate remembrances to relatives, and repeated apologies to the physicians and attendants for the trouble he was giving them. Just before he died, says his secretary, Mr. Lear, he felt his own pulse; his countenance changed; the attending physician placed his hands over the eyes of the dying man, "and he expired without a struggle or a sigh."

**WASHOE SILVER MINES**, a rich deposit of siliceous argentiferous galena, discovered in 1859 in a range of hills on the east side of the Sierra Nevada on the borders of California and Nevada, near the sources of Carson's river, 160 miles east by north of Sacramento. The ore produced as much as \$2,000 to the ton, and was largely exported. The discovery of these mines caused a great excitement in California and a large emigration.

**WASPS.** The order *Hymenoptera* is divided into two sub-orders, the *Terebrantia* and the *Aculeata*. The latter is subdivided into several sub-sections, one of which, the *Diptoptera* (Latreille), includes all the true wasps.

The *Diptoptera* are in their turn divided into three families—(1) the *Vespidae*, (2) the *Eumenidae*, and (3) the *Masariidae*, which together comprise some 1,000 different species. They are characterized by their wings, which are present in both sexes and also in the neuters, being longitudinally folded when at rest. The antennæ are usually elbowed, and contain twelve or thirteen joints; in some cases they are clavate. A pair of notched faceted eyes are present, and three ocelli in the top of the head. The mouth-parts are arranged for sucking, but have not reached that degree of perfection found among the bees. Hence wasps cannot obtain the sugary secretion from deeply-seated nectaries, and their visits to flowers are confined to such as are shallow or widely opened; they particularly frequent the *Umbelliferae*. The maxillæ are elongated and compressed, the maxillary palp six-jointed. The labium bears a tongue which is glandular at the tip; the paraglossæ are linear. The labial palp has three or four joints. The thorax is oval, and its sides prolonged backward to the base of the wings. The fore wing has two or three sub-marginal cells. The legs are not provided with any adaptations for collecting pollen. The abdomen is sometimes pedunculate, its anterior segment being drawn out into a long stalk, which connects it with the thorax. The females and the neuters are armed with a powerful sting. The usual color of these insects is black, relieved to a greater or less degree by spots and patches of yellow or buff.

The *Diptoptera* may be subdivided into two groups. One of the groups includes the family *Vespidae*. The other group contains two smaller families, the *Eumenidae* and the *Masariidae*, the members of which are solitary in their mode of life.

In addition to their social habits, the members of the *vespidae* family are characterized by certain structural features. The anterior wings have three submarginal cells. The antennæ have thirteen joints in the males and twelve in the females; the claws of the tarsi are simple; the anterior four tibiæ have two spines at the



tip; the abdomen is but rarely pedunculated, and the posterior segments are often very contractile. The members of this family approximate very closely to bees in their social manner of life. The communities are composed of males, females, and neuters or workers. Unlike the bees', the wasps' community is annual, existing for one summer only. Most of the members die at the approach of autumn, but a few females which have been fertilized hibernate through the winter, sheltered under stones or in hollow trees. In the spring and with the returning warm weather the female regains her activity and emerges from her hiding-place. She then sets about finding a convenient place for building a nest and establishing a new colony. The common wasp (*V. vulgaris*) usually selects some burrow or hole in the ground, which, if too small, she may enlarge into a chamber suitable for her purpose. She then commences to build the nest. This is constructed of small fibers of old wood, which the wasp gnaws, and kneads, when mixed with the secretion from the salivary glands, into a sort of papier-mâché pulp. Some of this is formed into a hanging pillar attached to the roof of the cavity, and in the lower free end of this three shallow, cup-like cells are hung. In each of these an egg is laid. The foundress of the society then continues to add cells to the comb, and as soon as the grubs appear from the first-laid eggs she has in addition to tend and feed them.

The grubs are apodal, thicker in the middle than at either end; the mandibles bear three teeth; the maxillæ and labium are represented by fleshy tubercles. The body, including the head, consists of fourteen segments, which bear lateral tubercles and spiracles. They have no anus. They are suspended with the head downward in the cells, and require a good deal of attention, being fed by their mother upon insects which are well chewed before they are given to the larvæ, or upon honey. After about a fortnight the grubs cease to feed, and, forming a silky cover to their cells, become pupæ. This quiescent stage lasts about ten days, at the end of which period they emerge as the imago or perfect insect. As soon as the cell is vacated it is cleaned out and another egg deposited. In this way two or three larvæ occupy successively the same cell during the summer. The first wasps that appear in a nest are neuters or workers, and these at once set to work to enlarge the comb, and feed the larvæ, etc.

During the first half of the summer only workers are produced, but, as fruit ripens and food becomes more abundant, fully developed females and males appear, the latter from parthenogenetically developed eggs of the latter broods of workers. The males and females are larger than the workers, and require larger cells for their development; these are usually kept apart from one another and from those of the workers. The males may be distinguished by their longer antennæ, by the more elongated outline of their body, and by the absence of a sting.

At the approach of autumn the society begins to break up; the males fertilize the females while flying high in the air. They then die, often within a few hours. The workers leave the nest, carrying with them any grubs that remain in the cells, and both soon perish. The nest is entirely deserted. The females which have been fertilized creep into crevices under stones or trees, or hide among moss, and hibernate until the warmth of the following spring induces them to leave their hiding-places and set about founding a new community.

There are altogether seven species of *Vespa* met with in Britain. *V. vulgaris*, the common or ground wasp, *V. rufa*, the red wasp, distinguished by its reddish-yellow legs, and *V. germanica*, the German wasp,

with three black spots upon its first abdominal segment, are classed together as ground wasps. They build their nests in burrows in the ground, but this is not an invariable rule; they may be distinguished from the tree wasps by the first joint in the antennæ of the female being black. The tree wasps build stouter nests upon branches of trees; the first joint of the antennæ of the females is yellow in front. The tree wasps are *V. arborea*, *sylvestris*, *norwegica*, and *crabro*.

The hornet, *V. crabro*, is the largest species occurring in Great Britain. They occur much more rarely than the common wasp, and appear to be almost confined to the southern half of England. Their nests resemble those described above, but are larger; they are found in hollow trees or deserted outhouses. Their communities are smaller in number than those of wasps. The hornet, where it occurs in any number, does a considerable amount of damage to forest trees by gnawing the bark off the younger branches to obtain material for constructing its nest. It usually selects the ash or alder, but sometimes attacks the lime, birch, and willow. Like the wasp, it does much damage to fruit, upon the juices of which it lives. On the other hand, the wasp is useful by keeping down the number of flies and other insects. The genus *Vespa* is very widely spread; it contains over forty species, distributed all over the world. Some of the largest and handsomest come from eastern Asia. *V. mandarina* of China and Japan, and *V. magnifica* of the East Indies and Nepal, measure two inches across the wings; *V. orientalis* found in Greece, Egypt, and the East, builds its nest of clay.

The only other genus of *Vespidæ* which is found in Europe is *Polistes*, which occurs in the countries bordering the Mediterranean.

Some of the members of this genus store up honey, which in the case of a South-American species is poisonous, from the nature of the flowers from which it is gathered. The members of this genus have a slender body; the thorax is more oblong than in the genus *Vespa*, the palps stouter, and the abdomen more distinctly pedunculate. The genus *Ischnogaster*, from the East Indies, has many structural features in common with the *Eumenidæ*. The genus *Icaria* is common in Australia and the East Indies. *Syneca* is a South American genus, which builds large nests, sometimes three feet in length, closely applied to the branch or tree; they never contain more than one layer of cells, which are horizontally placed. The whole nest is built of coarse material, chiefly small pieces of bark; and there is only one opening, at the lower end.

Another South-American genus, *Chartergus*, makes a tough nest, pendant from boughs of trees, and opening to the exterior below by a median aperture. The combs are arranged, somewhat like funnels, inside one another, but with spaces between. The apex of each comb is pierced by a hole for the wasps to pass from one gallery to another. The nest of *Tatua*, which occurs in Mexico and South America, is also pendant, but the combs are horizontal; the opening from the exterior is at the side, and the passage from one gallery to another is also lateral. The external appearance of the nest of *Nectarina*, found in Brazil and other parts of South America, resembles that of the common wasp, but is rougher. Internally the combs are arranged concentrically, more or less parallel with the external covering which affords them support.

The members of the two remaining families, the *Eumenidæ* and the *Masariidæ*, resemble one another in their solitary mode of life; only males and females exist—no workers or neuters being found.

Solitary species (*Eumenidæ*), with three submarginal cells in the fore wing; antennæ with thirteen joints in

the male, twelve in the female; abdomen sometimes pedunculate, posterior segments contractile. In the foregoing structural features the *Eumenidae* resemble the *Vespidæ*, but they differ in having bifid claws on their tarsi, and the four anterior tibiae have but one spine at the tip. The mandibles are elongated, and form a kind of rostrum, in this respect approaching the *Fossoræ*.

*Eumenes coarctata* is the only British species of this genus. The female is half an inch long, the male somewhat shorter. The abdomen is connected with the thorax by a long peduncle. The color is black, relieved by spots of yellow. It constructs small spherical cells of mud, which are found attached to stems of plants, very generally to the heath. At first the cell opens to the exterior by means of a round pore; one egg is deposited in each cell, and a store of honey as food for the larva when hatched; the cell is then closed with mud. The larva of some species are carnivorous, and then the food supply stored up in the cell consists of caterpillars and other insect larvæ which have been paralyzed by the parent wasp stinging them through the cerebral ganglion; when the larva of the *Eumenes* emerges from the egg it sets upon these and devours them. The genus *Odynerus* contains a very large number of species, found in all parts of the world. The members of this genus are about the size of a fly, and they differ from *Eumenes* in having a sessile abdomen. Some of the species construct their cells in sand heaps, lining them with agglutinated grains of sand; others live in cavities of trees lined with the same material, while others build their nests of mud. Like some of the species of *Eumenes*, they store up paralyzed Lepidopterous and Chrysomelous larvæ as food for their carnivorous grubs.

The members of the third family, the *Masariidæ*, are sharply distinguished by the possession of only two submarginal cells in the fore wing. Their antennæ are frequently clavate, particularly so in the genus *Celonites*; they are twelve-jointed, but as the terminal joints are almost fused they appear to be composed of only eight joints. The wings are not so completely folded as in the other two families, and the abdomen is, but slightly contractile. The maxillæ are short and their palps very small, with but three or four joints.

The number of genera comprised in this family is small; none occur in Britain, but in southern Europe some species are found. They make their nest in cavities in the earth, generally in a bank, and construct an irregular gallery leading down to it.

The number of wasps is kept down by numerous enemies. The most effective of these live in the nests and devour the larvæ; among them are two species of beetle, *Rhipiphorus paradoxus* and *Lebia linearis*. Two species of *Ichneumon*, a species of *Anthomyia*, and the larva of a *Volucella* also infest the nests of wasps and prey upon the grubs. The last-named is also found in beehives. In the tropics some species are attacked by fungi, the hyphæ of which protrude between the segments of the abdomen, and give the wasp a very extraordinary appearance.

WASTE (*Vastum*) is used in law in several senses, of which four are the most important. (1) Waste of a manor is that part of a manor subject to rights of common, as distinguished from the lord's demesne. (2) Year, day, and waste was a part of the royal prerogative, acknowledged by the statute *De Prærogativa Regis*. The king had the profits of freehold lands of those attainted of felony and petit treason and of fugitives for a year and a day with a right of committing waste in sense (3) thereon. After the expiration of a year and a day the lands returned to the lord of the fee. Attainder for felony being now abolished, the right has ceased to

exist. (3) The most usual signification of the word is "any unauthorized act of a tenant for a freehold estate, not of inheritance or for any lesser interest, which tends to the destruction of the tenement, or otherwise to the injury of the inheritance." Waste is either voluntary or permissive. Voluntary waste is by act of commission, as by pulling down a house, cutting down trees, opening new quarries or mines (though not continuing the working of existing ones), or doing anything which may destroy evidence, such as conversion of arable into meadow land. Permissive waste is by act of omission, such as allowing buildings to fall out of repair. (4) Waste of assets or *devastavit* is a squandering and misapplication of the estate and effects of a deceased person by his executors or administrators, for which they are answerable out of their own pockets as far as they have or might have had assets of the deceased. In the United States, especially in the Western States, many acts, such as the felling of timber, are not considered waste which would be waste in England. In some States waste is a cause of forfeiture; in some it gives a right to treble damages. The writ of *estrepement* is still in use.

WATCH. Timepieces moved by a spiral spring instead of a weight were made as early as the sixteenth century, though the law which governs the mechanical theory of springs was first enunciated by Huygens in the seventeenth century (*ut tensio sic vis*); this, however, is not invariable.

By far the greater number of watches now made both on the Continent and in America have the mechanism known as the going barrel in substitution for the chain and fusee. In the going barrel the mainspring is of great length, and only a few coils of it are brought into action. In watches without a fusee the apparatus for preventing overwinding is different from that in the old form of watch; it goes by the name of the Geneva stop, and the principle of it is simple. If two wheels work together, of which one has the spaces between some two or more adjacent teeth filled up, it is evident that that wheel cannot be turned quite round. And it will be the same thing if one of the wheels is only a cylinder with a single tooth in it, and the other has a certain number of notches, not going all round, through which that tooth can pass. If, therefore, a one-toothed wheel of this kind is fixed to the barrel arbor, which is turned by the key, and works into a wheel with only four or five notches in it and a blank space through which the tooth cannot pass, it will evidently allow the barrel to be wound up the four or five turns and no more; and as it unwinds it turns the stopping wheel back again with it.

The balance being common to all the watch escapements, it will be proper first to describe that, and the conditions to which it is subject. The two equal arms, with equal weights at each end, in article CLOCKS are really a balance just as much as the wheel which is commonly used as the more convenient form. But there is not that essential element of a modern balance—the thin spiral spring, opening and closing itself at every vibration. The outer end of the spring is attached to the frame by a cock, and the inner to the balance; and the time of vibration depends only on the strength of the spring and the moment of inertia of the balance, and not at all upon the extent or angle of the vibration. And, as the force of a spring varies (approximately) inversely as its length, this suggests a ready method of regulating the watch; for it is easy to make a pointer or index, or "regulator" turning on a ring fixed to the watch plate, concentric with the balance, and having two pins in it, called *curb pins*, just close enough together to embrace the spring, so



that as the index is moved one way or the other, the length of the spring which is free to vibrate may become shorter or longer. When the regulator has been moved as far as it can go toward *fast*, suppose, and the watch still loses, the spring has to be shortened at the cock into which its outer end is pinned; and, in order that the balance may be capable of alteration, so as still to stand square with the escapement when the spring is in its neutral state, the other end is not actually pinned to the balance, but the cock is on a small ring which is set on the axis or *verge* of the balance pretty tight by friction, but capable of being turned by hand.

The necessity for a large amount of compensation having arisen from the variation of the elasticity of the spring, the first attempts at correcting it were by acting on the spring itself in the manner of a common regulator. Harrison's compensation consisted of a compound bar of brass and steel soldered together, having one end fixed to the watch-frame and the other carrying two curb pins which embraced the spring. As the brass expands more than the steel, any increase of heat made the bar bend; and so, if it was set the right way, it carried the pins along the spring, so as to shorten it. This contrivance is called a *compensation curb*; and it has often been reinvented or applied, in a modified form.

The compensation which was next invented left the spring untouched, and provided for the variations of temperature by the construction of the balance itself. Each portion of the rim of the balance is composed of an inner bar of steel with an outer one of brass soldered upon it, and carrying the weights which are screwed to it. As the temperature increases, the brass expanding must bend the steel inward, and so carries the weights farther in, and diminishes the moment of inertia of the balance. The first person who practiced this method of uniting them appears to have been Thomas Earnshaw, who brought the chronometer to the state in which it has remained for the last century, with scarcely any alteration except more complete compensation.

A few chronometers have been made with glass balance-springs, which have the advantage of requiring very little primary and no secondary compensation, on account of the very small variation in their elasticity, compared with springs of steel or any other metal. Dent also invented a very different method of effecting the primary and secondary compensation at once, and without any additional appendage to the balance or addition to the cost. He called it the *prismatic balance*, from the shape of the steel rim. A prism of cast steel will bend more easily from the edge than the other way, and consequently the motion is greater when it is being curved by heat than when it is pulled straighter by cold, which is exactly what is wanted. The difference is not quite so great as it ought to be for complete secondary compensation for a very wide range of temperature, but it is enough to give the requisite compensation for all ordinary variations of temperature, and chronometers so compensated were found to be also more than usually steady in their rate, for even in the best chronometers there appear every now and then quite capricious variations.

The best chronometers, with all these improvements, cannot be relied on to keep a rate equal to that of a good astronomical clock of the usual kind, though they occasionally do so for a short time.

The escapements in practical use are—(1) the old *vertical* escapement, now almost disused; (2) the *lever*, very much the most common in English watches;

(3) the *horizontal* or *cylinder*, which is equally common in foreign watches, though it was of English invention; (4) the *duplex*, which used to be more in fashion for first-rate watches than it is now; and (5) the *detached* or *chronometer* escapement, so called because it is always used in marine chronometers.

The *vertical* escapement is simply the original clock escapement. The *lever* escapement, as it is now universally made, was invented late in the last century by Thomas Mudge. The principle is the same as in the dead-beat escapement clock (see CLOCK), with the advantage that there is no friction on the dead faces of the pallets beyond what is necessary for locking. The reason why this friction cannot be avoided with a pendulum is that its arc of vibration is so small that the requisite depth of intersection cannot be got between the two circles described by the end of the lever and any pin in the pendulum which would work into it; whereas, in a watch, the pin which is set in a cylinder on the verge of the balance, does not generally slip out of the nick in the end of the lever until the balance has got  $15^{\circ}$  past its middle position. There is also further provision added for safety. In the cylinder which carries the impulse-pin there is a notch just in front into which the other pin on the lever fits as they pass; but when the notch has got past the cylinder it would prevent the lever from returning, because the safety-pin cannot pass except through the notch, which is only in the position for letting it pass at the same time the impulse-pin is engaged in the lever. The pallets in a lever escapement (except bad and cheap ones) are always jeweled, and the scape-wheel is of brass. The staff of the lever also has jeweled pivot-holes in expensive watches, and the scape-wheel has in all good ones. The holes for the balance-pivots are now always jeweled, if nothing else is. The scape-wheel in this and most of the watch escapements generally beats five times in a second, in large chronometers four times; and the wheel next to the scape-wheel carries the seconds-hand. Macdowall's single-pin escapement was adapted to watches exactly as the dead escapement of clocks is turned into the lever escapements.

The *duplex* escapement is probably so called because there is a double set of teeth in the scape-wheel—the long ones (like those of the lever escapement in shape) for locking only, and short ones (or rather upright pins on the rim of the wheel) for giving the impulse to the pallet on the verge of the balance. It is a single-beat escapement, *i. e.*, the balance only receives the impulse one way, or at every alternate beat, as in the chronometer escapement, and in a few clock escapements which have never come into use.

The *chronometer* or *detached* escapement is now generally set in a radial direction from the verge, whereas Earnshaw made it sloped backward, or undercut, like the scape-wheel teeth. The early history of escapements on this principle does not seem to be very clear. They appear to have originated in France; but there is no doubt that they were considerably improved by the first Arnold, who died in 1799.

An escapement called the *lever chronometer* has been several times reinvented, which implies that it has never come into general use. It is a combination of the lever as to the locking and the chronometer as to the impulse. It involves a little drop, and therefore waste of force as a tooth of the wheel just escapes at the "passing" beat where no impulse is given.

Repeating-watches, *i. e.*, watches which strike the hours and quarters on pushing in the handle, are now scarcely ever made and with very good reason, for it is almost impossible to crowd into the space of even a

large-sized watch the quantity of wheels and other things required for the repeating work without unduly interfering with the going part, and besides that, the striking work itself is very liable to get out of order.

The winding of watches without a key is an object for which there have been several inventions, and it possesses a considerable advantage, besides the mere convenience of being independent of a key; for, as there is then no occasion to open it, the case may be made to fit more closely, and the air is more completely excluded, and consequently the watch will go longer without cleaning; and it also saves the thickness and the cost of a double back to the case. The first plan of the kind was that of pulling out the knob of the handle, which went into the watch, and had a gathering click attached to it which wound up the fusee, or the barrel, by means of a ratchet. But this was not found to answer; it was liable to get out of order; and, moreover, at every time of winding fresh air was pumped into the watch, which soon produced injurious effects. A far better plan is that of combining the two objects of winding and setting the hands by means of the handle, in the manner we shall now describe. A wheel on the barrel has beveled teeth, and there is another small beveled wheel on a spindle which ends in a milled head within the handle or pendant; these two wheels cannot conveniently be arranged so as to work into each other without the intervention of a third between them. It is easy to see that turning the milled head will wind up the barrel. The same arrangement might of course be applied to the fusee, though it would increase the size; but in fact these watches are made without one, and the practice is increasing. The winding wheel is also made with the well-known contrivance of Breguet, known by the name of the "tipsy key" when applied to a common winding key, which enables you to turn the handle the wrong way without doing anything except moving a ratchet-wheel over its click, and consequently without straining the watch in attempting to wind it the wrong way. The same handle and wheels are also made use of to set the hands, thus:—there is a small wheel which turns on a stud at the end of the lever, and as the lever turns on a pivot, when its end, which just projects through the rim of the watch, is pushed on one side, the wheel will then be thrown into gear with the winding wheel and the hour pinion in the middle of the watch; and consequently, if the handle is then turned, it will alter the hands, just as they are usually altered from the back by a key in foreign watches, so that the face need never be opened. Of course, while this is doing, you do at the same time wind up the watch a little if the hand has to be turned the way for winding; but that is of no consequence, except that you cannot put the hands forward immediately after you have completely wound up the watch.

In the chronograph watch there is, in addition to the center seconds-hand, an independent seconds-hand which, when not in operation, stands at zero. Pressure on the crown-piece acts successively (1) on a starting motion, (2) on a stopping motion, and (3) on a motion which sends the hand back by the shortest path to zero.

Watches are also made with what are called *split seconds*-hands—the two hands being in their ordinary state together and appearing as one, but when you push in a knob one of them is stopped, while the other goes on; the time shown by the stopped one is of course the time of the observation. There is, however, another plan, in which these two hands, or at least the socket of one and the arbor of the other, are

connected by a pair of disks set obliquely on the arbor and the socket respectively, so that, whenever the spring which keeps them together is allowed to act, it brings the loose hand up to the hand fixed on the arbor; and it does not signify how long it may be stopped by throwing the disks out of contact.

For the use of electrical engineers and others who are brought within the influence of powerful electrical machinery, it has been found necessary to introduce non-magnetizable watches. At present this is best secured by making the balance of silver or platinum alloy, and the balance spring of gold or palladium. The use of steel in moving parts of the works is carefully avoided, and thus fairly good timekeepers indifferent to magnetic influences are produced.

The introduction of machinery for the manufacture of watch movements has had the effect of greatly cheapening the commoner class of watches, and yet supplying a fairly satisfactory timekeeper. It is in America that the application of machinery to watch-making has found its greatest development, and its success has enabled the American manufacturers to obtain considerable foothold in the European market for cheap watches. But watch movements are now also very extensively made by machinery in Birmingham, Coventry, and several Lancashire towns.

That which is now known all over the world as the "American Watch," affords a remarkable instance of the throwing away of precedent and previous conditions so conspicuous in both the political and mechanical history of the country. The English watch, above described, had its highest development in the compensation balance. But it remained thick, large, clumsy, and maintained for the most part a steady adherence to the clumsy and unnecessary barrel and fusee. It had a large number of parts made by hand, and different parts by different workmen, so that it was difficult to put it together, and it was always expensive beyond the means of the masses. Long after the Swiss and other makers had abandoned the two principal features of the English watch—the barrel and fusee, the chain and vertical escapement—they were still adhered to by English watch-makers, and there was still maintained a disposition to reject any stem-winding arrangement long after its success was assured, for the reason that it could not be adapted to any but the simpler "going-barrel."

The American watch was formed upon the idea of *interchangeable parts*, since not only cheapness and *uniform efficiency*, but the possibility of extensive manufacture of any machine, depend upon that idea. In 1852 a man named Dennison, a watch-maker, conceived the idea of making watches by machinery; most of the machines to be invented for the purpose, and run by power. His idea was, it is said, to by this means be able finally to produce ten finished watches per day. He induced three other men to join him in this enterprise, Howard, Davis and Curtis. They found that they could not buy and import any of the imperfect machines then in use in Switzerland, and were compelled, fortunately in the end, to invent and construct their own machines. They succeeded, however, and leaving out all details of difficulty and discouragement, produced their first watch in 1853. Little was to be expected of this first attempt, and the first American watch was not such as are now made, yet in many respects it was an improvement upon all its predecessors, and it was machine-made. These men, among other difficulties, found that they must move their factory for the apparently slight reason that it was situated in a district of clay soil, from which an impalpable dust arose. Their final location



was near Waltham, Mass. They became the Boston Watch Co. and later the American Watch Co., and instead of their ten watches per day thought possible, their output soon amounted to several hundred. In twenty-two years after starting they had sold more than one million handsome and reliable machine-made watches.

Against the machine-produced American watch the interest of the entire watch-making world was enlisted from the beginning. They were alleged to be cheap, "snide," unreliable, toy watches, "dumb" watches. Yet the industry has steadily grown until it may truthfully said that the majority of mankind carries an American watch. For it will be found useless, in the end, to attempt to combat with mere tradition in this country, the substantial facts of cheapness, utility and beauty. It is useless to give at this date the statistics of the industry, since it has long since ceased to be included among the struggles and doubts, and from an infant has grown to a giant, and demand and supply, constantly increasing with the growth of prosperity and intelligence, render mere statistics useless except for the purpose of comparing the immediate present with a past not yet forty years old.

The greatest number of pieces contained in an American watch is 162. Some of them contain much less than this number. The best English watches at the time of the beginnings of American manufacture had more than twice this number, the Swiss having previously thrown away nearly 600 of the 800 pieces of the original English watch, thus forcing to some extent a modification of construction. Except in exceptional cases of cheap watches made for specific commercial purposes, such as that known as the "Waterbury," American watches are all jeweled, the number of jewels varying from seven to nineteen, according to grade. All the wheels are stamped out in blanks and the teeth cut by machinery. The most difficult of these cutting operations is that of the escapement, which is of steel, with peculiar hooked teeth. The machine for doing this work is one of the most remarkable of all automatic devices.

But the chiefest peculiarity of the American watch is that stated above—the interchangeableness of all its parts. Every part, even the tiniest screw, is precisely repeated thousands of times. If the number of an American watch is given by its owner in any part of the world, and a broken piece sent by mail, he will receive again by mail, a piece which is the exact duplicate of the one he desires to repair, and it can be inserted, and will perform its functions, as though originally placed there. Repairs of the first quality are therefore on hand and ready for insertion in every village. The old and tormenting mistakes caused by filing, fitting, adjusting, are unknown, and want of skill and certainty has largely ceased to be an annoyance. Now, in the United States, the majority of school children are equipped with reliable watches.

WATER, as everybody knows, is a generic term which includes a great variety of different substances. But when we compare any two species we always find more of agreement than of difference in properties which suggests that all waters consist essentially of the same thing, which is only modified differently in the several varieties by the nature or proportion of impurities. This surmise is confirmed by the results of scientific inquiry. In all ordinary waters, such as are used for primary purposes, the impurities amount to very little by weight—as a rule to less than one-tenth of 1 per cent. Lake waters, as a class, are relatively pure, especially so if the mountain slopes over which the rain collects into a lake are relatively free of soluble com-

ponents. River water varies very much in composition even in the same bed, as a river in the course of its journey toward the ocean passes from one kind of earth to others; while, compared with spring-waters, relatively poor in dissolved salts, rivers are liable to be contaminated with more or less of suspended matter. Spring waters, having been filtered through more or less considerable strata of earth, are, as a class, clear of suspended, but rich in dissolved, mineral matter. Of ordinarily occurring minerals only a few are perceptibly soluble in water, and of these carbonate of lime, sulphate of lime, and common salt are the most widely diffused.

In the relatively rare cases where a spring water in the course of its migrations meets with a deposit of common salt or other soluble salts, it dissolves more or less of these and becomes a salt-water. Most salt-waters are substantially solutions of common salt (chloride of sodium), associated with only little of salts of potash and magnesia. Immense quantities of carbonic acid gas are being constantly produced in the interior of the earth, probably by the action, at high temperatures, of steam on the carbonates of lime and magnesia. Some of it collects and is stored up temporarily in cavities, but the bulk streams out into the atmosphere, invisibly as a rule, through what one might call the capillaries of the earth's body; but here and there it unites into veins and arteries and comes forth, it may be, as a mighty carbonic acid spring. A far more frequent occurrence is that a mass of water and a mass of carbonic acid meet within the earth. As a rule, the pressure on the gas is more than one atmosphere, and the supply of the gas is abundant. The water then takes up considerably more carbonic acid than it would under ordinary atmospheric pressure, and if an outlet be provided, perhaps artificially by a boring, a frothy mass of carbonic-acid water comes forth as a fountain, sometimes of great volume. Such carbonic-acid waters are met with in many parts of the world—chiefly, however, in Germany. The well-known Apollinaris water is an example.

In addition to its natural components, water is liable to be contaminated through accidental influxes of foreign matter. Thus, for instance, all the Scottish Highland lochs are brown through the presence in them of dissolved peaty matter. Rivers flowing through, or wells sunk in, populous districts may be contaminated with excrementitious matter, discharges from industrial establishments, etc. Our instinct rebels against the drinking of a contaminated water, and it guides us correctly. Not that those organic compounds are in themselves hurtful. An otherwise pure water, contaminated with (say) one-ten-thousandth of its volume of urine, might be drunk with perfect confidence. Yet the presence of especially nitrogenous organic matter is a serious source of danger, inasmuch as such matter forms the natural food or soil for the development of micro-organisms, including those kinds of bacteria which are now supposed to propagate infectious diseases. Happily nature has provided a remedy. The nitrogenous organic matter dissolved in (say) a river speedily suffers disintegration by the action of certain kinds of bacteria, with formation of ammonia and other (harmless) products of simple constitution; and the ammonia, again, is no sooner formed than, by the conjoint action of other bacteria and atmospheric oxygen, it passes first into (salts of) nitrous and then nitric acid. A water which contains combined nitrogen in the form of nitrates only is, as a rule, safe organically; if nitrites are present it becomes liable to suspicion; the presence of ammonia is a worse symptom; and if actual nitrogenous organic matter is found in more than microscopic

traces the water is possibly (not necessarily) a dangerous water to drink.

All waters, unless very impure, become safe by boiling, which process kills any bacteria or germs that may be present.

Of the ordinary saline components of waters, soluble magnesia and lime salts are the only ones which are objectionable sanitarially if present in relatively large proportion. Carbonate of lime is harmless; but, on the other hand, the widely diffused notion that the presence of this component adds to the value of a water as a drinking water is a mistake. The farinaceous part of food alone is sufficient to supply all the lime the body needs; besides, it is questionable whether lime introduced in any other form than that of phosphate is available for the formation of, for instance, bone tissue. The fitness of a water for washing is determined by its degree of softness. A water which contains lime or magnesia salts decomposes soap with formation of insoluble lime or magnesia salts of the fatty acids of the soap used. So much of the soap is simply wasted; only the surplus can effect any cleansing action. That part of the hardness of a water which is actually owing to carbonate of lime (or magnesia) can easily be removed in two ways. (1) By boiling, the free carbonic acid goes off with the steam, and the carbonate of lime, being bereft of its solvent, comes down as a precipitate which can be removed by filtration, or by allowing it to settle, and decanting off the clear supernatant liquor. (2) A method of Clark's is to mix the water with just enough of milk of lime to convert the free carbonic acid into carbonate. Both this and the original carbonate of lime are precipitated, and can be removed as in the first case.

From any uncontaminated natural water pure water is easily prepared. The dissolved salts are removed by distillation; if care be taken that the steam to be condensed is dry, and if its condensation be effected within a tube made of a suitable metal (platinum or silver are best, but copper or block tin work well enough for ordinary purposes), the distillate can contain no impurities except atmospheric gases, which latter, if necessary, must be removed by boiling the distilled water in a narrow-necked flask until it begins to "bump," and then allowing it to cool in the absence of air. This latter operation ought, strictly speaking, to be performed in a silver or platinum flask, as glass is appreciably attacked by hot water. For most purposes distilled water, taken as it comes from the condenser, is sufficiently pure.

**WATER-BED**, called also the Hydrostatic Bed, or Floating Mattress. It is well known that the life and health of every part of the animal body depend on the sufficient circulation through them of refreshed blood. Now, when a person in health is sitting or lying, the parts of the flesh compressed by the weight of the body do not receive the blood so copiously as at other times, and if from any cause the action of the heart has become weak, the interruption will follow both more quickly and be more complete. A peculiar uneasiness soon arises where the circulation is thus obstructed, impelling to change of position; and the change is made as regularly and with as little reflection as the winking of the eyes to wipe and moisten the eyeballs.

A person weakened by disease, however, while generally feeling the uneasiness sooner, as explained above, and becoming restless, makes the changes with increasing fatigue; and should the sensations become indistinct, as in the delirium of fever, in palsy, etc., or should the patient have become too weak to obey the sensation, the compressed parts are kept so long without their natural supply of blood, that they lose their vitality,

and become what are called sloughs or mortified parts. These, if the patient survives, have afterward to be thrown off by the process of ulceration, leaving deep hollows to be filled up by new flesh during a tedious convalescence.

Many a fever or other disease, after a favorable crisis, has terminated fatally from this occurrence of sloughing on the back or sacrum. The same termination is common in lingering consumptions, palsies, spine diseases, etc., and generally in cases that confine the patient long to bed.

It was to mitigate all, and entirely to prevent most of the evils attendant on the necessity of remaining long in a recumbent posture, that the hydrostatic bed was devised by Dr. Neil Arnott, late one of the Queen's physicians. The bed may be shortly described as a mattress floating on water, with a loose sheet of caoutchouc cloth properly secured between it and the water, to prevent its being wetted. A person rests on it as a waterfowl does on its bulky feathers, with as little inequality of local pressure as if in a bath. A trough of the dimensions of a wide sofa or bed, having six or seven inches depth of water in it, with the required caoutchouc covering, is the foundation, on which clothes and pillows are laid as in a common bed. The bed not only prevents the occurrence of bed-sores, but by lessening antecedent distress lessens also the danger of the illness. On a sudden emergency, or when the need of the fluid support is not very urgent, local relief may be given by forming in any way a partial hollow or depression in a bed, and placing in it a water sack or bag half filled, so as to remain loose or slack. This approaches in effect the slack sided cushion, which is another modification of the invention.

**WATERBURY**, a city of Connecticut, situated in one of the beautiful valleys of New Haven county, at the junction of Great Book, Mad, and Naugatuck rivers, is a city of handsome residences, and more extensively engaged in the manufacture of brass goods than any other productive center in the world. The New York, New Haven and Hartford; New York and New England, and the Meriden, Waterbury and Connecticut River railroads furnish abundant transportation accommodations. The city is finely laid out, and the streets and avenues, which center at a public park, are broad, well paved, lighted, and shaded. Among the prominent and architecturally attractive edifices which have been erected in the vicinity is the St. John's Episcopal church, built of granite, in the Norman style; the new city hall, and a number of private residences. In addition to these the city also contains eight churches of handsome appearance and substantial construction, a high-school and grammar schools, a seminary for girls, public library of between 18,000 and 20,000 volumes, four national banks, with a combined capital of \$500,000, one private and three savings banks, a number of scientific and educational societies, an opera house, music hall, several hotels, and a large number of stores. The manufacturing industries are varied, representing an aggregate investment of \$23,400,000 with \$33,778,905 of products, and giving employment to 15,500 operatives. The lines conducted embrace brass and metal goods, shears, scissors, steel traps, belt-hooks, lamps, rivets, machinery, stove and harness trimmings, varnish, buttons, brass tubes, silver-plated ware, malleable iron, clocks and watches, carriages, photographers' supplies, suspenders, boots and shoes, and other articles of lesser importance. The population in 1870 was 10,826; in 1880, 17,806, and in 1900 it was returned at 45,859.

**WATERFORD**, a maritime county of Ireland, in the province of Munster, is bounded east by Waterford



Harbor, separating it from Wexford, north by Kilkenny and by Tipperary, west by Cork, and south by the Atlantic. Its greatest length from east to west is fifty-two miles, and its greatest breadth from north to south is twenty-eight miles. The total area is 461,552 acres, or about 721 square miles. The coast-line is in some parts bold and rocky, and is indented by numerous bays and inlets, the principal being Waterford Harbor; Tramore Bay, with picturesque cliffs and some extensive caves, and noted for its shipwrecks, on account of the rocky character of its bed; Dungarvan Harbor, much frequented for refuge in stormy weather; and Youghal Harbor, partly separating county Waterford from county Cork. The surface of the county is to a large extent mountainous, especially toward the west and northwest, consisting chiefly of metamorphosed Lower Silurian rocks, the valleys being occupied by Carboniferous Limestone. The southeastern division of the county is for the most part level, consisting chiefly of clay slate interrupted by patches of primitive limestone, and also by conglomerate and basalt, forming in some parts of the coast lofty columnar cliffs. Coal and iron were formerly wrought, but the only mineral product now of importance is copper, the mines at Knockmahon ranking next in Ireland to those at Berehaven. Lead mining, formerly prosecuted with some success, has now practically ceased. Lime is abundant, and coralline sea- and is obtained. Slate is quarried in considerable quantities at Lismore, and there are also quarries of valuable sandstone and of marble. Ochers and clays for the manufacture of earthenware are also obtained. Though Waterford has benefited in its communications by the important rivers in its vicinity, the only large river it can properly claim as belonging to it is the Blackwater. Waterford Harbor may be called the estuary of three important rivers, the Suir, the Nore, and the Barrow, but neither of the last two touches the county. The Suir reaches it at its union with the Nier about eight miles from Clonmel, and thence forms its northern boundary with Tipperary and Kilkenny. It is navigable for vessels of 800 tons burden to Waterford, for barques and large lighters to Carrick-on-Suir, and for boats of fifty tons to Clonmel.

The land is generally better adapted for pasturage than for tillage, although there are considerable tracts of rich soil in the southeastern districts. The total number of holdings in 1886 was 10,188, of which 26 were above 500 acres in extent, 1,029 between 100 and 500 acres, 1,660 between 50 and 100 acres, 2,726 between 15 and 50 acres, 2,530 between 1 and 15 acres, and 2,217 did not exceed 1 acre. Out of a total of 456,198 acres only 83,968 acres, or 18.4 per cent., were under crops; 235,801 acres, or 51.7 per cent., were under grass; 330 acres fallow; 19,317 acres, or 4.2 per cent., woods and plantations; 22,791 acres, or 5.0 per cent., bog and marsh; 76,137 acres, or 16.7 per cent., barren mountain land; and 17,854, or 3.9 per cent., water, roads, fences, etc. Since 1859 the area under crops has decreased nearly a third, the amount in that year being 116,940 acres. Corn crops occupied 59,848 acres in 1859 and only 35,461 in 1886, the areas under wheat in these years being respectively 23,671 and 1,326 acres, under oats 32,526 and 32,795 acres, and under barley, bere, etc., 3,651 and 1,340 acres. The area under green crops in 1859 was 38,213 acres, and in 1886 it was 24,436 acres, the areas under potatoes in these years being respectively 23,385 and 14,361 acres, under turnips 10,886 and 6,171 acres, and under other green crops 4,042 and 3,904 acres. Horses between 1859 and 1886 diminished from 14,184 to 12,794, of which 9,122 were 2 years old and upward, but cattle increased from 84,440 to 102,878, of which 39,428 were milch cows,

and sheep from 42,408 to 55,805, while pigs decreased from 55,701 to 44,510. The number of mules in 1886 was 942, of asses 4,319, of goats 5,510, and of poultry 258,058. In 1876, according to the *Return of Owners of Land*, Waterford was divided among 814 proprietors, possessing 454,937 acres at an annual valuation of \$1,383,210, or an average of about \$3 per acre. The estimated extent of waste lands was 880 acres. Of the owners 600 possessed one acre and upward. The number of large estates is exceptionally great.

The woollen manufacture, except for private use, is now practically extinct, but the cotton manufacture is still of some importance. There are also breweries, distilleries, and a large number of flour-mills. Sea-fishing is prosecuted chiefly at Dungarvan. There are valuable salmon fisheries on the Blackwater and the Suir.

From the city of Waterford the Waterford and Central Ireland line goes northward to Kilkenny, the Waterford and Limerick by Carrick-on-Suir and Clonmel to Limerick, the Waterford and Tramore to Tramore, and the Waterford, Dungarvan and Lismore to Lismore, where it joins a branch of the Great South-Western.

From 119,457 in 1812 the population increased by 1841 to 196,187, but by 1861 it diminished to 134,252, by 1871 to 123,310, and by 1901 to 87,030 (males 42,905, females 44,125). The total number of emigrants from May 1, 1857, to December 31, 1878, was 67,080, and to December 31, 1885, it was 79,240. In 1880 the number reached 2,675, and in 1885 it was 1,333. The county is divided into 8 baronies, with 82 parishes, and 1,557 townlands. The principal towns are Waterford (population 27,947), Dungarvan (6,306), Tramore (2,036), Portlaoise (1,891), and Lismore (1,860). Before the Redistribution Act of 1885 the county returned two members to parliament, the borough of Waterford two, and Dungarvan one—Clonmel, which is partly in Waterford, also returning one. The county now returns two members, for the East and West Divisions respectively, while the county of the city of Waterford returns one member, and Dungarvan and Clonmel have been disfranchised. It is in the Leinster circuit, and assizes are held at Waterford, and quarter sessions at Lismore, Dungarvan, and Waterford. It is in the Cork military district, and there is a brigade depot at Clonmel, and barrack stations at Dungarvan and Waterford. The Catholics formed 94.8 per cent. of the population in 1871, and 95.0 in 1881, the Episcopalians in the same years 4.1 per cent. The proportion of persons who could read and write in 1871 was 35.7 per cent., and in 1881 it was 45.8; in 1881 10.6 per cent. could read but could not write, and 43.6 could neither read nor write—14.3 per cent. being under seven years of age.

WATERFORD, a city, county of a city, municipal and parliamentary borough, and the chief town of the above county, is finely situated on the south bank of the Suir four miles above its junction with the Barrow, at the head of the tidal estuary called Waterford Harbor, and on several railway lines which afford it convenient communication with all parts of Ireland. It is thirty-two miles west of Wexford, seventy-six northeast of Cork, and ninety-seven south-southwest of Dublin. The Suir is crossed by a wooden bridge of thirty-nine arches, and 832 feet long, connecting Waterford with the suburb of Ferrybank. The town is built chiefly along the banks of the river, occupying for the most part low and level ground except at its western extremity. There are a number of hospitals and similar benevolent institutions, including the leper house founded in the reign of King John, now possessing an income of \$5,000 a year, and made use of practically as an infirmary. The town

possesses breweries, salt-houses, foundries, and flour-mills; and there is a large export trade in cattle, sheep, and pigs, and in agricultural produce. The population of the city (area 10,059 acres) in 1871 was 29,979, and in 1901 it was 27,947.

Waterford Harbor is a winding and well sheltered bay, formed by the estuary of the river Suir, and afterward by the joint estuary of the Nore and Barrow. Its length to the sea is about fifteen miles. Its entrance is about two and one-half miles wide, and is well lighted by a fixed bright light on the ancient donjon of Hook Tower (139 feet in height), by a red light on Dunmore pier, and by two leading lights at Duncannon. The quay, at which vessels of 2,000 tons burden can discharge, was enlarged in 1705 by the removal of the city walls, and is about one and one-quarter miles in length. At Ferrybank, on the Kilkenny side of the river, there is a shipbuilding yard with patent slip and graving dock. By the Suir there is navigation for barges to Clonmel, by the Barrow for sailing vessels to New Ross and thence for barges to Athy, and by the Nore for barges to Inistogue. The total number of vessels connected with the port in 1885 was 33, of 5,246 tons. The number of British and foreign vessels that entered the port in the same year was 1,784 of 530,092 tons, while 1,255 of 412,326 tons cleared.

**WATER GLASS**, the soluble silicates of potash or soda, or a mixture of both. It is usually prepared by boiling silica with caustic alkali under pressure, about sixty pounds to the square inch in a digester. When pure and solid it has the appearance of common glass, and is slowly soluble in boiling water. A solution of water glass is used, mixed with sand, etc., to form artificial stone. It is also spread on the surface of stone to protect it from decay, as it sinks in and cements the particles together; and it enters into the composition of some kinds of cement. In the art of stereochromy, or fresco painting (*q.v.*), water glass is now much used. It has also become useful in certain dyeing processes, having in some cases been found to answer the purpose of dunging.

**WATER-HEN.** See **MOOR-HEN**.

**WATER-LILY**, a somewhat vague term given to almost any floating plant with conspicuous flowers, but applying more especially to the species of *Nymphaea* and *Nuphar*. These are aquatic plants with their thick fleshy rootstocks or tubers embedded in the mud, and throwing up to the surface circular shield-like leaves, and leafless flower-stalks, each terminated by a single flower, often of great beauty, and consisting of four or five sepals, and numerous petals gradually passing into the very numerous hypogynous or perigynous stamens without any definite line of demarcation between them. The ovary consists of numerous carpels united together and free, or more or less imbedded in the top of the flower-stalk. The ovary has many cavities with a large number of ovules attached to its walls, and is surmounted by a flat stigma of many radiating rows as in a poppy. The fruit is baccate, and the seeds are remarkable for having their embryo surrounded by an endosperm as well as by a perisperm. The anatomical construction of these plants presents many peculiarities which have given rise to discussion as to the allocation of the order among the dicotyledons or among the monocotyledons, the general balance of opinion being in favor of the former view. The leaf-stalks and flower-stalks are traversed by longitudinal air-passages, whose disposition varies in different species. The species of *Nymphaea* are found in every quarter of the globe. Their flowers range from white to rose-colored, yellow, and blue. Some expand in the evening only, others close soon after noon.

**WATERLOO**, a village of Belgium, in the province of Brabant, nine and one-half miles to the south-south-east of Brussels, was the headquarters of the duke of Wellington from June 17 to 19, 1815, and has given its name throughout the English-speaking world to the famous battle fought in its neighborhood on June 18, 1815. (See **NAPOLÉON**.)

**WATERLOO**, the capital of Black Hawk county, Iowa, is centrally located on both sides of the Cedar river, about 100 miles from Dubuque, 105 from Des Moines, and 156 from Burlington. The Burlington, Cedar Rapids and Northern, Illinois Central, and Chicago, St. Paul and Kansas City railroads, important factors in the city's development, occupy separate depots, and are invaluable means of communication with all portions of the United States. The river, opposite the city, is of exceptional width and furnishes immense water-power, which is largely adopted in the manufactures conducted in the vicinity, which are extensive and growing. It is also the center of a fertile agricultural country, and the shipping point for very large consignments of grain and produce. The city contains three banks, four weekly papers, a comprehensive and valuable graded school system, ten churches, two opera houses, a masonic hall, and an extensive line of commercial enterprises. Besides the repair shops of the Illinois Central railroad, which are located at Waterloo, the city contains manufactures of wind-mills, lumber, and lumber products, furniture, wagons, plows, hollow-ware, brooms, well-drilling machinery, cigars, etc., and operates electric light works for illuminating purposes. The population in 1900 was returned at 12,580.

**WATERLOO-WITH-SEAFORTH**, a watering-place of Lancashire, England, on the Irish Sea, at the mouth of the Mersey, nearly opposite New Brighton in Cheshire, and on the Liverpool, Crosby and Southport railway, four miles north-by-west of Liverpool. On account of its facilities for bathing, firm sands, pleasant scenery, and nearness to Liverpool, of which indeed it may now be considered a suburb, it is much frequented during the summer months. It is well and regularly built, and possesses the usual characteristics of a rising watering-place. The population of the urban sanitary district (area 740 acres) was 10,118 in 1901.

**WATER-POWER.** The value of water-power depends much on the nature of the source of supply, whether steady or otherwise. Where streams supplying water-power are liable to fall off much in dry weather, large impounding reservoirs are necessary to keep the mills from being stopped during the summer. These, however, being generally expensive concerns, are seldom made for one mill, but rather by some association of mill owners; and often by a water company or commission for supplying a town with water, to afford compensation to the mills by storing up flood water, for what is abstracted for the use of the town. On small streams there is generally a pond provided fit to hold a night's water, or, perhaps, even a Sunday's, in addition; but in the case of large rivers, there is, in general, only a weir or dam across the river to direct the water into the intake lade. When the inclination in the bed of the stream is small, the lades require to be proportionally long, to give sufficient fall, and are often above a mile long or more from the intake to the lower end of the tail or discharge lade, where the water is returned to the stream. The rise and fall of the tide has been frequently used for driving water-wheels. The most useful and generally the most eligible mode of applying water to the driving of machinery is by means of a vertical wheel, and the wheel is put in motion either by the water acting on blades or floats by impulse derived from its velocity



acquired in falling, or by the weight of water being applied to one side of the wheel. The former mode of applying the water is generally adopted in low falls, say under six feet or thereabouts, and to what is called an undershot wheel, *i.e.*, a wheel where the effective head of water is below the level of the center; and to make the application efficient that portion of the periphery of the wheel measuring from the point of impact of the water to a point directly below the center requires to be surrounded by a casing, generally of stone, but sometimes of cast iron, called the arc, closely fitted to the extremity of the floats, so as to prevent any considerable escape of water.

**WATER-POWER.** In the proper turbine (from Ital. *turbino*, a whirlwind) the water passes either, first, vertically down through the wheel between fixed screw-blades, which give it a spiral motion, and then strikes similar blades attached to a movable spindle, but placed in the opposite direction, so that the impact of the water communicates a rotatory motion to the blades and spindle; or, second, a modification of the foregoing is to pass the water from the center horizontally outward through fixed curved blades so as to give it a rotatory or tangential motion, and thereby cause it to act on the blades of the wheel which revolves outside.

In the reactionary wheel the water is admitted at the center of the wheel from below, passes to the circumference between curved blades of the wheel, and escapes by tangential orifices at the circumference, there being valves made to open more or less, according to the quantity of water and to the power required.

Both the turbine and the reciprocatory engine have been made use of as water-meters. The turbine and the reciprocatory engine have the advantage of being able to take the use of a fall much greater in height than the diameter of the largest wheel that can be made; but for all ordinary falls, a good breast or overshot wheel, or even an undershot one, is, on the whole, generally considered better.

Sometimes in this country, and often in Europe, the machinery is all on board a vessel moored in a river, so as to rise and fall with the level of the water, and thereby keep its water-wheel always immersed to the proper depth. At the old London Bridge water works, the wheel which rose and fell with the tide was worked by the current of both the flood and ebb.

The other mode of applying the water to a vertical wheel by making it act by its gravity, is the more perfect and economical mode, where circumstances will admit of it, and is generally adopted in falls of any considerable height, say of six feet and upward, and where the water can be let on above the level of the center. Sometimes, when there is very little fall beyond the mere current of the stream, the floats simply dip into the water, like the paddles of a steamer, in which case no sole or shrouding is required; and to make allowance for the rise of the water in the tail-lade during the floods, which is generally called back water, and seriously impedes and sometimes stops the motion of the wheel; occasionally the wheel and its arc are so constructed as to be capable of being raised or depressed together, without throwing the machinery out of gear.

The wheels are called respectively breast and overshot wheels, according as the water is let on more near to the level of the center or to the crown of the wheel; and they have, instead of straight floats, curved or kneed buckets, according as they may be made of iron plate or of wood, and of such a shape as to retain the water down to the lowest possible point. There are generally in good wheels ventilating openings in the sole for the escape of air. The overshot wheel has this disadvantage that, as the water has little or no power

until considerably past the top center, the wheel is burdened with a useless weight of water. In reckoning the power of water, its weight being sixty-two and one-half pounds to a cubic foot, theoretically, 528 feet, falling vertically one foot a minute, would be equal to one Boulton and Watt horse-power of 33,000 pounds, lifted one foot a minute; but the effective power is far short of that, and 60 per cent. of it requiring 880 cubic feet, falling one foot a minute, is generally reckoned a fair allowance for an effective horse-power. Seventy-five per cent., requiring 704 feet, falling one foot a minute, is about the highest that has ever been spoken of, and it is doubtful whether even more than 70 per cent, has ever been attained; while with low falls and imperfectly constructed wheels, it is often reckoned that a horse-power requires nearly 1,000 cubic feet a minute.

The velocity of the periphery of an undershot wheel is usually from 500 to 600 feet a minute, and that of a bucket wheel, overshot, or breast, from 300 to 450 feet. It is seldom that the whole height of a fall can be advantageously made use of; for if the wheel be placed so low as to get the benefit of the whole height of the fall in the low states of the water, very often it is liable, in floods, to have the lower rim immersed, and to be obstructed or stopped by back water.

**WATERPROOF.** See INDIA-RUBBER.

**WATER-PROOFING.** (See CAOUTCHOUC.) Besides the application of caoutchouc, peculiar methods have been employed to render cloth impervious to water, at the same time allowing the passage of air, the absence of this property in the impermeable caoutchouc manufactures having been found disadvantageous. Two plans are adopted for water-proofing woolen cloths, without rendering them quite impervious to air—the first is to dip the cloth into a solution of soap, and thoroughly rub it into the texture, after which it is dipped into a solution of alum; a decomposition of the soap and alum is effected, and the minute openings between the fibers are in some way partly filled so as to exclude water.

In the second plan, the cloth is dipped into a solution of gelatine and isinglass, and afterward into a solution of galls. A kind of tanning process is the result, the gelatine which has pervaded the cloth being rendered as insoluble as leather by the union with the tannin of the galls.

**WATERSPOUT.** See METEOROLOGY.

**WATER-SUPPLY.** An ample supply of pure water is of the utmost importance for the healthiness of towns. When the population of a district is scattered it is possible to supply individual wants by means of streams, springs, or shallow wells; but when a number of people are congregated within the limited area of a town the natural supply of water in this area is liable to be insufficient, and is also in danger of being contaminated by sewage and house refuse. Accordingly, works for the collection, storage, purification, and distribution of water are indispensable necessities in towns, for the preservation of health and the promotion of cleanliness. All supplies of fresh water come primarily from the clouds, though portions may eventually be drawn from the bowels of the earth. Water when distilled is obtained in its purest form; and the heat of the sun is continually drawing up large quantities of moisture from sea and land, forming clouds which return it as rain to the earth. Some of the rain is quickly evaporated from the surface of the earth, and returned to the clouds; some sinks into the ground to feed springs and underground stores of water; and some passes into streams and rivers, whence it flows into the sea, from which the greater portion of the rain is derived. The available water-supply of any district, accordingly, principally

depends on the rainfall of the locality and the extent of the gathering ground. The proportion of the rainfall which is actually serviceable for water-supply depends greatly upon the season of the year in which the rain falls; for evaporation is very active in the hot season, whereas in the cold season its influence is slight. Comparatively little effect is produced by variations in the amount of rain in the warm season, except in extreme cases, owing to the large proportion drawn off by evaporation, whereas the rainfall during the cold season is of the utmost importance for replenishing the sources of supply which have been drained during the summer. The period of the year, therefore, in which the rain falls is of more consequence than the total amount in the year; and a drought is much more likely to result from a dry winter than from a dry summer.

Other circumstances also modify the influence of evaporation. Rain descending in a heavy continuous fall, by sinking into the ground or escaping into the water-courses, is less exposed to diminution by evaporation than several separate showers of rain, equivalent in total volume, but spread over a longer period. Forests and vegetation shelter the ground from the influence of evaporation; and thereby, in spite of abstracting some of the moisture for their own requirements, they augment the proportion of available rainfall. The nature and slope of the surface stratum, moreover, notably affect the loss from evaporation. The percolation of rain through porous strata is the origin of springs and subterranean reservoirs of water, whence so many supplies are derived. Sand, gravel, chalk, and sandstone are very absorbent strata; while the oolites and other limestones are permeable to a smaller extent. The amount of percolation depends upon the rainfall, the porosity of the stratum, and the extent of its exposed surface; and it varies inversely as the evaporation, being greatest in winter, and during heavy, long-continued rainfalls, and least in the summer and with short showers of rain. On impermeable strata, the whole of the rain not removed by evaporation finds its way into the watercourses. The streams, however, draining these strata have a very variable discharge, as they are rapidly swollen after a heavy fall of rain, and soon subside (see RIVER ENGINEERING), while in fine summer weather they are liable to be dried up. Accordingly, torrential streams, in their natural condition, are not suitable for water supply, as they tend to fail when they are most wanted, and owing to their rapid flow they carry along a large quantity of matter in suspension.

The simplest method of procuring pure water is to collect the rain as it falls from the clouds; and this method is a necessity where, as in tropical countries, there is an excessive rainfall during one period of the year, followed by a long drought, unless the rain sinks into a permeable stratum whence it can subsequently be drawn. These open tanks, however, excavated in the ground, have to be numerous, and often large in extent, to collect sufficient rain to supply the wants of the surrounding population for several months; and the water in them is subject to loss from evaporation during the dry season. A very valuable source of water-supply is provided by springs. These springs appear at the lowest point of the outcrop of a permeable stratum, where it rests upon an impermeable stratum; and they constitute the outflow of the rain which has percolated through that stratum. A spring depends for its supply upon the extent of the underground reservoir furnished by the permeable stratum; and its discharge is regulated by its level in relation to the line of saturation of the stratum and the resistance offered to its flow. The gathering ground of a spring consists of the portions of

the permeable stratum drained by it which are actually exposed at the surface, provided the surface slope is not very steep, and also of any impermeable surface strata sloping from a higher level toward the permeable outcrop. The position of the spring is determined by the dip of the underlying impermeable stratum and the line of least resistance to the underground flow. When the permeable stratum covers the surface, and is of small extent, as when it forms a thin cap to a hill, an outflow only occurs after a fall of rain. Where a permeable stratum, with a limited gathering ground, has a sufficient depression at some point to cause the line of saturation to sink occasionally below the level of the outcrop, the outflowing spring is intermittent; and the time of the appearance of such springs (or bournes, as they are termed) can be accurately predicted by observing the rise of the water in the neighboring wells sunk into these permeable strata. A spring is generally clear, and free from organic impurities, as particles in suspension are removed by the natural filtration, and organic matters are oxidized and eliminated in the passage of the water through the ground. The water, however, collects any soluble gases and salts which exist in the strata through which it flows; and most springs contain some inorganic compounds in solution, depending upon the nature of the strata and the distance traversed. Occasionally springs are so strongly impregnated with certain substances as to receive specific names, such as sulphuretted, chalybeate, and saline springs; but in such cases they are of more value for medicinal purposes than as sources of water-supply. The abundant springs derived from the chalk, though containing considerable quantities of carbonate of lime, are quite suitable for domestic purposes. Springs from large underground supplies possess the advantage of a fairly constant temperature, as their sources are protected from atmospheric changes; but underground waters are subject to the rise of temperature, experienced in descending below the surface of the earth, of  $1^{\circ}$  F., on the average, for each fifty-two feet of depth.

In olden times the only other obvious sources of water supply besides rain and springs, were the watercourses which carried off the surplus rainfall. Streams and rivers afford the most ample supply, but they become turbid in flood-time; and when they have a rapid fall, and drain an impermeable basin, they fail in times of drought. These objections have, however, been overcome by settling-tanks, filter-beds, and storage-reservoirs—so that now the principal supplies are drawn from these sources. The best sources of water are found in streams draining uncultivated mountainous districts, where a plentiful rainfall on steep impervious strata affords a very pure though somewhat intermittent supply. The freedom from habitations, the rapid flow of rain off the surface, the absence of organic impurities and of soluble salts, prevent any chance of contamination beyond occasional discoloration by peat.

There are two distinct kinds of wells, namely, shallow wells, sunk into a superficial permeable stratum; and deep wells, sunk through an impermeable stratum into an underlying permeable stratum. Both kinds of wells tap the underground waters which are the sources of springs, and furnish artificial outlets for waters which would either find a natural outlet in springs at the outcrop, or which, owing to a depression of the strata, may not possess a natural outlet at a low enough level ever to drain the lower part of the underground reservoir. Shallow wells, sunk in the ordinary manner, have long been used for collecting moderate supplies of water, where a permeable stratum, such as the Bagshot sands, or the gravel covering parts of the London basin, overlies a watertight stratum such as the London Clay,



especially where a slight depression in the impervious stratum toward the center, or a considerable expanse of the surface stratum, prevents a ready outflow from the permeable beds. Many parts of London were supplied for a long time in this manner; for the rain percolating the bed of gravel flowed into the wells sunk in it, from whence the water could be drawn up.

Shallow wells are still very useful in supplying scattered populations, but they are exposed to the worst forms of contamination when the houses are near together. Shallow wells, in fact, must be resorted to with great caution, and only when an absence of habitations, or a thorough inspection of the district drained by the well, affords assurance of freedom from organic pollution.

Deep wells, passing generally through impervious beds into a permeable water-bearing stratum to a depth at which an adequate supply of water is obtained, are mostly free from organic impurities, partly owing to the protection of the superincumbent impervious stratum, and partly to the filtration any impurities must undergo before reaching the well. The level of the water in the well depends upon the water-level in the stratum; and generally the water has to be raised by pumping to the surface. The most favorable strata for deep wells in England are the Chalk, Oolites, New Red Sandstone, and Lower Greensand. The yield of these wells depends upon the extent of the portion of the underground reservoir which they can drain; and the reservoir depends for its supply, as in the case of springs, on the extent of the stratum exposed at the surface, the drainage it may receive from adjoining impermeable strata, and the amount of rainfall over these areas. As these points can only be roughly estimated, it is impossible to judge of the yield beforehand; and much depends on the fissures the well may happen to pierce, as the main flow in many rocks takes place along their fissures. It is disadvantageous to sink a well where the superincumbent impervious stratum is very thick, not merely because of the depth that has to be sunk before reaching water, but also on account of the slow rate of the underground flow at a long distance from the outcrop, and owing to the compression of the porous stratum by the mass above it. For instance, the deep well on Southampton Common, sunk through 465 feet of impervious beds, has only yielded a small supply of water, though carried 852 feet into the chalk. A well may also prove a failure owing to a fault or an impervious barrier interrupting the underground flow, if it is sunk on the side of the fault or barrier away from which the dip of the stratum inclines.

A supply obtained from wells may be increased by reaching the water flowing through undrained fissures or lying in untouched cavities, either by sinking fresh wells, or by driving headings from the bottom of existing wells in various directions, both of which courses were adopted for extending the Brighton water-supply. Continued pumping sometimes improves the supply when the stratum is well saturated and the drain is not sufficient to lower the water-level permanently. This result is due to the steepening of the gradient of flow toward the well by the depression of the water-level in the well, which increases the velocity of flow, whereby the channels of access are cleared out and enlarged, so that the water flows more readily and quickly into the well than at the commencement. The supply from springs and streams can only be increased by storing up the excess of supply in the wet season, to make up for the deficiency in the dry season. This can be accomplished by means of storage reservoirs, which sometimes are found suitably provided by nature in the form of lakes, or may be constructed in mountain valleys by means of dams.

A lake is a natural reservoir of water, caused by the influx of a stream into a depression of an impermeable stratum, which is barred to a certain height by a ridge across its outlet, over which the water has to rise before it can flow away (see LAKE). The water of lakes is generally of exceptional purity, owing to its being usually supplied by the drainage from the impervious uncultivated ground of uninhabited mountainous districts, and its general freedom from pollution, and on account of the lake serving as a deep subsiding reservoir for any matters in suspension contained in the inflowing streams, of which the Lake of Geneva in relation to the turbid upper Rhone is a notable instance. To increase the storage capacity of a lake intended to serve as a reservoir, and avoid injury to vested interests, the ordinary water-level of the lake has to be raised by heightening the barrier at its outlet. By this means the lake is not unduly lowered by the drain upon it during the dry season, and compensation water is provided to supply the water-rights along the stream below. The extent to which the water-level of the lake has to be raised depends upon the area of the lake, the influx into it, and the supply drawn off. The amount of water that can be collected depends on the catchment area, and the rainfall of the driest years, less the loss from evaporation. The storage capacity must be regulated by the number of consecutive days, in time of drought, that the supply might have to be drawn from the reservoir without its receiving any accession of water. This period has been variously estimated at from 70 to 300 days according to the locality; for, owing to the smaller fluctuations in the rainfall and in the periods of drought in very rainy districts, and the less amount of evaporation, a much smaller storage suffices for very wet districts than for very dry ones.

Where no natural lake is available for a reservoir, an artificial lake may be formed by constructing a dam across a narrow gorge of a mountainous valley, thereby impounding, in the winter, the stream draining the valley, and storing up a supply for the following summer. To prevent an escape of the water thus impounded, the reservoir must be formed on an impervious stratum, and all cracks and fissures closed, or the bed and banks must be rendered water-tight by a surface layer of impervious material. Occasionally the configuration of the ground and the amount of storage required render it necessary to form a series of impounding reservoirs at different levels along a valley, thereby increasing the number, but keeping down the height of the dams. The capacity of a reservoir depends upon the form and levels of the valley in which it is situated, and the height of the dam retaining it. As, however, the extent of the water surface is considerably increased by raising the water-level, an additional height of dam adds largely to the capacity of a reservoir. A reservoir dam is constructed either with earthwork in an embankment sloped on each side, and with a water-tight puddle or concrete trench along the center, or of masonry.

In moist climates, and for moderate heights, embankments of earth are adopted with advantage for reservoir dams, more especially when ample materials can be readily obtained, either by excavations in the reservoir, thus enlarging its capacity, or elsewhere near at hand, and where a rock foundation is not easily attainable. All loose material must be removed from the site of the dam; and the puddle trench in the center must be carried down to a solid impervious bed. The embankment must be brought up in thin layers carefully punned or rolled, the most retentive materials being placed near the middle, and the looser materials toward the outside. The inner slope, facing the reservoir, is usually made 2 to 1, and pitched on the surface

to protect it from the wash of the waves. The outer slope is formed to the angle of stability of the material employed, generally 2 to 1; and occasionally berms are introduced, diminishing the liability to slips. The best puddled clay is used for the central trench; but the remainder of the embankment should not be composed exclusively of clay, as stiff clay under the influence of the weather, especially on the exposed outer slope, tends to slip. An earthen dam possesses ample stability if it is perfectly solid; but it may fail from the infiltration of water through it, owing to faulty construction, or from settlement, leading to its overtopping by the water in the reservoir.

In hot, dry countries, an earthen embankment is liable to crack and become somewhat disintegrated; and high embankments, owing to their flat side slopes, require a very large amount of material. Accordingly, in Spain, masonry dams have been adopted; and they are preferable to earthen dams when the height exceeds about eighty feet, and where a rock foundation can be secured. Besides a solid rock foundation, the conditions of stability of a masonry dam are that the maximum pressure shall not exceed the limit that the masonry can sustain without injury, and that the lines of resultant pressures, with the reservoir empty and full, shall not anywhere pass outside the middle third of the section of the dam, so as to prevent the possibility of tension at the faces. With the reservoir empty, the pressures on the dam are merely those due to its weight. With the reservoir full, the water exerts a horizontal thrust against the inner face of the dam, equal to the weight of a column of water having the depth of the water resting against the dam, and acting at the center of pressure, which is at two-thirds of the depth down from the water-level.

The direction and amount of the resultant are readily obtained graphically by the parallelogram of forces, the point of application being at the intersection of the vertical from the centre of gravity with the horizontal line one-third up from the base; for, by drawing the horizontal and vertical lines proportionate in length to the water-pressure and weight of the dam respectively, the diagonal represents the resultant of these forces both in magnitude and direction. When the inner face of the dam is battered, the weight of water resting on this face must be added to the weight of the dam when the reservoir is full. The resultant pressures necessarily increase with the depth; and the maximum pressure is at or near the base of the inner face when the reservoir is empty, and of the outer face when the reservoir is full. The top has only to be made wide enough to resist the shock of the waves and floating ice in the reservoir; but the base, having to bear the weight of the dam together with the water pressure, requires widening out adequately for the safe limit of pressure on the masonry not to be exceeded; and, as the water-pressure with the full reservoir deflects the resultant toward the outer face, this face is given a considerable batter. All dams have to be raised high enough not to be overtopped by the highest waves in a storm, depending on the size and exposure of the reservoir.

Sometimes a small dam is placed across the upper end of a reservoir, so as to form a small settling reservoir, in which the inflowing stream can deposit any sediment before passing into the main reservoir. A waste weir is provided at a suitable place in the dam with its sill slightly lower than the highest proposed water-level in the reservoir, so that the surplus water, when this level is reached, may flow over into the lye-wash. The length of the weir should be made sufficient for the discharge over it to pass off the inflow during a flood, so as to insure the dam against being overtopped by a rise of water in the reservoir, which

would be fatal to an earthen dam. To provide for a large discharge without a great length of weir, the sill of the weir may be placed somewhat lower, and planks placed temporarily across it to retain the water at its highest level on the approach of the summer. The water is drawn off from the reservoir, as required for supply, through an outlet culvert passing from a low level in the reservoir into a conduit in the valley below. This culvert was formerly frequently placed through the lowest part of the dam, being readily formed during the construction of the dam, and giving command of all the water in the reservoir. Accidents, however, have often been traced to the unequal settlement of the earthen embankment near the culvert, or to infiltration of water into the embankment, either by escaping from the culvert fractured by settlement, or by finding a passage along the outside line of the culvert or pipes. No possible considerations can justify the burying of outlet pipes at the base of a high embankment, with the valves regulating the discharge at the outer extremity, whereby the water-pressure always acts along the whole length of the pipes, and their inspection is impracticable. In some cases a valve-tower is erected in the center of the embankment, by which means the water can be shut off from a portion of the pipes. If, however, the outlet pipes are carried under the embankment, they should be laid in the solid ground, and should be commanded along their entire length by a valve-tower placed at the inner toe of the embankment. Nevertheless, it is far safer to carry the outlet pipes in a tunnel constructed through the side of the valley, beyond one end of the embankment. In the case of masonry dams, the outlet is generally constructed in the solid rock distinct from the dam; but at Villar the outlet culvert has been carried through the center of the dam.

A reservoir in a mountain valley is at a sufficient elevation for the water to flow by gravitation to the locality to be supplied; and it is only necessary to form a conduit by canals, tunnels, aqueducts, and pipes, of adequate size in relation to the gradient, to convey the daily supply required (see *HYDROMECHANICS*). In olden times hills were contoured, and valleys were crossed by colossal aqueducts, at great expense, to obtain a regular inclination, which was reduced by the circuitous route that had to be taken (see *AQUEDUCT*). Now, however, hills are pierced by tunnels; and, by the employment of cast-iron, deep wide valleys can be crossed by inverted siphons following the depressions of the land—so that a much straighter course is attainable, affording better gradients, and therefore enabling smaller conduits to be adopted, which is of great importance when long distances have to be traversed.

The water obtained from rivers in low districts, and from wells, has to be raised by pumping to the height necessary to obtain a proper pressure for supply; and the pumps have to be in duplicate, to prevent a failure in the supply in the event of a break-down. Thus the water supply of London has to be raised by pumping to fill the service reservoirs.

The water obtained for supply is frequently not sufficiently pure to be at once distributed for domestic purposes. The impurities to which water is liable are of three kinds, namely, particles of matter in suspension, inorganic substances in solution, and organic matters in solution or of extreme minuteness. Suspended matters are readily removed by subsidence if the particles are heavy, and by filtration if the particles are flocculent or light. Some inorganic compounds are readily removed, while others cannot be dealt with in a practical manner. Allusion has already been made to subsiding reservoirs formed at the head of large



storage reservoirs; the object of these, however, is rather to prevent the accumulation of silt and sand in the principal reservoir than for the purpose of purification, but the principle is the same. Supplies from large reservoirs are generally free from matters in suspension, except sometimes during heavy floods, owing to the subsidence in the reservoir itself; but river supplies have often to be led into settling-reservoirs, where the water, while at rest, can deposit its heavier particles before passing on to the filter-beds for the removal of the lighter portions. Over the bottom of brick tanks layers of clean material are spread, decreasing in coarseness from small rubble to sharp sand, with a total average thickness of about four feet. The actual filtration is effected by the upper layer of sand; and the lower layers allow the passage of the water unaccompanied by the sand. The efficiency of the filtration depends upon the slowness of the passage of the water, which should not exceed a flow of from two and a half to three gallons per square foot of area per hour. The filter must periodically be cleaned by scraping off the top surface of the sand, which becomes choked with the matter removed from the water; and after a time a fresh layer of sand has to be provided. Filtration, though in itself a purely mechanical operation, has been found to reduce the organic impurities in the water, which must be due either to their oxidation from exposure in thin layers to the air in the process of filtering or to the actual removal of very minute organisms floating in the water, or probably to both causes combined.

Many waters drawn from springs, wells, and rivers fed by springs contain inorganic salts in solution, and, though innocuous and pleasant for drinking, are not good for general domestic and manufacturing purposes, owing to their curdling soap and incrusting kettles, boilers and pipes. This quality, known as *hardness*, is mainly due to salts of lime, which are found in large quantities in waters drawn from the chalk. Most of the lime in solution is in the form of bicarbonate, having been produced from the very slightly soluble carbonate of lime of which chalk and other limestones are mainly composed, by combination with free carbonic acid,  $\text{CO}_2$ . It is therefore only necessary to remove half of the carbonic acid from the bicarbonate to reconvert it into the insoluble carbonate. This can be done either by boiling, which drives off the excess of carbonic acid, depositing the carbonate of lime which forms the troublesome incrustation in pipes and boilers where chalk water is used, or by adding caustic lime to the water, which, combining with the excess of carbonic acid, reduces the bicarbonate, forming carbonate of lime, which is precipitated. To indicate the degree of hardness of various waters, Doctor Clark's scale of  $1^\circ$  of hardness for each grain of chalk in one gallon of water is employed. Some waters have  $22^\circ$ , or even more degrees of hardness; and all waters are termed hard which contain more than  $5^\circ$ ; but by the softening process waters of  $22^\circ$  of hardness can be reduced to about  $5^\circ$ . The remaining or permanent hardness consists of sulphate of lime and other soluble salts. The waters obtained from mountainous districts are very soft, and therefore very valuable for manufacturing districts; but they have more action upon lead, and are more liable to absorb organic impurities than water highly charged with inorganic salts.

The water-supply required is estimated in gallons per head of population, with additions in manufacturing districts for trade purposes. The consumption varies greatly in different towns, ranging from about twelve to fifty gallons per head per day; and it depends more upon the fittings and other sources of waste than upon

the habits of the population, though the consumption per head is greater in the wealthier quarters. An ample supply, for domestic and general requirements, is from twenty to twenty-five gallons per head daily. The actual rate of consumption varies with the time of day, and also with the period of the year, being greatest between 7 and 10 A.M., and in June, July, and August, and least from 9 P.M. to 5 A.M., and in January, February, and March. To provide a sufficient reserve for sudden demands, such as for a fire, and to insure an adequate supply to every house, a service-reservoir has to be constructed, into which the water from the source of supply is led. The reservoir consists generally of a brick or concrete tank, rendered inside with cement, sunk in the ground, and roofed over with brick arches resting on the side walls and intermediate pillars, over which a covering of earth is spread. By this means light and heat are excluded, which, together with a depth of at least fifteen feet of water, prevents the growth of minute aquatic plants, of which the germs are found in some well waters, particularly from the New Red Sandstone, and maintains the water at a tolerably even temperature. The reservoir should have a capacity of not less than twenty-four hours' supply, and should be at a sufficient elevation to command the whole of the district it serves, and if possible afford a good pressure on the fire-hydrants. Where a town stands at very different levels, separate reservoirs at different elevations for supplying the high-level and low-level districts are advisable, to equalize the pressure.

In England the common form of supply is on the intermittent system. On this plan, each house is provided with a cistern, into which water from the main is admitted for a short period, once or twice a day, by means of a valve on each service main, which is opened and closed by the turncock for each separate district. When the cistern is filled, the inlet pipe is closed by the rising of the floating ball shutting the ball tap. The supply is, accordingly, limited to the contents of the cistern, except during the short period the water is turned on; and the cistern is proportioned to the accommodation of the house. The water in these open cisterns is liable to contamination from impurities of various kinds settling in them and not being cleaned out; but it is often exposed to heat, a smoky atmosphere, and dust, and sometimes to sewage gas. Moreover, in the event of a fire, the turncock has to be summoned before a supply of water can be obtained. Accordingly, the adoption of the constant system has been urged, and in many places carried out. Before substituting a constant for an intermittent supply, it is essential to overhaul thoroughly the pipes and joints, and to substitute screw-down taps, which close gradually, for the leaky, suddenly-closing plug-taps, which throw a sudden pressure on the pipes. Waste in water-closets can be stopped by the insertion of a waste preventer, which only allows a definite quantity of water to pass each time the plug is raised (see SEWERAGE). The detection of accidental waste from leakages has been much facilitated by the introduction of a waste-water meter, which records graphically, on a revolving cylinder, the amount of water which is passing the place where the meter is fixed.

There are two classes of water-meters—the positive and the inferential. The positive meter, such as Kennedy's and Frost's piston meters, measures the actual quantity of water passed through it, as recorded by the strokes of a piston working in the cylinder, which is successively filled from the top and bottom, and affords a measure of the water introduced; while the inferential meter, such as that of Siemens, measures only the revolutions of a turbine actuated by the flow of the passing

water, of which the quantity is deduced from the velocity. The positive meter is more accurate, and measures very small flows; whereas the turbine meter may sometimes not be turned by very small flows which are gradually increased. Measurement by meter would seem naturally to follow the adoption of the constant service for domestic supply, as well as for manufactories. Its general adoption has, however, been hindered by the fear that a charge by quantity, instead of by rental, might press unduly upon the poorer classes, and induce them to stint themselves of a proper supply, and also the difficulty of obtaining a very cheap and at the same time a perfectly trustworthy meter of adequate durability. To avoid the possibility of checking a sufficient use of water in the poorer tenements, it has been proposed to allow a definite supply at the ordinary rate, and only to charge by meter for any excess over this amount.

WATERTON, CHARLES, naturalist and traveler, was born at Walton Hall, near Pontefract, Yorkshire, in 1782. After being educated at the Roman Catholic college of Stonyhurst, and traveling a short time on the Continent, he went to Demerara to manage some estates belonging to his family. In his first journey, which began in 1812, the principal object of which was to collect the poison known as curari, he traveled through British Guiana by the Demerara and Essequibo rivers to the frontiers of Brazilian Guiana, making many natural history collections and observations by the way. After spending some time in England he returned to South America in 1816, going by Pernambuco and Cayenne to British Guiana, where again he devoted his time to the most varied observations in natural history. For the third time, in 1820, he sailed from England for Demerara, and again he spent his time in similar pursuits. Another sojourn in England of about three years was followed by a visit to the United States in 1824; and, having touched at several of the West India islands, he again went on to Demerara, returning to England at the end of the year. In 1828 he published the results of his four journeys, under the title of *Wanderings in South America*—consisting largely of a collection of observations on the appearance, character, and habits of many of the animals to be found in British Guiana. He died May 27, 1865, from the result of an accident.

WATERTOWN, a city of the United States, the county-seat of Jefferson county, N. Y., is situated upon both sides of Black river, 7 miles above its mouth, and is 140 miles northwest of Albany. It is laid out rather irregularly, with sixty miles of streets, is supplied with water by pumping, water-power being used, and is well sewered. The river at this point is sixty yards wide. It falls 112 feet in two miles, and flows through the city in a succession of rapids, furnishing a magnificent water-power to the numerous paper, woolen, and cotton mills and machine shops which line its banks.

The town is on the Rome, Watertown and Ogdensburg and the Utica and Black River railroads. The city was first settled in 1800, and incorporated in 1869. It contains five banks, one daily and two weekly papers, a court-house, ten churches, a high school, academy, and intermediate schools, five hotels, an opera house, public halls, stores, manufactories, etc. The latter include carriages, hollow ware, furniture, planing and flour mills, spirit levels, paper, woodenware, lamps, sash, doors, and blinds, woolen goods, sewing machines, washing machines, files, engines, steam blowers, thermometers, agricultural implements, etc. The population in 1900 was 21,696.

WATERTOWN, a city in Jefferson and Dodge

counties, Wis., is situated upon both sides of Rock river, in a rich farming region. The city is an important point on the Chicago and Northwestern, and Chicago, Milwaukee and St. Paul railways, between Milwaukee and Madison, and is the largest and most progressive place in either of the above-named counties. There are two banks established in the city, three weekly papers, thirteen churches, a high school and graded schools, also the Northwestern Lutheran University established in 1865, and a Catholic college. In the way of manufactures there are foundries and machine-shops, woolen, flour, lumber and planing-mills, cigar and shoe factories, breweries, and other lines. The population in 1900 was returned at 8,437.

WATERTOWN, a leading town of the recently admitted State, Southern Dakota, is centrally located in Cadiz county, and gives promise of rapid and substantial growth. The railroad facilities, embracing the Pacific division of the Minneapolis and St. Louis, Dakota Central division of the Chicago and Northwestern, and the Burlington, Cedar Rapids and Northern systems, the number and character of the improvements perfected and proposed in Watertown and vicinity, together with the commercial, financial, and educational inducements available, not only emphasize such promise, but give assurance of its speedy realization. There are now one daily and three weekly papers, besides a monthly magazine, published there, the town also containing three national and two State banks, besides a banking and investment company, three or more hotels, a number of churches and schools, an opera house, and other places of public resort, many stores, and a long list of manufacturing plants devoted to the production of lumber, finished and in the rough, agricultural implements, carriages, machinery, hardware, cigars, furniture, etc. Gas is used for illuminating purposes and other modern conveniences are employed. The population in 1900 was 3,352.

WATERTOWN, a manufacturing town of Middlesex county, Mass., is located on the Charles river, also on the Watertown branch of the Fitchburg railroad. It is eight miles west of Boston, of which city it is an attractive suburb; but its chief importance is due to the number and variety of manufactures carried on there. These embrace starch, soap, paint, paper bag and paper works, cloth, knit goods, and wire factories, stove foundries, cardigan jacket and knit cloth mills, sewing machine needles, etc., besides the usual run of enterprises in the various lines of production not included in the above. The town also contains one weekly paper, two banks, schools, churches, hotels, stores, warehouses, etc., and a population in 1900 of about 9,706.

WATERVILLE, a city of Kennebec county, Me., is located on the west bank of Kennebec river at the head of navigation, eighteen miles east of Augusta and eighty miles north of Portland, also at the junction of the Lewiston and Skowhegan branches of the Maine Central railroad. Ticonic Falls, on the Kennebec river opposite the city, furnishes an abundance of water-power, and is generally utilized for propelling the machinery of the manufacturing plants in operation at Waterville and vicinity, more especially the flour and planing mills. The city is the seat of Colby University, a Baptist college established in 1820, under the name of "Waterville College," and at present having a library of between ten and fifteen thousand volumes. The city also contains seven churches, four weekly newspapers, one monthly magazine, three national and one savings banks, schools, halls, and about one hundred stores. The manufactures are very extensive, including shirt and underwear factories, also those devoted to men's cloth-



ing; woolen and cotton mills, wood pulp and box-board mills, carriage repositories, and match factories, agricultural implements and car-wheel works, wood-working machinery, stoves and iron-castings, and other industries. The population in 1900 was returned at 9,477.

**WATERWORKS.** See **WATER-SUPPLY.**

**WATERY GRIPES** is the popular name for a form of serous diarrhea occurring in infants in which there are copious discharges of thin watery matter, often limpid, or almost colorless, and occasionally intermixed with flakes or shreds. This form of diarrhea may be induced in weakly children by sudden impressions of cold on the surface, so as to check perspiration; or it may be brought on by cold drinks when the body is heated. The exhaustion brought about by the copious excretion from the bowels is sometimes so great that the case might be mistaken for one of cholera. On the occurrence of such an attack the child should at once be wrapped up in warm flannel, placed in a bed, with a bag of hot dry bran over the belly, and some arrowroot, with a little brandy, given in teaspoonfuls frequently, or larger doses, according to the age; and the medical attendant should at once be sent for. If medical aid cannot be readily procured, opium must be carefully used to check the profuse evacuations. One of the best preparations is aromatic powder of chalk and opium, every forty grains of which contain one grain of opium. From three to five grains of this powder, with a quarter of a grain of ipecacuanha, may be given and repeated every three or four hours, two or three times, unless any head symptoms (due to the opium) are perceived.

**WATFORD**, a market town of Herts, England, is situated on a ridge of gravel overlooking the river Colne, on the Grand Junction canal, and on the London and Northwestern railway, branches of which here diverge to St. Albans and to Rickmansworth, eight miles southwest of St. Albans and seventeen and three-quarters northwest of London by rail, the distance by road from Charing Cross being fifteen miles. It consists chiefly of one spacious street, about one and one-half miles in length, running north-westward from the river. A bridge connects it with Bushey on the south side of the river, a suburb chiefly of villas. For the water-supply of the town a reservoir capable of containing one million gallons has lately been constructed. The town possesses corn-mills, breweries, malt kilns, and an iron foundry. The population of the urban sanitary district (area 530 acres) in 1871 was 7,461, and in 1881 it was 10,073. In 1882 the area of the urban sanitary district was extended to 871 acres; the population of that area in 1901 was 14,102.

**WATSON, RICHARD**, bishop of Llandaff, was born in August, 1737, at Haversham, in Westmoreland, and was the son of the master of the grammar school of that place. He was entirely educated by his father, who sent him in 1754 to Trinity College, Cambridge. He was elected a fellow of Trinity in 1760, and about the same time had the offer of the post of chaplain to the factory at Bencoolen.

In 1771 he became a candidate for the regius professorship of divinity, and at the age of thirty-four gained what he calls "the first place for honor in the university." "and," he adds, "exclusive of the mastership of Trinity College, I have made it the first for profit." In 1768 he published *Institutiones Metallurgicae*, intended to give a scientific form to chemistry by digesting facts established by experiment into a connected series of propositions. In 1781 he followed this up with a volume of *Chemical Essays*, which Davy told De

Quincey remained as late as 1813, after all recent discoveries, unsurpassed as a manual of introductory discipline. His course as professor of divinity was no less decisive. He produced several anonymous pamphlets on the liberal side in the subscription controversy and other topics of the day, and some sermons, one of which was thought likely to have involved him in a prosecution, but which, Dunning said, contained "just such treason as ought to be preached once a month at St. James'." It is said to have prevented his obtaining the provostship of Trinity College, Dublin. In 1776 he answered Gibbon's chapters on Christianity, and had the honor of being one of the only two opponents whom Gibbon treated with respect. He had always opposed the American war, and when the accession of Lord Shelburne to power in 1782 afforded the then unfrequent opportunity of advancing a liberal in politics and religion to a bishopric, Watson was made bishop of Llandaff, being permitted to retain his other preferences on account of the poverty of the see. Shelburne, he says, expected great service from him as a pamphleteer, but Watson proved from the ministerial point of view a most impracticable prelate. In 1796 he published his *Apology for the Bible*, in answer to Thomas Paine, at present the best known of his numerous writings. It was most effective in its day; in ours Christianity would hardly be attacked or defended by the arms employed by either disputant. Undismayed by the displeasure of the court, or perhaps hoping to overcome it, Watson continued to exert his pen with vigor, and in general to good purpose, denouncing the slave trade, advocating the union with Ireland, and offering financial suggestions to Pitt, who seems to have frequently consulted him. In 1798 his *Address to the People of Great Britain*, enforcing resistance to French arms and French principles, ran through fourteen editions, but estranged him from many old friends, who accused him, probably with injustice, of aiming to make his peace with the government. He died on July 2, 1816.

**WATT, JAMES**, the inventor of the modern condensing steam-engine, was born at Greenock, January 19, 1736. His father was a small merchant there, who lost his trade and fortune by unsuccessful speculation, and James was early thrown on his own resources. Having a taste for mechanics he made his way to London, at the age of nineteen, to learn the business of a philosophical-instrument maker, and became apprenticed to one Morgan, in whose service he remained for twelve months. Before going to London he had made acquaintance with some of the professors in Glasgow college, and on his return to Scotland, in 1756, he sought them out and obtained work in repairing astronomical instruments. He next tried to establish himself as an instrument maker in Glasgow, but the city guilds would not recognize a craftsman who had not served the full term of common apprenticeship, and Watt was forbidden to open shop in the burgh. The college, however, took him under its protection, and in 1757 he was established in its precincts with the title of mathematical-instrument maker to the university. Before many months Black, the discoverer of latent heat, then lecturer on chemistry, and Robison, then a student, afterward professor of natural philosophy, became his intimate friends, and with them he often discussed the possibility of improving the steam-engine, of which at that time Newcomen's was the most advanced type. The engine was then applied only to pumping water—chiefly in the drainage of mines; and it was so clumsy and wasteful of fuel as to be but little used.

In Newcomen's engine the cylinder stood vertically under one end of the main lever or "beam" and was open at the top. Steam, at a pressure scarcely greater

than that of the atmosphere, was admitted to the under side; this allowed the piston to be pulled up by a counterpoise at the other end of the beam. Communication with the boiler was then shut off, and the steam in the cylinder was condensed by injecting a jet of cold water from a cistern above. The pressure of the air on the top of the piston then drove it down, raising the counterpoise and doing work. The injection water and condensed steam which had gathered in the cylinder were drained out by a pipe leading down into a well.

Watt at once noticed that the alternate heating and cooling of the cylinder in Newcomen's engine made it work with tedious slowness and excessive consumption of steam. His first attempt at a remedy was to use for the material of the cylinder a substance that would take in and give out heat slowly. Wood was tried, but it made matters only a little better, and did not promise to be durable. He then entered on a scientific examination of the properties of steam, studying by experiment the relation of its density and pressure to the temperature, and concluded that two conditions were essential to the economic use of steam in a condensing steam-engine. One was that the temperature of the condensed steam should be as low as possible, 100° F. or lower, otherwise the vacuum would not be good; the other was, to quote his own words, "that the cylinder should be always as hot as the steam which entered it." In Newcomen's engine these two conditions were incompatible, and it was not for some months that Watt saw a means of reconciling them. Early in 1765, while walking on a Sunday afternoon in Glasgow Green, the idea flashed upon him that, if the steam were condensed in a vessel distinct from the cylinder, it would be practicable to make the temperature of condensation low, and still keep the cylinder hot. Without delay Watt put this idea to the test, and found that the separate condenser did act as he had anticipated. To maintain the vacuum in it he added another new organ, namely, the air-pump, the function of which is to remove the condensed steam and water of injection along with any air that gathers in the condenser. To further his object of keeping the cylinder as hot as the steam that entered it, Watt supplemented his great invention of the separate condenser by several less notable but still important improvements. All these features were specified in his first patent, in words which have been quoted in the article STEAM-ENGINE.

This patent was not obtained till January, 1769, nearly four years after the inventions it covers had been made. In the interval, Watt had been striving to demonstrate the merits of his engine by trial on a large scale. His earliest experiments left him in debt, and, finding that his own means were quite insufficient to allow him to continue them, he agreed that Doctor Roebuck, founder of the Carron iron-works, should take two-thirds of the profits of the invention in consideration of his bearing the cost. An engine was then erected at Kinneil, near Linlithgow, where Roebuck lived, and this gave Watt the opportunity of facing many difficulties in details of construction. But the experiments made slow progress, for Roebuck's affairs became embarrassed, and Watt's attention was engaged by other work. He had taken to surveying, and was fast gaining reputation as a civil engineer. In 1767 he was employed to make a survey for a Forth and Clyde canal. He prepared plans for the harbors of Ayr, Port-Glasgow, and Greenock, for deepening the Clyde, and for building a bridge over it at Hamilton. In the course of this work he invented a simple micrometer for measuring distances.

Meanwhile the engine had not been wholly neglected.

Watt had made the acquaintance, through his friend Doctor Small, of Matthew Boulton, a man of energy and capital, who owned the Soho engineering works at Birmingham. Boulton agreed to buy Roebuck's share in the invention, and to join Watt in applying to parliament for an act to prolong the term of the patent. The application was successful. In 1775 an act was passed continuing the patent for twenty-five years.

During the next ten years we find Watt assiduously engaged in developing and introducing the engine. Its first and for a time its only application was in pumping; it was at once put to this use in the mines of Cornwall, where Watt was now frequently engaged in superintending the erection of engines. Further inventions were required to fit it for other uses, and these followed in quick succession. Watt's second steam-engine patent is dated 1781. A third patent, in 1782, contained two new inventions of the first importance. Up to this time the engine had been single-acting; Watt now made it double-acting; that is to say, both ends of the cylinder, instead of only one, were alternately put in communication with the boiler and the condenser. Up to this time also the steam had been admitted from the boiler throughout the whole stroke of the piston; Watt now introduced the system of expansive working, in which the admission valve is closed after a portion only of the stroke is performed, and the steam inclosed in the cylinder is then allowed to expand during the remainder of the stroke, doing additional work upon the piston without making any further demand upon the boiler until the next stroke requires a fresh admission of steam. His fourth patent, taken out in 1784, describes the well-known "parallel motion," an arrangement of links by which the top of the piston-rod is connected to the beam so that it may either pull or push, and is at the same time guided to move in a sensibly straight line.

Still a later invention was the throttle-valve and centrifugal governor, by which the speed of rotative engines was automatically controlled. One more item in the list of Watt's contributions to the development of the steam-engine is too important to be passed without mention: the indicator, which draws a diagram of the relation of the steam's pressure to its volume as the stroke proceeds, was first used by Boulton and Watt to measure the work done by their engines, and so to give a basis on which the charges levied from their customers were adjusted. It would be difficult to exaggerate the part which this simple little instrument has played in the evolution of the steam-engine.

The commercial success of the engine was not long in being established. By 1783 all but one of the Newcomen pumping-engines in Cornwall had been displaced by Watt's. Rival manufacturers came forward, among whom Bull and Hornblower are the most conspicuous names. They varied the form of the engine, but they could not avoid infringing Watt's patent by the use of a separate condenser. When action was taken against them on that ground, they retaliated by disputing the validity of the fundamental patent of 1769. In the case of Boulton and Watt v. Bull, the court was divided on this point, but in an action against Hornblower the patent was definitely affirmed to be valid by a unanimous finding of the Court of King's Bench. This was in 1799, only a year before the monopoly expired, but the decision enabled the firm to claim a large sum as arrears of patent dues. In connection with these trials Watt himself, as well as his early friends Black and Robison, drew up narratives of the invention of the steam-engine, which are of much interest to the student of its history.

On the expiry, in 1800, of the Act by which the



patent of 1769 had been extended, Watt gave up his share in the business of engine-building to his sons, James, who carried it on along with a son of Boulton for many years, and Gregory, who died in 1804. The remainder of his life was quietly spent at Heathfield Hall, his house near Birmingham, where he devoted his time, with scarcely an interruption, to mechanical pursuits. His last work was the invention of machines for copying sculpture—one for making reduced copies, another for taking facsimiles by means of a light stiff frame, which carried a pointer over the surface of the work, while a revolving tool fixed to the frame alongside of the pointer cut a corresponding surface on a suitable block. His life drew to a tranquil close, and the end came at Heathfield, August 19, 1819. His remains were interred in the neighboring parish church of Handsworth.

WATTEAU, ANTOINE, French painter, was born at Valenciennes in 1684. Thrown on his own resources at an early age, the boy went moneyless and ragged to Paris. There, after a hard struggle, he succeeded in getting work with a painter of saints for country customers, who assigned to Watteau, the future linner of gallant feastings, the repetition of dozens of St. Nicholas. This brought him food and shelter, and in his few holidays Watteau sketched and drew. From this shop he passed to the studio of Gillot, whose influence enabled him to follow the true direction of his own special gifts, but he left him, finding employment with Audran, the decorator, then at work in the Luxembourg. In 1709 he competed for the great prize, and standing only second, applied for a crown pension to enable him to go to Italy. As proofs of his deserts, he carried to the Academy his first two pictures. His cause was espoused by De la Fosse, and he was instantly made an associate of that body, becoming a full member in 1717. His diploma picture, *Embarkation for the Isle of Venus*, is now in the Louvre. Suffering always from lung disease, and of a highly nervous temperament, Watteau was, however, unfitted to live and work with others, and, in spite of his professional success and his assured reputation, he held himself apart, ill at ease with himself and seldom happy in his work, which suffered in sympathy with his changing moods. A visit to London further disturbed his health, and in 1721 he returned to Paris, establishing himself for a while in the house of his friend Gersaint, the picture dealer, for whom he painted a sign-board which had an extraordinary success. Hoping to find rest and some alleviation to his increasing sufferings from country air, he accepted a lodging at Nogent, where shortly after his arrival, on July 18, 1721, he died.

WATTS, ISAAC, theologian and hymn writer, was born at Southampton July 17, 1674. He was the eldest of nine children, and was named after his father, who kept a boarding establishment at Southampton. The father also wrote poetry, and a number of his pieces were included by mistake in vol. i. of the son's *Posthumous Works*. Young Watts is stated to have entered on the study of the classics when only in his fifth year, and at the age of seven or eight to have composed some devotional pieces to please his mother. His nonconformity precluded him from entering either of the universities, but in his sixteenth year he went to study at an academy in London kept by the Rev. Thomas Rowe, minister of the Independent meeting at Haberdashers' Hall. In his *Improvement of the Mind* (1741) Watts has expounded his method of study, but the precepts there laid down can hardly be said to be justified by his early example, for it is overwork at this period of his life that is believed to have caused the weak and uncertain health of his subsequent years. Probably it

was as much from this cause as from diffidence, that he deferred preaching his first sermon till the day he entered on his twenty-fourth year. Meantime he resided as tutor in the family of Sir John Hartopp at Stoke Newington, where he probably prepared the materials of his two educational works—*Logic, or the Right Use of Reason in the Enquiry after Truth* (1725), and *The Knowledge of the Heavens and the Earth Made Easy, or the First Principles of Geography and Astronomy Explained* (1726). In his twenty-fourth year Watts was chosen assistant to Doctor Chauncy, pastor of the Independent congregation, Mark Lane, London, and two years later he succeeded as sole pastor. The state of his health led to the appointment of an assistant in 1703. In 1712 Watts took up his residence with Sir Thomas Abney of Abney Park, where he spent the remainder of his life, the arrangement being continued by Lady Abney after her husband's death. Watts preached only occasionally, devoting his leisure chiefly to the writing of hymns, the preparation of his sermons for publication, and the composition of theological works. Being little over five feet in height, and far from robust in health, he did not specially excel as an orator, although the felicity of his illustrations, his transparent sincerity, and his benevolent wisdom gave to his preaching an exceptional charm. His religious opinions were more liberal in tone than was at any time common in the community to which he belonged; his views regarding Sunday recreation and labor were scarcely of Puritanical strictness; his Calvinism was modified by his rejection of the doctrine of reprobation, and he was in the habit of representing the heaven of the Christian as affording wide scope for the exercise of the special habits and tastes formed by the employments of earth. For an estimate of Watts as a hymn writer, see HYMNS. He died November 25, 1748, and was buried at Bunhill Fields.

WAUKEGAN, the county seat of Lake county, Ill., occupies a prominent bluff on the west shore of Lake Michigan, thirty-six miles north of Chicago and fifty miles from Milwaukee, on the main line of the Chicago and Northwestern railroad. From its elevated site Waukegan can be seen for miles, and its proximity to both Chicago and Milwaukee have made the beautiful city a favorite place of resort or summer residence for citizens of both municipalities. The principal part of the city, including the residence portion, is built fronting the lake and presents a handsome appearance, while the space between the foot of the bluff and the lake shore is devoted to garden and other purposes, adding materially to the attraction of the scene. Of late years the city has received considerable accessions of capital for investment in industrial enterprises. Waukegan also contains nine churches, a high school, and other educational institutions, both public and private, a national bank, two weekly papers, several hotels, an opera house, a large number of stores and other depots of supply. Gas and electric lights, with other appointments of a useful character, have been adopted, and the city is steadily growing in population (9,426 in 1900) and importance.

WAUKESHA, the county seat of Waukesha county, Wis., is situated on the Fox river, twenty miles west of Milwaukee. It is a handsome city with many fine residences and has some celebrity as a watering place, mineral springs being abundant. Population (1900), 7,419.

WAUSAU, county seat of Marathon, one of the central counties of Wisconsin, is situated upon the Wisconsin river near its junction with Rib river, also upon the Wisconsin Valley division of the Chicago, Milwaukee and St. Paul, and upon a branch of the Milwaukee, Lake Shore and Western railroads. The city is the center at

a large area of territory grown to pine timber and is widely known as one of the most enterprising points in the State engaged in the manufacture of rough and dressed lumber, sash, doors, blinds, flooring, and other lumber products. From a dozen to fifteen planing mills are in constant operation, in addition to box and sash factories, also saw-mills, saw-mill machinery works, foundries and machine shops, furniture and cigar factories, etc., a proportion of the motive power being obtained from Wisconsin river. These industries represent large outlays and producing outputs representing large values. The city contains five weekly papers, two banks, seven churches, a high school and graded schools, an opera house, several hotels, warehouses and stores, etc. Some mining and granite quarrying are carried on in the vicinity with prosperous results. Population (1900), 12,354.

**WAVE.** By this term is commonly understood a state of disturbance which is propagated from one part of a medium to another. Thus it is energy which passes, and not matter—though in some cases the wave permanently displaces, usually to a small amount only, the medium through which it has passed. Currents, on the other hand, imply the passage of matter associated with energy.

The subject is one which, except in a few very simple or very special cases, has as yet been treated only by approximation even when the most formidable processes of modern mathematics have been employed—so that this sketch, in which it is desired that as little as possible of higher mathematics should be employed, must be confined mainly to the statement of results. And the effects of viscosity, though very important, cannot be treated.

There are few branches of physics which do not present us with some forms of wave, so that the subject is a very extensive one:—tides, rollers, ripples, bores, breakers, sounds, radiations (whether luminous or obscure), telegraphic and telephonic signaling, earthquakes, the propagation of changes of surface-temperature into the earth's crust—all are forms of wave-motion. Several of these phenomena have been treated in other parts of this work, and will now be but briefly referred to; others require more detailed notice.

When a medium is in stable equilibrium, it has no kinetic energy, and its potential energy is a minimum. Any local disturbance, therefore, in general involves a communication of energy to part of the medium, and it is usually by some form of wave-motion that this energy spreads to other parts of the medium. The mere withdrawal of a quantity of matter (as by lifting a floating body out of still water), local condensation of vapor in the air, the crushing of a hollow shell by external pressure, the change of volume resulting from an explosion, or from the sudden vaporization of a liquid—are known to all as common sources of violent wave-disturbance.

Waves may be *free* or *forced*. In the former class the disturbance is produced once for all, and is then propagated according to the nature of the medium and the form of the disturbance. Or the disturbance may be continued, provided the waves travel faster than does the center of disturbance. In forced waves, on the other hand, the disturbing force continues to act so as to modify the propagation of the waves already produced. Thus, while a gale is blowing, the character of the water-waves is continually being modified; when it subsides, we have regular oscillatory waves, or rollers, for the longer ones not only outstrip the shorter but are less speedily worn down by fluid friction. The huge mass of water which some steamers raise, especially when running at a high speed, is an excellent example of a forced wave. The ocean-tide is mainly a forced

wave, depending on the continued action of the moon and sun; but the tide-wave in an estuary or a tidal river is practically free—being almost independent of moon and sun, and depending mainly upon the configuration of the channel, the rate of the current, and the tidal disturbance at the mouth.

In the article **MECHANICS**, it has been proved by the most elementary considerations that an inextensible but flexible rope, under uniform tension, when moving at a certain definite rate through a smooth tube of any form, exerts no pressure on the interior of the tube. In fact, the rope must press with a force  $T/r$  (where  $T$  is the tension and  $r$  the radius of curvature) on the unit of length in consequence of its tension, and with a force  $-\mu v^2/r$  (where  $v$  is the speed, and  $\mu$  the mass of unit length) in consequence of its inertia. That there may be no pressure on the tube, *i.e.*, that it may be dispensed with, we must therefore have  $T - \mu v^2 = 0$ , or  $v = \sqrt{T/\mu}$ . From this it follows that a disturbance of *any* form (of course with continuous curvature) runs along a stretched rope at this definite rate, and is unchanged during its progress. In the proof, the influence of gravity was left out of consideration, and this result may therefore be applied to the motion of a transverse disturbance along a stretched wire, such as that of a pianoforte, where the tension is very great in comparison with the weight of the wire. But the italicized word *any*, above, gives an excellent example of one of the most difficult parts of the whole subject, *viz.*, the possibility of a *solitary* wave. This is a question upon which we cannot here enter.

If we restrict ourselves to slight disturbances only, theory points out and trial verifies that they are superposable. In fact in the great majority of investigations which have been made with regard to waves, the disturbances have been assumed to be slight, so that we can avail ourselves of the principle of *superposition of small motions* (see **MECHANICS**), which is merely an application of the mathematical principle of "neglecting the second order of small quantities." The verification by *trial* is given at once by watching how the ring-ripples produced by two stones thrown into a pool pass through one another without any alteration; that by *observation* is evident to any one who sees an object in sunlight, when the whole intervening space is full of intense wave-motion.

Remembering that the displacements are supposed to be very small, our fundamental result may now be expressed by saying that the force acting on unit length of the disturbed wire, to restore it to its undisturbed position, is  $T/r$  or  $\mu v^2/r$ . Thus the *ratio of the acceleration of each element to its curvature is the square of the rate of propagation of the wave*. It will be shown below that this is the immediate interpretation of the differential equation of the wave-motion.

If we now consider a free rod, set into longitudinal vibration by friction, we are led to a particular case of reflection of a wave from a *free* end. The condition is obviously that, at such a point, there can be neither compression nor elongation.

Suppose the wire above spoken of to be massless, or at least so thin, and of such materials, that the whole mass of it may be neglected in comparison with the masses of a system of equal pellets, which we now suppose to be attached to the wire at equal distances from one another. The weights of these pellets may be supported by a set of very long vertical strings, one attached to each, so that the arrangement is unaffected by gravity. The wire may be supposed to be stretched, as before, with a definite tension which is not affected by small transverse disturbances. We will take the case of transverse disturbances only, but it is easy to see that results



of precisely the same form will be obtained for longitudinal disturbances. A moment's thought will convince the reader that there must be a limit to the frequency of the oscillations which can be transmitted along a system like this, though there was none such with the continuous wire. It is not difficult to find this limit.

Instead of pellets on a tended wire, we might have a series of equal bar magnets, supported horizontally at proper distances from one another in a line. The magnetic forces here take the place of the tension; and by arranging the magnets with their like poles together, *i.e.*, by inverting the alternate ones, we can produce the equivalent of pressure instead of tension along the series. If the magnets have each bifilar suspension, their masses will come in, as well as their moments of inertia, in the treatment of transverse disturbances.

This question is closely connected with Stokes' explanation of fluorescence, for the effect of a disturbing force, of a shorter period than the limit given above, applied continuously to one of the pellets, would be to accumulate energy mainly in the immediate neighborhood; and this, if we suppose the disturbing force to cease, would be transmitted along the system in waves of periods equal at least to the limit. These would correspond to light of lower refrangibility than the incident, but having as characteristic a definite upper limit of refrangibility.

Such investigations, with their results, prepare us to expect that the usual mode of investigating the propagation of sound cannot be correct in the case of exceedingly high notes if the medium consist of discrete particles. The questions of the gradual change of type or the dying away even of plane waves of sound, whether by reason of their form, by fluid friction, or by loss of energy due to radiation, are much too complex to be treated here.

In all ordinary simple sounds even of very high pitch the displacements are extremely small compared with the wave length, so that the approximate solution gives the speed with considerable accuracy. A very refined experimental test that this speed is independent of the pitch consists in listening to a rapid movement played by a good band at a great distance. But there seems to be little doubt that, under certain conditions at least, very loud sounds travel a great deal faster than ordinary sounds. The above investigation gives the speed of sound relatively to the air. Relatively to the earth's surface, it has to be compounded with the motion of the air itself. But, as the speed of wind usually increases from the surface upward, at least for a considerable height, the front of a sound-wave, moving *with* the wind, leans forward, and the sound (being propagated perpendicularly to the front) moves downward; if *against* the wind, upward.

In the case of a disturbance in air due to a very sudden explosion, as of dynamite or as by the passage of a flash of lightning, it is probable that for some distance from the source the motion is of a projectile character; and that part at least of the flash is due to the heat developed by practically instantaneous and very great compression of each layer of air to which this violent motion extends. Leaving out of consideration, as already sufficiently treated in a special article, the whole subject of TIDES, whether in oceans or in tidal rivers, there remain many different forms of water waves all alike interesting and important. The most usual division of the free waves is into long waves, oscillatory waves and ripples. The first two classes run by gravity, the third mainly by surface-tension (see CAPILLARY ACTION). But, while the long waves agitate the water to nearly the same amount at all depths, the chief disturbance due to oscil-

latory waves or to ripples is confined to the upper layers of the water, from which it dies away with great rapidity in successive layers below. We will treat of these three forms in the order named.

*Long Waves.*—The first careful study of these waves was made by SCOTT RUSSELL (*q.v.*) in the course of an inquiry into traffic on canals. He arrived at the remarkable result that there is a definite speed, depending on the depth of the water, at which a horse can draw a canal-boat more easily than at any other speed, whether less or greater. And he pointed out that, when the boat moves at this speed, it agitates the water less, and therefore damages the banks less, than at any lower. This particular speed is thus, in fact, that of free propagation of the wave raised by the boat; and, when the boat rides, as it were, on this wave, its speed is maintained with but little exertion on the part of the horse. If the boat be made to move slower, it leaves behind it an ever lengthening procession of waves, of course at the expense of additional labor on the part of the horse.

The theory of the motion of such a wave is based on the hypothesis that all particles in a transverse section of the canal have, at the same instant, the same horizontal speed. However great this horizontal motion may be, the vertical motion of the water may be very small, for it depends on the change of horizontal speed from section to section only. A hint, though a very imperfect one, as to the formation of breakers on a gently sloping beach, is given by considering that in shallow water the front and rear of an ordinary surface-wave must move at different rates, the front being in shallower water than the rear, and therefore allowing the rear to gain upon it.

*Oscillatory Waves.*—The typical example of these waves is found in what is called a "swell," or the regular rolling waves which continue to run in deep water after a storm. Their character is essentially periodic, and this feature at once enables us to select from the general integrals of the equations of non-rotatory fluid-motion the special forms which we require. The investigation may, without sensible loss of completeness for application, be still further simplified by the assumption that the disturbance is two-dimensional, *i.e.*, that the motion is precisely the same in any two vertical planes drawn parallel to the direction in which the waves are traveling. The investigation is, unfortunately, very much more simple in an analytical than in a geometrical form.

Atlantic rollers, of a wave-length of (say) 300 feet, travel at the rate of about 40 feet per second, or 27 miles an hour. But, even if they be of 40 feet height from trough to crest (which is probably an exaggerated estimate), the utmost disturbance of a water particle at a depth of 300 feet is not quite half an inch from its mean position. This shows, in a very striking manner, what a mere surface-effect is in this way due to winds, and how the depths of the ocean are practically undisturbed by such causes.

This investigation has been carried to a second, and even to a third, approximation by Stokes, with the result that the form of a section of the surface is no longer the curve of sines, in which the crests and troughs are equal. The crests are steeper and higher, and the troughs wider and shallower, than the first approximation shows. Also the forward horizontal motion of each particle under the crest is no longer quite compensated for by its backward motion under the trough, so that what sailors call the "heave of the sea" is explained. The water is permanently displaced forward by each succeeding wave. But this effect, like the whole disturbance, is greatest in the surface-layer and

diminishes rapidly for each lower layer. The third approximation shows that the speed of the waves is greater than that above assigned, by a term depending on the square of the ratio of the height to the length of a wave.

**Ripples.**—This slowest-moving oscillatory wave may be regarded as the limit between waves proper and ripples. That ripples run faster the shorter they are is easily seen by watching the apparently rigid pattern of them which precedes a body moving uniformly through still water. The more rapid the motion the closer do the ripple-ridges approach one another. Excellent examples of ripples are produced by applying the stem of a vibrating tuning-fork to one side of a large rectangular box full of liquid. From the pitch of the note, and the wave-length of the ripples, we can make an approximate determination of surface-tension, a quantity somewhat difficult to measure by statical processes. The conditions of production of ripples by wind, or generally in a surface of separation of two fluids, each of which has any motion parallel to this surface, are given in **HYDROMECHANICS**.

While the disturbances considered are so small as to be superposable, *i.e.*, independent of one another, the effect of superposition is merely a kinematical question, and, as such, has been very fully treated under **MECHANICS**. See also **ACOUSTICS**, **LIGHT**, and **WAVE THEORY**. Thus ripple-patterns, ordinary beats of musical sounds, composition of lunar and solar ocean tides, diffraction, phenomena of polarized light in crystals or in transparent bodies in the magnetic field, etc., are all, in *principle* at least, simple kinematical consequences of superposition.

**WAVERTREE**, a township of Lancashire, partly included within the parliamentary limits of Liverpool, England. The town possesses roperies and a brewery. An extensive pumping station connected with the Liverpool water-works is in the vicinity. The population of the urban sanitary district (area 1,838 acres) in 1901 was 14,097.

**WAVE THEORY OF LIGHT.** A general statement of the principles of the undulatory theory, with elementary explanations, has already been given under **LIGHT**, and in the article on **ETHER** the arguments which point to the existence of an all-pervading medium, susceptible in its various parts of an alternating change of state, have been traced by a master hand; but the subject is of such great importance, and is so intimately involved in recent optical investigation and discovery, that a more detailed exposition of the theory, with application to the leading phenomena, was reserved for a special article. That the subject is one of difficulty may be at once admitted. Even in the theory of sound, as conveyed by aerial vibrations, where we are well acquainted with the nature and properties of the vehicle, the fundamental conceptions are not very easy to grasp, and their development makes heavy demands upon our mathematical resources. That the situation is not improved when the medium is hypothetical will be easily understood. For, although the evidence is overwhelming in favor of the conclusion that light is propagated as a vibration, we are almost entirely in the dark as to what it is that vibrates and the manner of vibration. This ignorance entails an appearance of vagueness, even in those parts of the subject the treatment of which would not really be modified by the acquisition of a more precise knowledge, *e.g.*, the theory of the colors of thin plates, and of the resolving power of optical instruments. But in other parts of the subject, such as the explanation of the laws of double refraction and of the intensity of light reflected at the surface of a transparent medium, the vagueness is not merely one of

language; and if we wish to reach definite results by the *a priori* road we must admit a hypothetical element, for which little justification can be given. The distinction here indicated should be borne clearly in mind. Many optical phenomena must necessarily agree with any kind of wave theory that can be proposed; others may agree or disagree with a particular form of it. In the latter case we may regard the special form as disproved, but the undulatory theory in the proper wider sense remains untouched.

Of such special forms of the wave theory the most famous is that which assimilates light to the transverse vibrations of an elastic solid. *Transverse* they must be in order to give room for the phenomena of polarization. This theory is a great help to the imagination, and allows of the deduction of definite results which are at any rate mechanically possible. An isotropic solid has in general two elastic properties—one relating to the recovery from an alteration of volume, and the other to the recovery from a state of shear, in which the strata are caused to slide over one another. It has been shown by Green that it would be necessary to suppose the luminiferous medium to be incompressible, and thus the only admissible differences between one isotropic medium and another are those of *rigidity* and of *density*. Between these we are in the first instance free to choose. The slower propagation of light in glass than in air may be equally well explained by supposing the rigidity the same in both cases while the density is greater in glass, or by supposing that the density is the same in both cases while the rigidity is greater in air. Indeed there is nothing, so far, to exclude a more complicated condition of things, in which both the density and rigidity vary in passing from one medium to another, subject to the one condition only of making the ratio of velocities of propagation equal to the known refractive index between the media.

When we come to apply this theory to investigate the intensity of light reflected from (say) a glass surface, and to the diffraction of light by very small particles (as in the sky), we find that a reasonable agreement with the facts can be brought about only upon the supposition that the rigidity is the same (approximately, at any rate) in various media, and that the density alone varies. At the same time we have to suppose that the vibration is perpendicular to the plane of polarization.

Up to this point the accordance may be regarded as fairly satisfactory; but, when we extend the investigation to crystalline media in the hope of explaining the observed laws of double refraction, we find that the suppositions which would suit best here are inconsistent with the conclusions we have already arrived at. In the first place, and so long as we hold strictly to the analogy of an elastic solid, we can only explain double refraction as depending upon anisotropic rigidity, and this can hardly be reconciled with the view that the rigidity is the same in different isotropic media. And if we pass over this difficulty, and inquire what kind of double refraction a crystalline solid would admit of, we find no such correspondence with observation as would lead us to think that we are upon the right track. The theory of anisotropic solids, with its twenty-one elastic constants, seems to be too wide for optical double refraction, which is of a much simpler character.

For these and other reasons, especially the awkwardness with which it lends itself to the explanation of dispersion, the elastic solid theory, valuable as a piece of purely dynamical reasoning, and probably not without mathematical analogy to the truth, can in optics be regarded only as an illustration.

In recent years a theory has been received with much favor in which light is regarded as an electromagnetic



phenomenon. The dielectric medium is conceived to be subject to a rapidly periodic "electric displacement," the variations of which have the magnetic properties of an electric current. On the basis of purely electrical observations Maxwell calculated the velocity of propagation of such disturbances, and obtained a value not certainly distinguishable from the velocity of light. Such an agreement is very striking; and a further deduction from the theory, that the specific inductive capacity of a transparent medium is equal to the square of the refractive index, is supported to some extent by observation. The foundations of the electrical theory are not as yet quite cleared of more or less arbitrary hypothesis; but, when it becomes certain that a dielectric medium is susceptible of vibrations propagated with the velocity of light, there will be no hesitation in accepting the identity of such vibrations with those to which optical phenomena are due. In the meantime, and apart altogether from the question of its probable truth, the electromagnetic theory is very instructive, in showing us how careful we must be to avoid limiting our ideas too much as to the nature of the luminous vibrations.

The intensity of light of given wave-length must depend upon the amplitude, but the precise nature of the relation is not at once apparent. We are not able to appreciate by simple inspection the relative intensities of two unequal lights; and, when we say, for example, that one candle is twice as bright as another, we mean that two of the latter burning independently would give us the same light as one of the former. This may be regarded as the definition; and then experiment may be appealed to to prove that the intensity of light from a given source varies inversely as the square of the distance. But our conviction of the truth of the law is perhaps founded quite as much upon the idea that something not liable to loss is radiated outward and is distributed in succession over the surfaces of spheres concentric with the source, whose areas are as the squares of the radii. The something can only be energy; and thus we are led to regard the rate at which energy is propagated across a given area parallel to the waves as the measure of intensity; and this is proportional, not to the first power, but to the square of the amplitude.

Practical photometry is usually founded upon the law of inverse squares (see LIGHT); and it should be remembered that the method involves essentially the use of a diffusing screen, the illumination of which, seen in a certain direction, is assumed to be independent of the precise direction in which the light falls upon it; for the distance of a candle, for example, cannot be altered without introducing at the same time a change in the apparent magnitude, and therefore in the incidence of some part at any rate of the light.

With this objection is connected another, which is often of greater importance, the necessary enfeeblement of the light by the process of diffusion. And, if to maintain the brilliancy we substitute regular reflectors for diffusing screens, the method breaks down altogether by the apparent illumination becoming independent of the distance of the source of light.

The use of a revolving disk with transparent and opaque sectors in order to control the brightness, as proposed by Fox-Talbot, may often be recommended in scientific photometry, when a great loss of light is inadmissible. The law that, when the frequency of intermittence is sufficient to give a steady appearance, the brightness is proportional to the angular magnitude of the open sectors appears to be well established.

It has been shown under OPTICS that a system of rays, however many reflections or refractions they may

have undergone, are always normal to a certain surface, or rather system of surfaces.

The magnifying power is not necessarily the same in all directions. Consider the case of a prism arranged as for spectrum work. Passage through the prism does not alter the vertical width of the stream of light; hence there is no magnifying power in this direction. What happens in a horizontal direction depends upon circumstances. A single prism in the position of minimum deviation does not alter the horizontal width of the beam. The same is true of a sequence of any number of prisms each in the position of minimum deviation, or of the combination called by Thollon a couple, when the deviation is the least that can be obtained by rotating the couple as a *rigid system*, although a further diminution might be arrived at by violating this tie. In all these cases there is neither horizontal nor vertical magnification, and the instrument behaves as a telescope of power unity. If, however, a prism be so placed that the angle of emergence differs from the angle of incidence, the horizontal width of the beam undergoes a change. If the emergence be nearly grazing, there will be a high magnifying power in the horizontal direction; and, whatever may be the character of the system of prisms, the horizontal magnifying power is represented by the ratio of widths. Brewster suggested that, by combining two prisms with refracting edges at right angles, it would be possible to secure equal magnifying power in the two directions, and thus to imitate the action of an ordinary telescope.

The theory of magnifying power is intimately connected with that of apparent brightness. By the use of a telescope in regarding a bright body, such, for example, as the moon, there is a concentration of light upon the pupil in proportion to the ratio of the area of the object-glass to that of the pupil. But the apparent brightness remains unaltered, the apparent superficial magnitude of the object being changed in precisely the same proportion, in accordance with the law just established.

A plane wave of course remains plane after reflection from a truly plane surface; but any irregularities in the surface impress themselves upon the wave. In the simplest case, that of perpendicular incidence, the irregularities are *doubled*, any depressed portion of the surface giving rise to a retardation in the wave front of twice its own amount. It is assumed that the lateral dimensions of the depressed or elevated parts are large multiples of the wave-length; otherwise the assimilation of the various parts to plane waves is not legitimate.

In like manner, if a plane wave passes perpendicularly through a parallel plate of refracting material, a small elevation at any part of one of the surfaces introduces a retardation in the corresponding part of the wave-surface. An error in a glass surface is thus of only one-quarter of the importance of an equal error in a reflecting surface. Further, if a plate, otherwise true, be distorted by bending, the errors introduced at the two surfaces are approximately opposite, and neutralize one another.

In practical applications it is of importance to recognize the effects of a small departure of the wave-surface from its ideal plane or spherical form.

The number of perceptible bands increases *pari passu* with the approach of the light to homogeneity. For this purpose there are two methods that may be used.

We may employ light, such as that from the soda flame, which possesses *ab initio* a high degree of homogeneity. If the range of wave-length included be  $\frac{1}{10000}$ , a corresponding number of interference fringes may be made visible. The above is the number obtained by Fizeau, and Michelson has recently gone on

far as 200,000. The narrowness of the bright line of light seen in the spectroscope, and the possibility of a large number of Fresnel's bands, depend upon precisely the same conditions; the one is in truth as much an interference phenomenon as the other.

In the second method the original light may be highly composite, and homogeneity is brought about with the aid of a spectroscope. The analogy with the first method is closest if we use the spectroscope to give us a line of homogeneous light in simple substitution for the artificial flame. Or, following Foucault and Fizeau, we may allow the white light to pass, and subsequently analyze the mixture transmitted by a narrow slit in the screen upon which the interference bands are thrown. In the latter case we observe a channelled spectrum, with maxima of brightness corresponding to the wave-lengths. In either case the number of bands observable is limited solely by the resolving power of the spectroscope, and proves nothing with respect to the regularity, or otherwise, of the vibrations of the original light.

The truth of this remark is strikingly illustrated by the possible formation, with white light, of a large number of achromatic bands.

If a system of Fresnel's bands be examined through a prism, the central white band undergoes an abnormal displacement, which has been supposed to be inconsistent with theory. The explanation has been shown by Airy to depend upon the peculiar manner in which the white band is in general formed.

Theory and observation alike show that the transmitted colors of a thin plate, *e.g.*, a soap film or a layer of air, are very inferior to those reflected. Specimens of ancient glass, which have undergone superficial decomposition, on the other hand, sometimes show transmitted colors of remarkable brilliancy. The probable explanation, suggested by Brewster, is that we have here to deal not merely with one, but with a series of thin plates of not very different thicknesses. It is evident that with such a series the transmitted colors would be much purer, and the reflected much brighter than usual. If the thicknesses are strictly equal, certain wave-lengths must still be absolutely missing in the reflected light; while on the other hand a constancy of the interval between the plates will in general lead to a special preponderance of light of some other wave-length for which all the component parts as they ultimately emerge are in agreement as to phase.

All that can be expected from a physical theory is the determination of the composition of the light reflected from or transmitted by a thin plate in terms of the composition of the incident light. The further question of the chromatic character of the mixtures thus obtained belongs rather to physiological optics, and cannot be answered without a complete knowledge of the chromatic relations of the spectral colors themselves. Experiments upon this subject have been made by various observers, and especially by Maxwell, who has exhibited his results on a color diagram as used by Newton. A calculation of the colors of thin plates, based upon Maxwell's data, and accompanied by a drawing showing the curve representative of the entire series up to the fifth order, has recently been published; and to this the reader who desires further information must be referred, with the remark that the true colors are not seen in the usual manner of operating with a plate of air closed between glass surfaces, on account of the contamination with white light reflected at the other surfaces of the glasses. This objection is avoided when a soap film is employed, to the manifest advantage of the darker colors, such as the red of the

first order. The colors of Newton's scale are met with also in the light transmitted by a somewhat thin plate of doubly-refracting material, such as mica, the plane of analysis being perpendicular to that of primitive polarization.

If Newton's rings are examined through a prism, some very remarkable phenomena are exhibited, described in his twenty-fourth observation. "When the two object-glasses are laid upon one another, so as to make the rings of the colors appear, though with my naked eye I could not discern above eight or nine of those rings, yet by viewing them through a prism I could see a far greater multitude, inasmuch that I could number more than forty. \* \* \* And I believe that the experiment may be improved to the discovery of far greater numbers. \* \* \* But it was on but one side of these rings, namely, that toward which the refraction was made, which by the refraction was rendered distinct, and the other side became more confused than when viewed with the naked eye. \* \* \*

"I have sometimes so laid one object-glass upon the other that to the naked eye they have all over seemed uniformly white, without the least appearance of any of the colored rings; and yet by viewing them through a prism great multitudes of those rings have discovered themselves."

Newton was evidently much struck with these "so odd circumstances," and he explains the occurrence of the rings at unusual thicknesses as due to the dispersing power of the prism. The blue system being more refracted than the red, it is possible under certain conditions that the *n*th blue ring may be so much displaced relatively to the corresponding red ring as at one part of the circumference to compensate for the different diameters. A white stripe may thus be formed in a situation where without the prism the mixture of colors would be complete, so far as could be judged by the eye.

The simplest case that can be considered is when the "thin plate" is bounded by plane surfaces inclined to one another at a small angle. By drawing back the prism (whose edge is parallel to the intersection of the above-mentioned planes) it will always be possible so to adjust the effective dispersing power as to bring the *n*th bars to coincidence for any two assigned colors, and therefore approximately for the entire spectrum. The formation of the achromatic band, or rather central black band, depends indeed upon the same principles as the fictitious shifting of the centre of a system of Fresnel's bands when viewed through a prism.

But neither Newton nor, as would appear, any of his successors has explained why the bands should be more numerous than usual, and under certain conditions sensibly achromatic for a large number of alternations. It is evident that, in the particular case of the wedge-shaped plate above specified, such a result would not occur. The width of the bands for any color would be proportional to  $\lambda$ , as well after the displacement by the prism as before; and the succession of colors formed in white light and the number of perceptible bands would be much as usual.

In the fourth part of the second book of his *Optics* Newton investigates another series of rings, usually (though not very appropriately) known as the colors of thick plates. The fundamental experiment is as follows: At the center of curvature of a concave looking-glass, quick-silvered behind, is placed an opaque card, perforated by a small hole through which sunlight is admitted. The main body of the light returns through the aperture; but a series of concentric rings are seen upon the card, the formation of which was proved by Newton to require the coöperation of the two surfaces of the mirror. Thus the diameters of the rings



depend upon the thickness of the glass, and none are formed when the glass is replaced by a metallic speculum. The brilliancy of the rings depends upon imperfect polish of the anterior surface of the glass, and may be augmented by a coat of diluted milk. The rings may also be well observed without a screen in the manner recommended by Stokes. For this purpose all that is required is to place a small flame at the center of the curvature of the prepared glass, so as to coincide with its image. The rings are then seen surrounding the flame and occupying a definite position in space.

The explanation of the rings, suggested by Young, and developed by Herschel, refers them to interference between one portion of light scattered or diffracted by a particle of dust, and then regularly refracted and reflected, and another portion first regularly refracted and reflected and then diffracted at emergence by the same particle. It has been shown by Stokes that no regular interference is to be expected between portions of light diffracted by different particles of dust.

In the memoir of Stokes will be found a very complete discussion of the whole subject, and to this the reader must be referred who desires a fuller knowledge. Our limits will not allow us to do more than touch upon one or two points. The condition of fixity of the rings when observed in air, and of distinctness when a screen is used, is that the systems due to all parts of the diffusing surface should coincide; and it is fulfilled only when, as in Newton's experiments, the source and screen are in the plane passing through the center of curvature of the glass. The objection most frequently brought against the undulatory theory in its infancy was the difficulty of explaining in accordance with it the existence of shadows. Thanks to Fresnel and his followers, this department of optics is now precisely the one in which the theory has secured its greatest triumphs.

The principle employed in these investigations is due to Huygens, and may be thus formulated. If round the origin of waves an ideal closed surface be drawn, the whole action of the waves in the region beyond may be regarded as due to the motion continually propagated across the various elements of this surface. The wave motion due to any element of the surface is called a *secondary wave*, and in estimating the total effect regard must be paid to the phases as well as the amplitudes of the components. It is usually convenient to choose as the surface of resolution a *wave-front*, i.e., a surface at which the primary vibrations are in one phase.

Any obscurity that may hang over Huygens' principle is due mainly to the indefiniteness of thought and expression which we must be content to put up with if we wish to avoid pledging ourselves as to the character of the vibrations. In the application to sound, where we know what we are dealing with, the matter is simple enough in principle, although mathematical difficulties would often stand in the way of the calculations we might wish to make. The ideal surface of resolution may be there regarded as a flexible lamina; and we know that if, by forces locally applied, every element of the lamina be made to move normally to itself exactly as the air at that place does, the external aerial motion is fully determined. By the principle of superposition the whole effect may be found by integration of the partial effects due to each element of the surface, the other elements remaining at rest.

The general explanation of the formation of shadows may also be conveniently based upon Huygens' zones. If the point under consideration be so far away from the geometrical shadow that a large number of the earlier zones are complete, then the illumination, determined sensibly by the first zone, is the same as if there

were no obstruction at all. If, on the other hand, the point be well immersed in the geometrical shadow, the earlier zones are altogether missing, and, instead of a series of terms beginning with finite numerical magnitude and gradually diminishing to zero, we have now to deal with one of which the terms diminish to zero at both ends. The sum of such a series is very approximately zero, each term being neutralized by the halves of its immediate neighbors, which are of the opposite sign. The question of light or darkness then depends upon whether the series begins or ends abruptly. With few exceptions, abruptness can occur only in the presence of the first term, viz., when the secondary wave of least retardation is unobstructed, or when a ray passes through the point under consideration. According to the undulatory theory the light cannot be regarded strictly as traveling along a ray; but the existence of an unobstructed ray implies that the system of Huygens' zones can be commenced, and, if a large number of these zones are fully developed and do not terminate abruptly, the illumination is unaffected by the neighborhood of obstacles. Intermediate cases in which a few zones only are formed belong especially to the province of diffraction.

An interesting exception to the general rule that full brightness requires the existence of the first zone occurs when the obstacle assumes the form of a small circular disk parallel to the plane of the incident waves. In the earlier half of the eighteenth century Delisle found that the center of the circular shadow was occupied by a bright point of light, but the observation passed into oblivion until Poisson brought forward as an objection to Fresnel's theory that it required at the center of a circular shadow a point as bright as if no obstacle were intervening. If we conceive the primary wave to be broken up at the plane of the disk, a system of Huygens' zones can be constructed which begin from the circumference; and the first zone external to the disk plays the part ordinarily taken by the center of the entire system. The whole effect is the half of the first existing zone, and this is sensibly the same as if there were no obstruction.

When light passes through a small circular or annular aperture, the illumination at any point along the axis depends upon the precise relation between the aperture and the distance from it at which the point is taken. If, as in the last paragraph, we imagine a system of zones to be drawn commencing from the inner circular boundary of the aperture, the question turns upon the manner in which the series terminates at the outer boundary. If the aperture be such as to fit exactly an integral number of zones, the aggregate effect may be regarded as the half of those due to the first and last zones. If the number of zones be even, the action of the first and last zones is antagonistic, and there is complete darkness at the point. If, on the other hand, the number of zones be odd, the effects conspire; and the illumination (proportional to the square of the amplitude) is four times as great as if there were no obstruction at all.

The process of augmenting the resultant illumination at a particular point by stopping some of the secondary rays may be carried much further. By the aid of photography it is easy to prepare a plate, transparent where the zones of odd order fall, and opaque where those of even order fall. Such a plate has the power of a condensing lens, and gives an illumination out of all proportion to what could be obtained without it. An even greater effect (fourfold) would be attained if it were possible to provide that the stoppage of the light from the alternate zones were replaced by a phase-reversal without loss of amplitude.

The results of the theory of circular apertures admit of an interesting application to *coronas*, such as are often seen encircling the sun and moon. They are due to the interposition of small spherules of water, which act the part of diffracting obstacles. In order to the formation of a well-defined corona it is essential that the particles be exclusively, or preponderatingly, of one size.

If the origin of light be treated as infinitely small, and be seen in focus, whether with the naked eye or with the aid of a telescope, the whole of the light in the absence of obstacles would be concentrated in the immediate neighborhood of the focus. At other parts of the field the effect is the same, by Babinet's principle, whether the imaginary screen in front of the object-glass is generally transparent but studded with a number of opaque circular disks, or is generally opaque but perforated with corresponding apertures. Consider now the light diffracted in a direction many times more oblique than any with which we should be concerned, were the whole aperture uninterrupted, and take first the effect of a single small aperture. The light in the proposed direction is that determined by the size of the small aperture in accordance with the laws already investigated, and its phase depends upon the position of the aperture. If we take a direction such that the light (of given wavelength) from a single aperture vanishes, the evanescence continues even when the whole series of apertures is brought into contemplation. Hence, whatever else may happen, there must be a system of dark rings formed, the same as from a single small aperture. In directions other than these it is a more delicate question how the partial effects should be compounded. If we make the extreme suppositions of an infinitely small source and absolutely homogeneous light, there is no escape from the conclusion that the light in a definite direction is arbitrary, that is, dependent upon the chance distribution of apertures. If, however, as in practice, the light be heterogeneous, the source of finite area, the obstacles in motion, and the discrimination of different directions imperfect, we are concerned merely with the mean brightness found by varying the arbitrary phase-relations, and this is obtained by simply multiplying the brightness due to a single aperture by the number of apertures. The diffraction pattern is therefore that due to a single aperture, merely brightened  $n$  times.

In his experiments upon this subject Fraunhofer employed plates of glass dusted over with lycopodium, or studded with small metallic disks of uniform size; and he found that the diameters of the rings were proportional to the length of the waves and inversely as the diameter of the disks.

In another respect the observations of Fraunhofer appear at first sight to be in disaccord with theory; for his measures of the diameters of the red rings, visible when white light was employed, correspond with the law applicable to dark rings, and not to the different law applicable to the luminous maxima. Verdet has, however, pointed out that the observation in this form is essentially different from that in which homogeneous red light is employed, and that the position of the red rings would correspond to the *absence* of blue-green light rather than to the greatest abundance of red light. Verdet's own observations, conducted with great care, fully confirm this view, and exhibit a complete agreement with theory.

By measurements of coronas it is possible to infer the size of the particles to which they are due, an application of considerable interest in the case of natural corona—the general rule being, the larger the corona the smaller the water spherules. Young employed this method not only to determine the diameters of cloud particles (e.g.,  $\frac{1}{1000}$  inch), but also those of fibrous

material, for which the theory is analogous. His instrument was called the *eriometer*.

Our investigations and estimates of resolving power have thus far proceeded upon the supposition that there are no optical imperfections, whether of the nature of a regular aberration or dependent upon irregularities of material and workmanship. In practice there will always be a certain aberration or error of phase, which we may also regard as the deviation of the actual wave-surface from its intended position. In general, we may say that aberration is unimportant, when it nowhere (or at any rate over a relatively small area only) exceeds a small fraction of the wave-length.

**TALBOT'S BANDS.**—These very remarkable bands are seen under certain conditions when a tolerably pure spectrum is regarded with the naked eye, or with a telescope, *half the aperture being covered by a thin plate, e.g., of glass or mica*. The view of the matter taken by the discoverer was that any ray which suffered in traversing the plate a retardation of an odd number of half wave-lengths would be extinguished, and that thus the spectrum would be seen interrupted by a number of dark bars. But this explanation cannot be accepted as it stands, being open to the same objection as Arago's theory of stellar scintillation. It is as far as possible from being true that a body emitting homogeneous light would disappear on merely covering half the aperture of vision with a half-wave plate. Such a conclusion would be in the face of the principle of energy, which teaches plainly that the retardation in question leaves the aggregate brightness unaltered. The actual formation of the bands comes about in a very curious way, as is shown by a circumstance first observed by Brewster. When the retarding plate is held on the side toward the red of the spectrum, *the bands are not seen*. Even in the contrary case, the thickness of the plate must not exceed a certain limit, however pure the spectrum may be. A satisfactory explanation of these bands was first given by Airy.

If it be desired to see a given number of bands in the whole or in any part of the spectrum, the thickness of the retarding plate is thereby determined, independently of all other considerations. But in order that the bands may be really visible, and still more in order that they may be black, another condition must be satisfied. It is necessary that the aperture of the pupil be accommodated to the angular extent of the spectrum, or reciprocally. Black bands will be too fine to be well seen unless the aperture of the pupil be somewhat contracted. One-twentieth to one-fiftieth of an inch is suitable. The aperture and the number of bands being both fixed, the condition of blackness determines the angular magnitude of a band and of the spectrum. The use of a grating is very convenient, for not only are there several spectra in view at the same time, but the dispersion can be varied continuously by sloping the grating. The slits may be cut out of tin-plate, and half covered by mica or "microscopic glass," held in position by a little cement.

If a telescope be employed there is a distinction to be observed, according as the half-covered aperture is between the eye and the ocular, or in front of the object-glass. In the former case the function of the telescope is simply to increase the dispersion, and the formation of the bands is of course independent of the particular manner in which the dispersion arises. If, however, the half-covered aperture be in front of the object-glass, the phenomenon is magnified as a whole, and the desirable relation between the (unmagnified) dispersion and the aperture is the same as without the telescope. There appears to be no further advantage in the use of a telescope than the increased facility of



accommodation, and for this of course a very low power suffices.

**POLARIZATION.**—A ray of ordinary light is symmetrical with respect to the direction of propagation. If, for example, this direction be vertical, there is nothing that can be said concerning the north and south sides of the ray that is not equally true concerning the east and west sides. In polarized light this symmetry is lost. Huygens showed that when a ray of such light falls upon a crystal of Iceland spar, which is made to revolve about the ray as an axis, the phenomena vary in a manner not to be represented as a mere revolution with the spar. In Newton's language, the ray itself has *sides*, or is polarized.

Malus discovered that ordinary light may be polarized by reflection as well as by double refraction; and Brewster proved that the effect is nearly complete when the tangent of the angle of incidence is equal to the refractive index, or (which comes to the same) when the reflected and refracted rays are perpendicular to one another. The light thus obtained is said to be polarized in the plane of reflection.

Reciprocally, the character of a polarized ray may be revealed by submitting it to the test of reflection at the appropriate angle. As the normal to the reflecting surface revolves (in a cone) about the ray, there are two azimuths of the plane of incidence, distant  $180^\circ$ , at which the reflection is a maximum, and two others, distant  $90^\circ$  from the former, at which the reflection (nearly) vanishes. In the latter case the plane of incidence is perpendicular to that in which the light must be supposed to have been reflected in order to acquire its polarization.

The full statement of the law of double refraction is somewhat complicated, and scarcely to be made intelligible, except in terms of the wave theory; but, in order merely to show the relation of double refraction in a uniaxial crystal, such as Iceland spar, to polarized light, we may take the case of a prism so cut that the refracting edge is parallel to the optic axis. By traversing such a prism, in a plane perpendicular to the edge, a ray of ordinary light is divided into two, of equal intensity, each of which is refracted according to the ordinary law of Snell. Whatever may be the angle and setting of the prism, the phenomenon may be represented by supposing half the light to be refracted with one index (1.65), and the other half with the different index (1.48). The rays thus arising are polarized—the one more refracted in the plane of refraction, and the other in the perpendicular plane. If these rays are now allowed to fall upon a second similar prism, held so that its edge is parallel to that of the first prism, there is no further duplication. The ray first refracted with index 1.65 is refracted again in like manner, and similarly the ray first refracted with index 1.48 is again so refracted. But the case is altered if the second prism be caused to rotate about the incident ray. If the rotation be through an angle of  $90^\circ$ , each ray is indeed refracted singly; but the indices are exchanged. The ray that suffered most refraction at the first prism now suffers least at the second, and *vice versa*. At intermediate rotation the double refraction reasserts itself, each ray being divided into two, refracted with the above-mentioned indices, and of intensity dependent upon the amount of rotation, but always such that no light is lost (or gained) on the whole, by the separation.

The law governing the intensity was formulated by Malus, and has been verified by the measures of Arago and other workers. If  $\theta$  be the angle of rotation from the position in which one of the rays is at a maximum, while the other vanishes, the intensities are proportional

to  $\cos^2\theta$  and  $\sin^2\theta$ . On the same scale, if we neglect the loss by reflection and absorption, the intensity of the incident light is represented by unity.

A similar law applies to the intensity with which a polarized ray is reflected from a glass surface at the Brewsterian angle. If  $\theta$  be reckoned from the azimuth of maximum reflection, the intensity at other angles may be represented by  $\cos^2\theta$ , vanishing when  $\theta=90^\circ$ .

The phenomena here briefly sketched force upon us the view that the vibrations of light are transverse to the direction of propagation. In ordinary light the vibrations are as much in one transverse direction as in another; and when such light falls upon a doubly refracting, or reflecting, medium, the vibrations are resolved into two definite directions, constituting two rays polarized in perpendicular planes, and differently influenced by the medium. In this case the two rays are necessarily of equal intensity.

When polarized light is transmitted through a moderately thin plate of doubly refracting crystal, and is then analyzed, *e.g.*, with a Nicol, brilliant colors are often exhibited, analogous in their character to the tints of Newton's scale. With his usual acuteness, Young at once attributed these colors to interference between the ordinary and extraordinary waves, and showed that the thickness of crystal required to develop a given tint, inversely proportional to the doubly refracting power, was an agreement with this view. But the complete explanation, demanding a fuller knowledge of the laws of interference of polarized light, was reserved for Fresnel and Arago. The subject is one which admits of great development, but the interest turns principally upon the beauty of the effects, and upon the facility with which many of them may be obtained in experiment.

In general a polarized ray traveling along the axis of a uniaxial crystal undergoes no change; but it was observed by Arago that, if quartz be used in this experiment, the plane of polarization is found to be rotated through an angle proportional to the thickness of crystal traversed. The subject was further studied by Biot, who ascertained that the rotation due to a given thickness is inversely as the square of the wave-length of the light, thus varying very rapidly with the color. In some specimens of quartz (called in consequence right-handed) the rotation is to the right, while in others it is to the left. Equal thicknesses of right and left-handed quartz may thus compensate one another.

Fresnel has shown that the rotation of the plane may be interpreted as indicating a different velocity of propagation of the two circularly-polarized components into which plane-polarized light may always be resolved. In ordinary media the right and left-handed circularly-polarized rays travel at the same speed, and at any stage of their progress recompound a ray rectilinearly-polarized in a fixed direction. But it is otherwise if the velocities of propagation of the circular components be even slightly different.

A remarkable connection has been observed between the rotatory property and the crystalline form. Thus Herschel found that in many specimens the right-handed and left-handed varieties of quartz could be distinguished by the disposition of certain subordinate faces. The crystals of opposite kinds are symmetrical in a certain sense, but are yet not *superposable*. The difference is like that between otherwise similar right and left handed screws. The researches of Pasteur upon the rotatory properties of tartaric acid have opened up a new and most interesting field of chemistry. At that time two isomeric varieties were known—ordinary tartaric acid, which rotates to the right, and racemic acid, which is optically inactive, properties of the acids shared also by the salts. Pasteur found that the crys-



tals of tartaric acid and of the tartrates possessed a right-handed structure, and endeavored to discover corresponding bodies with a left-handed structure. After many trials crystallizations of the double racemate of soda and ammonia were obtained, including crystals of opposite kinds. A selection of the right-handed specimens yielded ordinary dextro-tartaric acid, while a similar selection of the left-handed crystals gave a new variety—levo-tartaric acid, rotating the plane of polarization to the left in the same degree as ordinary tartaric acid rotates it to the right. A mixture in equal proportions of the two kinds of tartaric acid, which differs scarcely at all in their chemical properties, reconstitutes racemic acid.

The possibility of inducing the rotatory property in bodies otherwise free from it was one of the finest of Faraday's discoveries. He found that, if heavy glass, bisulphide of carbon, etc., are placed in a magnetic field, a ray of polarized light, propagated along the lines of magnetic force, suffers rotation. The laws of the phenomenon were carefully studied by Verdet, whose conclusions may be summed up by saying that in a given medium the rotation of the plane for a ray proceeding in any direction is proportional to the difference of magnetic potential at the initial and final points. In bisulphide of carbon, at  $18^{\circ}$  and for a difference of potential equal to unity C. G. S., the rotation of the plane of polarization of a ray of soda light is .0402 minute of angle.

A very important distinction should be noted between the magnetic rotation and that natural to quartz, syrup, etc. In the latter the rotation is always right-handed or always left-handed with respect to the direction of the ray. Hence when the ray is reversed the absolute direction of rotation is reversed also. A ray which traverses a plate of quartz in one direction, and then after reflection traverses the same thickness again in the opposite direction, recovers its original plane of polarization. It is quite otherwise with the rotation under magnetic force. In this case the rotation is in the same absolute direction even though the ray be reversed. Hence, if a ray be reflected backward and forward any number of times along a line of magnetic force, the rotations due to the several passages are all accumulated. The non-reversibility of light in a magnetized medium proves the case to be of a very exceptional character, and (as was argued by Thomson) indicates that the magnetized medium is itself in rotatory motion independently of the propagation of light through it.

The theory of the diffraction, dispersion, or scattering of light by small particles, as it has variously been called, is of importance, not only from its bearings upon fundamental optical hypotheses, but on account of its application to explain the origin and nature of the light from the sky. The view, suggested by Newton and advocated in more recent times by such authorities as Herschel and Clausius, that the light of the sky is a blue of the first order reflected from aqueous particles, was connected with the then prevalent notion that the suspended moisture of clouds and mists was in the form of vesicles or bubbles. Experiments such as those of Brücke pointed to a different conclusion. When a weak alcoholic solution of mastic is agitated with water, the precipitated gum scatters a blue light, obviously similar in character to that from the sky. Not only would it be unreasonable to attribute a vesicular structure to the mastic, but (as Brücke remarked) the dispersed light is much richer in quality than the blue of the first order. Another point of great importance is well brought out in the experiments of Tyndall upon clouds precipitated by the chemical action of light. Whenever the particles are sufficiently fine, the light emitted

laterally is blue in color, and in a direction perpendicular to the incident beam, is *completely polarized*.

About the color there can be no *prima facie* difficulty; for as soon as the question is raised, it is seen that the standard of linear dimension, with reference to which the particles are called small, is the wave-length of light, and that a given set of particles would (on any conceivable view as to their mode of action) produce a continually increasing disturbance as we pass along the spectrum toward the more refrangible end.

On the other hand, that the direction of complete polarization should be independent of the refracting power of the matter composing the cloud has been considered mysterious. Of course, on the theory of thin plates, this direction would be determined by Brewster's law; but if the particles of foreign matter are small in all their dimensions, the circumstances are materially different from those under which Brewster's law is applicable.

The investigation of this question upon the elastic solid theory will depend upon how we suppose the solid to vary from one optical medium to another. The slower propagation of light in glass or water than in air or vacuum may be attributed to a greater density, or to a less rigidity, in the former case; or we may adopt the more complicated supposition that both these quantities vary, subject only to the condition which restricts the ratio of velocities to equality with the known refractive index.

According to the principles of the wave theory, the dispersion of refraction can only be explained as due to a variation of velocity with wave-length or period. In aerial vibrations, and in those propagated through an elastic solid, there is no such variation; and so the existence of dispersion was at one time considered to be a serious objection to the wave theory. Dispersion *in vacuo* would indeed present some difficulty, or at least force upon us views which at present seem unlikely as to the constitution of free ether. The weight of the evidence is, however, against the existence of dispersion *in vacuo*. "Were there a difference of one hour in the times of the blue and red rays reaching us from Algol, this star would show a well-marked coloration in its phases of increase and decrease. No trace of coloration having been noticed, the difference of times cannot exceed a fraction of an hour. It is not at all probable that the parallax of this star amounts to one-tenth of a second, so that its distance, probably, exceeds 2,000,000 radii of the earth's orbit, and the time which is required for its light to reach us probably exceeds thirty years, or 250,000 hours. It is therefore difficult to see how there can be a difference as great as four parts in a million between the velocities of light coming from near the two ends of the bright part of the spectrum."

For the velocity of light *in vacuo*, as determined in kilometres per second by terrestrial methods (see LIGHT), Newcomb gives the following tabular statement:—

Michelson, at Naval Academy, in 1879.....	299,910
Michelson, at Cleveland, 1882.....	299,853
Newcomb, at Washington, 1882, using only results supposed to be nearly free from constant errors.....	299,860
Newcomb, including all determinations.....	299,810

To these may be added, for reference—

Foucault, at Paris, in 1862.....	298,000
Cornu, at Paris, in 1874.....	298,500
Cornu, at Paris, in 1878.....	300,400
This last result, as discussed by Listing.....	299,990
Young and Forbes, 1880-1881.....	301,387

Newcomb concludes, as the most probable result—  
Velocity of light *in vacuo* = 299,860  $\frac{1}{30}$  kilometres.

It should be mentioned that Young and Forbes inferred from their observations a difference of velocities



of blue and red light amounting to about 2 per cent., but that neither Michelson nor Newcomb, using Foucault's method, could detect any trace of such a difference.

The limits of this article do not permit the consideration of the more speculative parts of our subject. We will conclude by calling attention to a recent experimental research by Michelson, the results of which cannot fail to give valuable guidance to optical theorists.

This was a repetition under improved conditions of a remarkable experiment of Fizeau, by which it is proved that when light is propagated through water, itself in rapid movement in the direction of the ray, the velocity is indeed influenced, but not to the full extent of the velocity of the water.

WAX is a solid fatty substance of animal and vegetable origin, allied both in sources and constitution to the fixed oils and fats. From fats or solid oils wax differs principally in its greater hardness and higher melting-point; but in the strictly chemical sense, while oils and fats are glycerides, a true wax contains no glycerine, but is a combination of fatty acids with certain solid monatomic alcohols. Of wax from animal sources there are in commerce beeswax, which forms wax *par excellence*, Chinese insect wax, and spermaceti. The more important vegetable waxes are Japanese wax, myrtle-berry wax, carnauba wax, and palm wax.

*Beeswax* is secreted by all honey bees, and by them formed into the cell walls, etc., of their comb. It is separated by draining the honey, melting the drained comb in boiling water, and collecting the wax which solidifies on the top as the water cools. In this state it is formed into cakes of raw or yellow wax, good examples of which are of a light yellow color, translucent, with a faint pleasant odor of honey. At ordinary temperatures it breaks with a granular fracture, and in thin flakes or pellets it softens with the heat of the hand and can be kneaded between the fingers. Its specific gravity is 0.960; it melts at about 62° C., and solidifies just under its melting-point without evolution of heat. It is soluble in hot ether, essential and fixed oils, benzol, bisulphide of carbon, and chloroform, and to some extent in boiling alcohol, but it is unaffected by water and cold alcohol. Yellow wax, on account of the coloring matter and other contaminations it contains, is unfit for many uses. The chief of these is candle-making. To remove soluble matter it is first melted over boiling water; and for bleaching it is formed into thin shreds and strips so as to expose the greatest possible surface. So prepared, it is spread out and frequently watered and turned in the direct sunlight, a slow but effective process. To hasten the bleaching action, the wax may be mixed with about one-sixth of pure spirit of turpentine; and this preparation, on exposure, by its copious production of ozone, effects in four or five days a bleaching which otherwise would occupy three or four weeks. When the bleaching is complete all trace of turpentine oil will have disappeared. Bleaching may also be effected by chlorine, permanganate of potash, and other chemicals, but these injuriously affect the wax, in some cases forming substitution products which cannot be removed, and which in burning give off deleterious fumes. Wax is obtained in all parts of the world where there is vegetation sufficient to support bees; but it is most largely forthcoming from tropical and subtropical regions. It is subject to extensive adulteration from powdered mineral substances, flour, cheaper waxes, paraffin, etc. Its uses are multifarious; but it is most largely consumed in making candles for the religious services of Roman Catholic and Orthodox Greek Christians, and for wax figures and models (see **WAX FIGURES**).

*Chinese Insect Wax*, or *Pe La*, is a secretion deposited by an insect, *Coccus ceriferus*, Fabr., in the twigs of a species of ash. The wax is, in its origin and the functions it performs in the insect economy, closely related to the lac produced by the allied species of *Coccus* (see LAC). When separated from the twigs which it incrusts, and purified, it is a hard translucent white crystalline body, similar to spermaceti. It melts at from 82° to 86° C., and in composition consists of cerin, one of the constituents of beeswax. It is little known in European commerce, but forms a highly important article of trade in China and Japan, where it is largely used for candle-making and for medicinal purposes.

*Japanese Wax* is a hard, wax-like fat which now forms an important export from Japan. It is obtained from the small stone fruits of several species of *Rhus* cultivated in Japan. For the extraction of the wax, which is present to the extent of about 20 per cent., the fruits are ground and treated by either of three methods—(1) heating and pressure, (2) boiling in water, and (3) maceration with ether or bisulphide of carbon. The wax is subsequently bleached, and as it comes into the market, consists of yellowish hard cakes, covered often with a fine white powdery efflorescence. It has a resinous, unpleasant, rancid odor.

*Myrtle-Berry Wax* is obtained from the fruit of several species of *Myrica* in the United States, New Granada, Venezuela, the Cape of Good Hope, and other regions. It is a hard, greenish substance, with a pleasant balsamic odor. Its melting-point is about 45° C., and it consists principally of free palmitic acid with a little stearic acid and myristic acid—a very small proportion of these being combined as glycerides. It is consumed principally in the United States in combination with beeswax for candles; and it is said the Hottentots eat it like cheese.

*Carnauba Wax* is an exudation on the surface of the growing leaves of the carnauba palm, *Corypha cerifera*, L., which flourishes in tropical South America. The wax is obtained by cutting off and drying the young leaves, from which it is then shaken as fine dust, and caked by melting either over an open fire or in boiling water.

*Palm-Tree Wax* is an exudation formed on the stems of two South American palms, *Ceroxylon andicola*, H. and K., and *Klopfstockia cerifera*, Kars. As scraped from the trees and compacted by melting, it is a mixture of resin and wax, having a melting-point as high as 102° to 105° C. The pure wax may be separated by digesting with boiling spirit, when it is obtained with a melting-point of 72° C. and a composition analogous to carnauba wax, like which it is used for candles.

WAXY DEGENERATION is a morbid process in which the healthy tissue of various organs is transformed into a peculiar substance, allied in some respects to amyloid compounds, and in others to albuminous substances. Organs affected by this degeneration have a certain resemblance in consistency and physical character to wax. They may be cut into portions of the most regular shape, with sharp angles and smooth surfaces; and the thinnest possible slices may be removed by a knife for microscopic examination. Such organs are abnormally translucent, increased in volume, solidity and weight. Usually, the first parts affected by this degeneration are the small blood vessels, the middle or muscular coat first being changed. Subsequently the secreted cells become similarly affected. When a solution of iodine is brought in contact with such tissues, a very deep violet red color is produced; and this deep red color is alone a sufficiently characteristic test

Although amyloid degeneration is common to many tissues and organs, the parts most frequently affected are the spleen, liver, and kidneys. This morbid condition in one or more organs is the expression of a general pathological state, the conditions and relations of which are as yet little known.

**WAX FIGURES.** Beeswax is possessed of properties which render it a most convenient medium for preparing figures and models, either by modeling or by casting in molds. At ordinary temperatures it can be cut and shaped with facility; it melts to a limpid fluid at a low heat; it mixes with any coloring matter, and takes surface tints well; and its texture and consistency may be modified by the addition of earthy matters and oils or fats. When molten, it takes the minutest impressions of a mold, and it sets and hardens at such a temperature that no ordinary climatic influences affect the form it assumes, even when it is cast in thin laminae. The facilities which wax offers for modeling have been taken advantage of from the remotest times. Figures in wax of their deities were used in the funeral rites of the ancient Egyptians, and deposited among other offerings in their graves; many of these are now preserved in museums. That the Egyptians also modeled fruits can be learned from numerous allusions in early literature. Among the Greeks during their best art period, wax figures were largely used as dolls for children; statuettes of deities were modeled for votive offerings and for religious ceremonies, and wax images to which magical properties were attributed were treasured by the people. Wax figures and models held a still more important place among the ancient Romans. The practice of wax modeling can be traced through the Middle Ages, when votive offerings of wax figures were made to churches, and the memory and lineaments of monarchs and great personages were preserved by means of wax masks as in the days of Roman patricians. In these ages malice and superstition found expression in the formation of wax images of hated persons, into the bodies of which long pins were thrust, in the confident expectation that thereby deadly injury would be induced to the person represented; and this belief and practice continued till the seventeenth century.

About the end of the eighteenth century Flaxman executed in wax many portraits and other relief figures which Josiah Wedgwood translated into pottery for his jasper ware. The modeling of the soft parts of dissections, etc., for teaching illustrations of anatomy was first practiced at Florence, and is now very common. Such preparations formed part of a show at Hamburg in 1721, and from that time wax-works, on a plane lower than art, have been popular attractions. These exhibitions consist principally of images of historical or notorious personages, made up of waxen masks on lay figures in which sometimes mechanism is fitted to give motion to the figure.

**WAX MINERAL** is a natural product known under the name of ozokerit. It used only to be found in small quantities oozing from rocks of coal formation near Edinburgh, candles as curiosities being made of it by the miners; but this hydrocarbon is now got near Newcastle, in Wales, in Galicia, in Roumania. In Utah and California it has now become an important article commercially, for the manufacture of candles. When found it has a dark, rich brown color, slightly greenish and translucent in thin films; but when refined it resembles well bleached bees-wax. Its melting point is about sixty degrees.

**WAXWING**, a bird first so-called apparently by Selby in 1825, having been before known as the "Silk-tail"—a literal rendering of the German *Seidenschwanz*

—or "Chatterer"—the prefix "German," "Bohemian," or "Waxen" being often also applied. Selby's convenient name has now been generally adopted, since the bird is readily distinguished from almost all others by the curious expansion of the shaft of some of its wing-feathers at the tip into a flake that looks like scarlet sealing-wax, while its exceedingly silent habit makes the name "Chatterer" wholly inappropriate, and indeed this last arose from a misinterpretation of the specific term *garrulus*, meaning a Jay (from the general resemblance in color of the two birds), and not referring to any garrulous quality. It is the *Ampeelis garrulus* of Linnaeus and of more recent ornithologists. It is now pretty evident that the Waxwing, though doubtless breeding yearly in some parts of northern Europe, is as irregular in the choice of its summer-quarters as in that of its winter-retreats. Moreover, the species exhibits the same irregular habits in America. Mr. Drexler on one occasion, in Nebraska, saw it in "millions." In 1861 Kennicott found it breeding on the Yukon, and later Mr. MacFarlane had the like good fortune on the Anderson river.

Beautiful as is the bird with its drooping crest, its cinnamon brown plumage, passing in parts into gray or chestnut, and relieved by black, white, and yellow—all of the purest tint—the external feature which has invited most attention is the "sealing-wax" (already mentioned) which tips some of the secondary or radial quills, and occasionally those of the tail. This is nearly as much exhibited by the kindred species, *A. cedrorum*—the well-known Cedar-bird in North America—which is easily distinguished by its smaller size, less black chin-spot, the yellower tinge of the lower parts, and the want of white on the wings. In the *A. phainopterus* of southeastern Siberia and Japan, the remiges and rectrices are tipped with red in the ordinary way without dilatation of the shaft of the feathers.

Both the Waxwing and Cedar-bird seem to live chiefly on insects in summer, but are marvelously addicted to berries during the rest of the year, and will gorge themselves if opportunity allow. Hence they are not pleasant cage-birds, though quickly becoming tame.

**WEALTH.** The most commonly accepted definition of wealth is that it consists of all useful and agreeable things which possess exchange value, and this again is generally regarded as coextensive with all desirable things except those which do not involve labor or sacrifice for their acquisition in the quantity desired. On analysis it will be evident that this definition implies, directly, preliminary conceptions of utility and value, and indirectly, of sacrifice and labor, and these terms, familiar though they may appear, are by no means simple and obvious in their meaning. Utility, for the purposes of economic reasoning, is usually held to mean the capacity to satisfy a desire or serve a purpose (J. S. Mill), and in this sense is clearly a much wider term than wealth. Sunshine and fresh air, good temper and pleasant manners, and all the infinite variety of means of gratification, material and immaterial, are covered by utility as thus defined. Wealth is thus a species of utility, and in order to separate it from other species some *differentia* must be found. This, according to the general definition, is exchange value, but a little reflection will show that in some cases it is necessary rather to contrast value with wealth. "Value," says Ricardo, expanding a thought of Adam Smith, "essentially differs from riches, for value depends not on abundance, but on the difficulty or facility of production." Suppose that in the total money value of the national inventory, a decline were observed to be in progress, while at the same time, as is quite possible, an increase was noticed in the quantity of all the



important items and an improvement in their quality, it would be in accordance with common sense to say that the wealth of the country was increasing and not decreasing.

So great are these difficulties that some economists (e.g., Ricardo) have proposed to take utility as the direct measure of wealth, and, as Mr. Sidgwick has pointed out, if double the quantity meant double the utility, this would be an easy and natural procedure. But even to the same individual the increase in utility is by no means simply proportioned to the increase in quantity, and the utility of different commodities to different individuals, and *a fortiori* of different amounts, is proverbial. The very same things may to the same individual be productive of more utility, simply owing to a change in his tastes or habits, and a different distribution of the very same things, which make up the wealth of a nation, might indefinitely change the quantity of utility, but it would be paradoxical to say that the wealth had increased because it was put to better uses.

We thus seem thrown back on value as the essential characteristic, allowance being made for any change in the standard of value; but there are still difficulties to be overcome. Some things that undoubtedly possess value or that can command a price, are immaterial, e.g., the advice of a lawyer or physician or the song of a *prima donna*, and, although perhaps the skill of a workman (in any grade of the social scale) might be considered as attached to the man, as a coal mine is attached to a place, it is more in accordance with popular usage to consider skill as immaterial, while at the same time it seems equally natural *prima facie* to confine the term wealth to material things in the common sense. Again, the credit system of a country is a product of great labor and sacrifice; it is most closely connected with the production of its material wealth in the narrowest sense, and it certainly commands a pecuniary value, and yet credit is more generally held to be a representative rather than a part of wealth, owing apparently to its unsubstantial character. Apart from the question of materiality some writers have insisted on relative permanence and possibility of accumulation as essential attributes of wealth, and have thus still further narrowed the scope of the definition.

Applying these rules to the definition of wealth, perhaps the best solution is that which is generally connected with German economists (e.g., Held). Wealth consists of utilities, and in the first great department of economics—the *consumption* of wealth—it is utility with which we are principally concerned—the idea of value, for example, being overshadowed. The most general law of the consumption of wealth is that successive portions of any stock give a diminishing amount of utility when consumed. Then in the department of the *production* of wealth the most important characteristics are the labor and sacrifice necessary to put the utilities desired into the things and to place the things where they are wanted. The idea of value is again secondary and subordinate. In the department of the *distribution* of wealth, the fundamental conception is the right of appropriation; and accordingly J. S. Mill very properly commences this part of his subject by an account of the relative advantages of the socialistic and individual systems of property. It is quite possible under the former to conceive of all the distribution being made without any exchange and with reference simply to the wants or the deserts of the members of the society. Thus it is not until we arrive at the department of the *exchange* of wealth that the characteristic of *value* becomes predominant, although of course *value* is closely connected with utility and labor and sacrifice.

Usually, however, it will be found that in most cases anything which can fairly be classed as wealth in one department is also wealth in the others, and thus the definition is reached that wealth in general consists of all "consumable utilities which require labor for their production and can be appropriated and exchanged."

**WEANING AND FEEDING IN INFANCY.** The propriety of mothers nursing their own children is so universally acknowledged that it is the duty of the physician less frequently to urge maternal nursing than to indicate those cases in which it becomes necessary to substitute another mode of rearing the infant. Women who labor under any mortal or weakening disease are obviously disqualified from the office of nurse. Some who are in other respects healthy have breasts incapable of secreting a sufficient supply of milk. In other instances the breasts may perform their functions well, but the nipple may be naturally so small, or may be so obliterated by the pressure of tight stays, as not to admit of its being laid hold of by the child. These are actual physical hindrances to nursing. Again, women may, and in the higher classes do, possess such extremely sensitive and excitable temperaments as will render it imprudent for them to suckle their own children. Frightened and excited by every accidental change in the infant's countenance, and inordinately moved by the common agitations of life, such persons are kept in a state of continual fever which materially interferes with the formation of milk, both as to quality and quantity. Women who become mothers at a late period of life have seldom the flexibility of disposition or the physical aptitude for the secretion of milk required to constitute a good nurse. In ordinary cases the child should be put to the breast as soon as the latter begins to contain anything; and then, if the secretion of milk has fairly commenced, it will require no other food until the seventh or eighth month, provided the mother be a good nurse. During the first five or six months the infant should be put to the breast at regular intervals of about four hours; after the teeth begin to appear the child need not suck more than four times in twenty-four hours, some artificial food being given to it twice during the same period. This at first may consist of bread steeped in hot water, with the addition of sugar and cow's milk, and subsequently a little broth, free from salt, and vegetables given once a day. The spoon is now the best medium of feeding, as the food should be more solid than could be drawn through the sucking bottle. The time for weaning should be that indicated by nature, when, by providing the child with teeth, she furnishes it with the means of obtaining its nourishment from substances more solid than milk. If the infant has been accustomed to a gradually diminished supply of maternal and an increase of artificial food, weaning will be a comparatively easy process, and much of that suffering, both to parent and child, will be spared, which commonly ensues when a sudden change is made. In ordinary cases the period of weaning varies from the seventh to the twelfth month; sometimes the child is kept at the breast for a much longer period from the popular idea that lactation prevents pregnancy, but such unusually prolonged lactation is usually injurious to both mother and child.

In those cases in which it is inexpedient and impossible for a mother to suckle her own child, the choice of a wet nurse becomes a subject of much importance. Upon this subject Doctor Maunsell lays down the following practical and important rules: "The great thing we have to look at is to ascertain that both the woman and her child are in good health, and of this we must endeavor to judge by the following signs; the woman's general appearance and form should be observed, and

they ought to be such as betoken a good constitution. Her skin should be free from eruptions, her tongue clean, indicating a healthy digestion; her gums and teeth should be sound and perfect; the breasts should be firm and well formed, not too large or flabby, and with perfect, well developed nipples. We should see that the milk flows freely upon a slight pressure; and we should allow a little of it to remain in a glass in order that we might judge its quality. It should be thin and of a bluish white color, sweet to the taste, and when allowed to stand, should throw up a considerable quantity of cream. A nurse should not be old, but it is better that she should have one or two children before, as she will then be likely to have more milk, and may be supposed to have acquired more experience in the management of infants. Having examined the mother, we must next turn to the child, which should be well nourished, clean and free from eruptions, especially on the head and buttocks. We should also examine its mouth to ascertain that it is free from sores or aphthae. If both woman and child bear such an examination, we may with tolerable security pronounce the former a good nurse." In one respect we differ from this eminent physician. He holds that "the more recently the nurse's confinement has taken place, provided she has recovered from its effects, the better." Supposing a nurse is required for a new born infant, this rule holds good; but provided a nurse is required for an infant three or four months old (for example), it is preferable to obtain a nurse whose milk is that age. We believe it is a general physiological law that the milk should correspond with the age of the infant, that is to say that the infant taken at any given age from its mother, before the normal period of weaning, should be provided with a nurse who was confined about the same time as its own mother.

A wet nurse should be preferred to any kind of artificial feeding; but peculiar cases may occur in which it is impossible to procure a wet nurse; or an infant whose mother is capable of nursing it may be the subject of a disease that may be transmitted through the infant to the nurse. In these cases a food must be provided as nearly as possible resembling the natural food, and this is generally sought for among the food of animals. The milk of the cow is most generally used in consequence of its being most easily obtained. The most important difference between cow's milk and woman's milk is the great excess of casein in the former. The former fluid may, however, be made to resemble the latter in composition in either of the following ways: (1) on gently heating the cow's milk, a membrane of casein forms on the surface: by removing two or three of these membranes as they form we can reduce the quantity of casein to the desired extent; or (2) we may dilute cow's milk with twice its bulk of pure water, and add a little sugar. This food should be administered at a natural temperature (of about 98°) through a sucking bottle; and as the child grows older it will soon be able to take natural cow's milk without inconvenience. The rules regarding the times, etc., for feeding, are similar to those laid down for suckling. Assuming that the infant, whether brought up at the breast or artificially reared, has been safely weaned, we have to consider what rules should be laid down regarding its food subsequently. For some months after weaning the food should consist of semi-fluid substances, such as milk thickened with baked flour, or pap, to which a little sugar should be added. Light broths should also be administered, especially in the occasional cases in which milk seems to disagree, and bread and butter may be tried in small quantity. We shall conclude this article with the following "model of a suitable diet for children" which can-

not be too strongly impressed upon the minds of all young mothers. A healthy child of two or three years old commonly awakes at five or six o'clock in the morning hungry and thirsty, and sometimes even earlier. Immediately after awakening a little bread and milk should be given to it (or when the child is too young a little bread pap). The latter should be warm, but in the former case the bread may be eaten from the hand and the milk allowed to be drank cold, as it is well at this meal to furnish no inducement for eating beyond that of hunger. After eating, the child will generally sleep again for an hour or two; and about nine o'clock it should get its second meal of bread softened in water, which latter is to be drained off and a little milk and sugar added to the bread. Between one and two the child may have dinner, consisting at the younger ages of beef, mutton, or chicken broth (deprived of all fat), and bread. When a sufficient number of teeth are developed to admit of chewing being performed, a little animal food, such as chicken or roast or broiled mutton, or beef, not too much dressed, can be allowed, with a potato, or bread, or some kind of vegetable. After dinner some drink will be requisite: and a healthy child requires and indeed wishes for nothing but water. Light, fresh table beer would not be injurious to a child four or five years old, but it is unnecessary. Between six and seven o'clock the child may have its last meal of bread steeped in water, etc., as at nine o'clock in the morning. A healthy child which has been in the open air the greater part of the day, will be ready for bed shortly after this last supply, and will require nothing more until the next morning. Similar regimen and hours may be adopted throughout the whole period of childhood, only as the fifth year approaches giving for breakfast and supper bread and milk without water and either warm or cold, according to the weather and the child's inclination. The supply of food upon awakening in the morning may be gradually discontinued, and breakfast be given somewhat earlier.

**WEASEL.** The smallest species of the group of animals of which the polecat and stoat are well-known members (see MAMMALIA). It is *Mustela vulgaris* of Linnaeus, but belongs to the section (*Putorius*) of the genus.

The weasel is an extremely elegant little animal, with elongated slender body, the back generally much arched, the head small and flattened, ears short and rounded, neck long and flexible, limbs very short, five toes on each foot, all with sharp, compressed, curved claws, tail rather short, slender, cylindrical, and pointed at the tip, fur short and close. The upper parts, outside of limbs and tail, are a uniform reddish-brown, the under parts pure white. In very cold regions, both in Europe and America, it turns completely white in winter, but less regularly and at a lower temperature than its near ally the stoat or ermine, from which it is easily distinguished by its smaller size, and by its wanting the black end of the tail. The length of the head and body of the male is usually about eight inches, that of the tail two and one-half inches; the female is smaller. The common weasel is pretty generally distributed throughout Europe, Northern and Central Asia, British North America, and the northern portions of the United States. Mice, rats, voles, and moles, as well as frogs, constitute its principal food. It is generally found on or near the surface of the ground, but it can not only pursue its prey through very small holes and crevices of rocks and under dense tangled herbage, but follows it up the stems and branches of trees, or even into the water, swimming with perfect ease.

It constructs a nest of dried leaves and herbage.



placed in a hole in the ground or a bank or hollow tree, in which it brings up its litter of four to six (usually five) young ones. The mother will defend her young with the utmost desperation against any assailant, having been often known to sacrifice her own life rather than desert them.

WEATHERFORD, capital of Parker county, Tex., is located on the Texas Pacific railroad, 65 miles west of Dallas, 200 miles north of Austin, 31 miles from Fort Worth, and 11 miles from the Brazos river. The country in the vicinity, though hilly, is highly cultivated; and the location of extensive stock ranches, makes Weatherford a trade center and shipping point of great importance, as also the scene of business transactions involving large amounts. The city contains three banks, two weekly papers, schools, churches, hotels, stores, commission and warehouses, also a court house and county offices. Besides the manufactures proper, which include large and varied lines of production, principal among which are lumber, castor oil, flour, canned goods, candy, etc., the city is the shipping point for the cotton grown in Parker and adjoining counties, and much of the annual crop is ginned, sampled, and otherwise prepared for market at Weatherford, an additional and potent factor in promoting the city's prosperity. The population in 1900 was reported at 4,786.

WEAVER-BIRD, the name by which a group of between 200 and 300 species are now usually called, from the elaborately interwoven nests that many of them build, some of the structures being of the most marvelous kind. By the older systematists such of these birds as were then known were distributed among the genera *Oriolus*, *Loxia*, *Emberiza*, and *Fringilla*, and it was Cuvier who in 1817 first brought together these dissevered forms, comprising them in a genus *Ploceus*. Since his time others have been referred to its neighborhood, and especially the genus *Vidua* with its allies, so as to make them a Subfamily *Ploceina*, which in 1847 was raised by Professor Cabanis to the rank of a Family *Ploceidae*.

Where so many forms are concerned, only a few of the most important can now be mentioned. The type of Cuvier's genus is certainly the *Loxia philippina* of Linnaeus, so termed from the islands it inhabits. But the typical Weaver-bird of Latham (not that he had the name in that precise form) is the *Phylanthornis cucullata* or *texor* of modern writers, an African species, and it is to the Ethiopian region that by far the greatest number of these birds belong, and in it they seem to attain their maximum of development. They are all small, with, generally speaking, a Sparrow-like build; but in richness of coloring the males of some are very conspicuous—glowing in crimson, scarlet, or golden-yellow, set off by jet-black, while the females are usually dull in hue. Some species build nests that are not very remarkable, except in being almost invariably domed—others (such as the Philippine Weaver-bird, *Ploceus philippinus*, just named) fabricate singular structures of closely and uniformly interwoven tendrils or fine roots, that often hang from the bough of a tree over water, and, starting with a solidly wrought rope, open out into a globular chamber, and then contract into a tube several inches in length, through which the birds effect their exit and entrance. But the most wonderful nests of all, and indeed the most wonderful built by birds, are those of the so-called Sociable Grosbeak, *Philetarus socius*, of Africa. These are composed wholly of grass, and are joined together to the number of 100 or 200—indeed 320 are said to have been found in one of these aggregated masses, which usually take the form of a gigantic mushroom, affording a home and nursery to many pairs of the birds which have been

at the trouble of building it. These nests, however, have been so often described and figured by South-African travelers that there is no need here to dilate longer on their marvels.

The group of Widow-birds, *Vidua*, is remarkable for the extraordinary growth of the tail-feathers in the males at the breeding-season. In the largest species, *Vidua* (sometimes called *Chera*) *progne*, the cock-bird, which, with the exception of a scarlet and buff bar on the upper wing-coverts, is wholly black, there is simply a great elongation of the rectrices; but in *V. paradisica* the form of the tail is quite unique. The middle pair of feathers have the webs greatly widened, and through the twisting of the shafts their inferior surfaces are vertically opposed. These feathers are comparatively short, and end in a hair-like filament. The next pair are produced to the length of about a foot—the bird not being so big as a Sparrow—and droop gracefully in the form of a sickle.

WEAVING is the art of forming cloth by the interlacing of yarn or other filaments in a loom. In weaving, two kinds or sets of yarn are used, the warp and the weft. The warp consists of the threads of yarn which extend generally but not always in parallel lines from end to end the whole length of the web; the weft yarn crosses and intersects the warp at right angles, and fills up the breadth of the web. The warp is mounted on the loom for weaving, and into it the weft is thrown by means of a shuttle.

To appearance the varieties of woven cloth are endless; but these differences are only in part due to the method of weaving. The textile materials employed, the methods used in spinning and preparing yarns, the dye colors resorted to, and the finishing processes, may vary indefinitely and so contribute to give variety of character to the resultant product. The complexities of the art of weaving itself are reducible to a few fundamental operations, which do not of necessity demand the most intricate mechanism.

The series of inventions which have led up to the marvelously ingenious looms of the present day began with the invention of the fly shuttle, so called because of the rapidity of its motion, by John Kay of Bury in 1733. Previous to Kay's time the shuttle was thrown by the weaver's hand across and through the warp threads from side to side of the web. His invention brought the plain hand-loom practically into the form in which it continues at present.

The Jacquard apparatus is the most important and ingenious appliance which has ever been adapted to weaving, since by its agency it has become possible to produce the most intricate and extended patterns with the same certainty and with almost as much rapidity as plain cloth. The credit of introducing and making the machine a practical success—if not the whole honor of the invention—is due to Joseph Marie Jacquard (*q.v.*) of Lyons. Attention was first directed to this ingenious artisan by a model of a net-making machine invented by him, which was deposited in the Conservatoire des Arts et Métiers. He was requested in 1801 by Napoleon to examine and improve on a complicated loom, and thereupon he undertook to produce a simple appliance to supplant the involved mechanism.

The fundamental principle of the Jacquard apparatus is simple, although in its working fine mechanical details are essential. Its object is to effect the raising of any number of separate leashes, corded leashes, or heddles, in any order and succession, without special tying of harness.

The first loom in which all the motions in weaving were connected and controlled by one motive power was the ribbon loom, known also as the Dutch or

**Dutch engine loom.** A machine in which four to six pieces could be woven simultaneously is recorded to have been in existence in Dantzic in the last quarter of the sixteenth century. In 1745 John Kay, inventor of the fly shuttle, and Joseph Stell patented improvements on the Dutch engine loom, which they said "may go or be worked by hands, water, or any other force." The ribbon loom may be regarded as a series of distinct looms mounted within one frame, each having its own warp and cloth beams, heddles, and shuttle, but all worked by one set of treadles and with a single batten. The shuttles are thrown across the narrow web by a rack-and-pinion arrangement; they are simultaneously shot, and each occupies the place of its next neighbor to the right or left alternately. The Jacquard apparatus and the drop-box arrangement for changing shuttles with change of weft are applied to the ribbon loom.

The application of power to the weaving of ordinary webs has developed along a different line, and the common power-loom has nothing to do with the ribbon loom. The loom made in 1745 by Vaucanson, which also foreshadowed the Jacquard apparatus, embodied many improvements on the conception of De Gennes, and presented some of the important features of the modern power-loom. The practical realization of automatic weaving was, however, deferred for forty years, and the world owes it to a clergyman of the Church of England, the Rev. Dr. Edmund Cartwright. (See COTTON.) Doctor Cartwright's original loom was but an imperfect machine, although his patent was minute and detailed. The power-loom fought its way to supremacy but slowly, for an imperfect power-loom is no better than a hand-loom; and it was only after the minor adaptations and adjustments which frequently make the difference between success and failure were brought into operation, that the real advantages of power-loom weaving became obvious. Even yet, for many purposes, the power-loom has not succeeded in supplanting the hand-loom weaving.

For the successful working of a power-loom several adjustments are necessary which are not required in the case of the hand-loom. The hand-loom weaver winds up his web on the cloth beam from time to time as the work progresses, and he moves forward the temples by which the woven fabric is kept extended to its proper breadth. In the power-loom these must be accomplished automatically, and the motions must be self-adjusting with the progress of weaving. More important still, a self-acting appliance must be provided to stop the motion of the loom in case of the weft thread becoming exhausted or being broken. This is secured by a delicate and ingenious contrivance called the "fork-and-grid stop motion," which depends for its action on the lightly balanced prongs of a fork. These prongs come in contact with the weft thread between the selvedge of the web and the shuttle box each time the shuttle is shot to the side at which the apparatus is fixed. If the prongs meet no thread they are not thrown up, and being unmoved, a connection is formed to the moving lay, and by a system of levers the loom is immediately thrown out of gear and stopped. Equally essential is it to provide means to stop the loom should the shuttle stick in the warp or otherwise fail to be carried from side to side of the lay. It is clear that, should the lay beat up with the shuttle sticking in the weft, there would ensue complete wreck of the warp. There are two ways of dealing with such a contingency. The first, invented in 1796 by Miller of Glasgow, is the "stop-rod motion," the action of which depends on the shuttle raising, as it enters the shuttle-box, a catch, which if left down would strike

against a frog or stop, and so throw the loom out of gear. The second device is the loose reed, in which there is an appliance for liberating the lower part of the reed when any obstruction is met in the warp, and thereby preventing a blow being given by the beating-up motion.

For many purposes the weaving of double cloth is important. It permits of the formation of a ground of inferior material with a surface of finer texture; and it affords great scope for the formation of colored patterns, allowing of the production of double-faced textures, which may or may not correspond in pattern according to pleasure. It moreover increases the thickness and weight of woven fabrics, and it is the basis of tubular weaving, such as is practiced for making hose, tubes, seamless sacking, etc.

**Piled fabrics** are textures woven with a looped or otherwise raised surface. Looped pile is any fabric in which the woven loops remain uncut, as in Brussels and tapestry carpets and terry velvets. When these loops are cut in the finished texture, then the material is a cut pile, such as ordinary velvet, fustian, imitation of sealskin, and other imitation furs. For ordinary loop and cut pile fabrics two warps are required, the regular beam warp and the "pole" or pile warp. The latter, being raised into loops, is worked up more rapidly than the ordinary warp, and it has consequently to be of greater length, and wound on a separate beam. The ground or foundation may be either a plain or a twilled texture, and after every third pick of weft a wire is introduced into the shed and beaten up and woven into the cloth. In this way, by the stretching of the pile warp over the wire, a row of loops is formed across the web, the size of the loops being regulated by the size of the wire. If a looped pile is being woven, then it only remains to pull out the wires from behind and again weave them in in front as the work proceeds. But if cut pile is being made, then either the loops must be cut along the top before the wire is withdrawn, or the wire may at one end be provided with a knife edge which itself cuts the loops as it is being pulled out. For velvets, etc., the wires are provided with a groove on their upper face, and along this groove a cutting knife called a *trivet* is run to cut the loops.

WEBER, CARL MARIA FRIEDRICH ERNST VON, musical composer and creator of "romantic opera," was born at Eutin, near Lübeck, December 18, 1786. He came of a musical family. The child was taught to sing and place his fingers upon the pianoforte almost as soon as he could speak, though he was unable to walk until he was four years old. Happily his power of observation and aptitude for general learning were so precocious that he seems, in spite of all these disadvantages, to have instinctively educated himself as became a gentleman. His first music-master was Keuscher, who gave him instruction at Weimar in 1796. In 1798 Michael Haydn taught him gratuitously at Salzburg. In April the family visited Vienna, removing in the autumn to Munich. Here the child's first composition—a set of "Six Fughettas"—was published, and here also he took lessons in singing from Valesi, and in composition from Kalcher, under whom he made rapid progress. Soon after this he began to play successfully in public, and his father compelled him to write incessantly. Among the compositions of this period were a mass and an opera—*Die Macht der Liebe und des Weins*—now destroyed.

In 1800 the family removed to Freiberg, where the Ritter von Steinsberg gave Carl Maria the libretto of an opera called *Das Waldmädchen*, which the boy, though not yet fourteen years old, at once set to music, and produced in November at the Freiberg theater



The performance was by no means successful, and the composer himself was accustomed to speak of the work as "a very immature production;" yet it was afterward reproduced at Chemnitz, and even at Vienna.

Carl Maria returned with his father to Salzburg in 1801. Here he composed his second opera, *Peter Schmoll und seine Nachbarn*. In 1803 Carl Maria was appointed conductor of the opera at Breslau, before he had completed his eighteenth year. Here he began a new opera called *Rübezahl*, the libretto of which was based upon a well-known legend of the Riesengebirge. The plot of the piece was "romantic" to the last degree, and Weber worked at it enthusiastically, but it was never completed, and little of it has been preserved beyond a quintette and the masterly overture, which, rewritten in 1811 under the title of *Der Beherrscher der Geister*, now ranks among its author's finest instrumental compositions.

Quitting Breslau in 1806, Weber moved in the following year to Stuttgart, where he had been offered the post of private secretary to Duke Ludwig, brother of Frederick, king of Württemberg. Notwithstanding various distractions he worked hard, and in 1809 remodeled *Das Waldmädchen*, under the title of *Sylvana*, and prepared to produce it at the court theater. But a dreadful calamity prevented its performance. His father had misappropriated a large sum of money placed in the young secretary's hands for the purpose of clearing a mortgage upon one of the duke's estates. No one doubted Weber's innocence, but after a summary trial he and his father were ordered to quit the country, and on February 27th they began a new life at Mannheim. Having provided a comfortable home for his father, and begun the composition of a new comic opera in one act, called *Abu Hassan*, Weber removed to Darmstadt. On September 16, 1810, he reproduced *Sylvana* under its new title at Frankfurt, but with very doubtful success. *Abu Hassan* was completed at Darmstadt in January, 1811.

Weber started in February, 1811, on an extended artistic tour, during the course of which he made many influential friends, and on June 4th brought out *Abu Hassan* with marked success at Munich. His father died at Mannheim in 1812, and after this he had no settled home, until in 1813 his wanderings were brought to an end by the unexpected offer of an appointment as kapellmeister at Prague, coupled with the duty of entirely remodeling the performances at the opera-house. Weber resigned his office at Prague, September 30, 1816, and on December 21st Frederick Augustus, king of Saxony, appointed him kapellmeister at the German opera at Dresden. And now he once more gave his attention to the story of *Der Freischütz*, which, with the assistance of Friedrich Kind, he developed into an admirable libretto, under the title of *Des Jägers Braut*. Weber and Kind sketched the scenario of the new opera in February, 1817. On March 1st the poet placed the complete libretto in the hands of the composer, who wrote the first note of the music on July 2d—beginning with the duet which opens the second act. The great work was completed May 13, 1820, on which day Weber wrote the last note of the overture. He had engaged to compose the music to Wolff's Gipsy drama, *Preciosa*. Two months later this also was finished, and both pieces ready for the stage. In consequence of the unsatisfactory state of affairs at Dresden, it had been arranged that both *Preciosa* and *Der Freischütz*—no longer known by its original title, *Des Jägers Braut*—should be produced at Berlin. *Preciosa* was produced with great success at the old Berlin opera-house on June 14, 1821. On June 18th, the anniversary of the battle of Waterloo, the opening of the new "Schauspiel-

haus" was celebrated by the production of *Der Freischütz*. The success of the piece was triumphant. The work was received with equal enthusiasm at Vienna on October 3d, and at Dresden on January 26, 1822.

For his next opera Weber accepted a libretto, based by Frau Wilhelmine von Chezy, on the story of *Euryanthe*, as originally told in the thirteenth century in Gilbert de Montreuil's *Roman de la Violette*, and repeated with alterations in the *Decamerone*, in Shakespeare's *Cymbeline*, and in several later forms. In place of the ghostly horrors of *Der Freischütz*, the romantic element was here supplied by the chivalric pomp of the Middle Ages. The libretto, though soundly abused by shallow critics, is really an exceptionally good one. Weber's third and last dramatic masterpiece was an English opera written for Covent Garden theater, upon a libretto adapted by Planché from Wieland's *Oberon*. Destined for the English stage sixty years ago, this was necessarily disfigured by the spoken dialogue abandoned in *Euryanthe*; but in musical beauty it is quite equal to it, while its fairies and mermaids are as vividly real as the specters in *Der Freischütz*. Though already far gone in consumption, Weber began to compose the music on January 23, 1825. In March, 1826, he arrived in London, and on June 5th he died immediately after the production of the opera.

WEBER'S LAW is the principal generalization of that branch of scientific investigation which has come to be known as "psycho-physics." According to Fechner, who has done most to prosecute these inquiries and to consolidate them under a separate name, "psycho-physics is an exact doctrine of the relation of function or dependence between body and soul." In other words, it is throughout an attempt to submit to definite measurement the relation of physical stimuli to the resulting psychical or mental facts, and forms an important department of experimental psychology. It deals with the quantitative aspects of mental facts—their intensity or quantity proper and their duration. Physical science enables us, at least in the case of some of the senses, to measure with accuracy the objective amount of the stimulus, and introspection enables us to state the nature of the subjective result. We thus determine, as Wundt puts it, the limit values between which changes of intensity in the stimulus are accompanied by changes in sensation. But the central inquiry of psycho-physics remains behind. Between the quantitative minimum and the quantitative maximum thus fixed can we discover any definite relation between changes in the objective intensity of the stimuli and changes in the intensity of the sensations as estimated by consciousness? The answer of psycho-physics to this inquiry is given in the generalization variously known as "Weber's law," "Fechner's law," or the "psycho-physical law," which professes to formulate with exactitude the relations which exist between change of stimulus and change of sensation.

E. H. Weber (1795–1878) was the first (after a prolonged series of experiments on the sensations of sight, hearing and touch) to clothe this generality with scientific precision by formulating the law which has since gone by his name. The purport of the law is that, in order that the sensational difference may remain unchanged, the increase of stimulus must maintain the same proportion to the intensity of the preceding stimulus. The smallest perceptible difference is therefore not absolutely the same, but it remains relatively the same, that is, it remains the same fraction of the preceding stimulus. The law may be formulated thus: The difference between any two stimuli is experienced as of equal magnitude, in case the mathematical relation of these stimuli remains unaltered. Or, otherwise ex-

pressed, in order that the intensity of a sensation may increase in arithmetical progression, the stimulus must increase in geometrical progression.

WEBSTER, DANIEL, American statesman, was born at Salisbury, N. H., January 18, 1782. His family can be traced back without difficulty to Thomas Webster, of Scottish ancestry, who settled in New Hampshire in 1636, but no further. Ebenezer Webster, the father of Daniel, rose to the rank of captain in the "French and Indian War." From him his sons Ezekiel and Daniel inherited great physical force; their mother, Abigail Eastman, gave them their intellectual powers. Living on the frontier, Daniel was compelled to depend for early education on his mother and on the scanty schooling customary in winter; and for much of this he was indebted to the fact that he was physically the weakest of his family. It is a little odd, however, that he failed utterly in that with which his final reputation was so closely connected. In his own words: "There was one thing I could not do: I could not make a declamation; I could not speak before the school." When he was fifteen years old a family council decided to send him to college. After an imperfect preparation, he graduated at Dartmouth College in 1801, studied law, and was admitted to the bar in Boston in 1805, from the office of Christopher Gore.

Regard for his father made Webster begin practice in the town of Boscawen, near his early home; but his father died within a year, and he removed to Portsmouth, the largest town of the State. Here he took a leading place at the bar, having but one rival. In May, 1813, he entered Congress as a representative from New Hampshire, being placed at once on the committee of foreign affairs. As a moderate Federalist, he held that attacks on Canada should cease, and that the war should be confined to the ocean. His first speech showed that the raw New Hampshire boy of a dozen years before had developed new powers. The position of any Federalist in Congress, however, was not a wide sphere of influence; and Webster, removing to Boston in 1816, gave up political life for some years.

At the Massachusetts bar Webster soon gained a place as prominent as he had held in New Hampshire, and within three years his reputation as a lawyer had become national. His national standing was gained by his argument in the "Dartmouth College case," practically indorsed by the Supreme Court. Dartmouth College had been chartered by the king in 1769. In 1816 the New Hampshire legislature undertook to alter the charter and reorganize the corporation; and the State courts sustained the legislature in a suit brought by the old trustees against the new. On appeal to the Supreme Court of the United States in 1818, Webster contended that the college was an eleemosynary corporation, over which the legislature had no more power than the king who chartered it; that the king had no power to void such a charter, and the New Hampshire legislature no such sovereign powers as parliament; that the legislature's action came within the federal constitution's prohibition of State legislation altering contracts; that "the charter of 1769 is a contract;" that "the acts in question impair this contract;" and that they were therefore unconstitutional and void. The Supreme Court upheld Webster's view, and it was soon seen that he had worked a serious change in the relations of the States to corporations, as they had thus far been understood. The States endeavored to meet the new rule by inserting in their charters clauses retaining the right to alter them; but the spirit of the "Dartmouth College case," which has always had its opponents among American lawyers, has had its influ-

ence upon judges everywhere, in every variety of cognate cases. From this time Webster was recognized as the leading lawyer of the country, and his services were in constant demand.

His cases are quite beyond statement within the space here available. Some of his leading constitutional cases were those of *Gibbons v. Ogden*, in 1824, in which he overthrew the action of the New York legislature, in granting to Ogden, assignee of Fulton and Livingston, a monopoly of steam navigation in New York waters, as an interference with the right of Congress to regulate commerce; *Ogden v. Saunders*, in 1827, in which he attacked the right of a State to pass bankruptcy laws; the *Girard College case*, in 1844, in which he maintained that Christianity was an essential part of the common law; and the case of *Luther v. Borden*, commonly known as the Rhode Island case, in 1848, in which he laid the foundation for the subsequent definition of the "guarantee clause" of the constitution, and stated the meaning of the "republican government" of a State. Like other American lawyers, he made no distinction in his practice between kinds of cases, and was often retained in criminal causes. The most celebrated of these were the trials of Goodrich and Knapp; in the latter is the passage on the power of conscience, which has been declaimed by countless American schoolboys.

Webster's reputation as an orator began with his address at Plymouth in 1820, on the 200th anniversary of the landing of the Pilgrims. It was increased by his address at the laying of the corner stone of the Bunker Hill monument in 1825, on the 50th anniversary of the battle, and by that which commemorated in 1826 the 50th anniversary of the Declaration of Independence and the coincident deaths of Jefferson and John Adams. On every great public occasion thereafter, if Webster was obtainable, he was held to be the natural speaker to be chosen.

In December, 1823, Webster returned to Congress as a representative from Massachusetts, and his first speech, in January, 1824, in support of a resolution to send a commissioner to Greece, then in insurrection, made him the first of congressional speakers. During his service in the house the tariff of 1824 came up for discussion. Representing a commercial district, Webster's speech has always been a source of gratification to American opponents of protection. He repudiated the name of "American system," claimed by Clay for the system of protection which he was introducing. When the tariff of 1828, which was still more protective, came up for discussion, Webster had ceased to oppose protection; but his speech does not attempt to argue in favor of it. It can hardly escape notice that, in his published *Works*, Webster has but two subsequent speeches in Congress on the tariff, both defending protection rather as a policy under which industries had been called into being than as an advisable policy, if the stage had been clear for the adoption of a new policy.

In 1827 Webster was sent to the senate, in which he remained until his death, with the exception of his service in the cabinet in Tyler's administration. In January, 1830, came the crowning event of his political life. A debate on public lands, under a resolution offered by Senator Foot, thence known as "Foot's resolution," had wandered off into all possible fields. In course of it, Hayne, of South Carolina, attacked New England for having pursued a selfish policy as to western lands. Webster replied. During Hayne's answer Webster drew from him the first distinct and public statement of the new doctrine of nullification, of the constitutional right of a State to forbid the execution within its jurisdiction of acts of congress which it considered unconstitutional. This had been the product



of Calhoun's intellect, which was generally taken to be the source of Hayne's inspiration. Webster's reply is his famous "second speech on Foot's resolution." He began by a defense of Massachusetts, which has been severely criticised, and is perhaps open to criticism. But if effect is to be taken as a test, it is above criticism. The remainder of the speech was of intense interest, not merely to New England, but to the whole North and West, and to all the progressive elements of the country. He stated the anarchistic doctrine of nullification in its nakedness, extorted from Hayne an unwilling half-admission of the exactness of his statement, and then went on to trample on it with such an exhibition of logic, sarcasm, and elephantine humor as has never been heard in the senate before or since. It is on this speech that Webster's fame was built. Southern men had taken the lead so long that it was a new sensation to the North and West to see a Southern leader completely overmatched by their champion; and "Black Dan Webster," a popular name, due to his dark complexion, beetling brows, and heavy cast of features, was for twenty years the representative of Northern sentiment as to the nature of the Union.

Calhoun took Hayne's place in the senate in 1833, introduced and defended resolutions indorsing the right of nullification, and was still more fully answered by Webster. For the next seventeen years the records of the senate are full of constitutional arguments between the two. Webster's oratory made him an invaluable member of the Whig party, and his addresses at political meetings are so numerous as to defy special mention. A leader so distinguished had a fair right to think of the presidency, but it always remained just beyond his reach. In the general Whig confusion of 1836 he received the fourteen electoral votes of Massachusetts. In 1840 the candidature of Harrison left him no chance. In 1844 Webster's retention of his position under Tyler gave Clay an overwhelming advantage with his party. In 1848 the nomination of Taylor, which Webster declared "one not fit to be made," was a fatal blow to the prospects of the Massachusetts leader. His final failure to obtain the Whig nomination in 1852 put an end to his political career.

When the Whig party came into power in 1841, Webster was appointed secretary of state (foreign affairs), and he retained his post under Tyler, after his colleagues had broken with the new president and resigned. There was good reason for his action. When he entered office, war with Great Britain was a probable event of the near future. The M'Leod case, in which the State of New York insisted on trying a British subject, with whose trial the Federal Government had no power to interfere, while the British Government had declared that it would consider conviction and execution a *casus belli*; the exercise of the right of search by British vessels on the coast of Africa, of which Americans had a deep-seated detestation, quite apart from any feeling about the slave-trade; the Maine boundary, as to which the action of a State might at any time bring the federal government into armed collision with Great Britain—all these at once met the new secretary, and he felt that he had no right to abandon his work for party reasons. With the special commissioner from Great Britain, Lord Ashburton, he concluded the treaty of 1842, which settled all these questions satisfactorily to both parties. At the same time Webster took the opportunity to end the long controversy as to the right of impressment. Sixteen years afterward the British Government admitted at last the correctness of the American position.

Leaving the cabinet in 1843, Webster was returned to the Senate in 1845, and spent the remainder of his life

there. He opposed the annexation of Texas and the Mexican War, and was, as before, the recognized spokesman of his party. As the growing intensity of the quarrel over the organization of the territory acquired from Mexico revealed the depth of the chasm which now yawned between the sections, Webster's standing-ground in American politics disappeared. His speech of March 7, 1850, which stamped him, in the opinion of many of his former Northern worshippers, as a recant bidding for Southern votes for the presidency, was really little different from his former words. It was the country that had changed. He was still for the Union as the one controlling consideration, with an equal dislike for the abolitionist and the secessionist, who endangered the Union. But the North and the South were already so far apart that not even Webster could stand with one foot in one and the other foot in the other section; and his fate was parallel with that of John Dickinson, who essayed a similar rôle during the Revolution. Angered at the spirit with which his speech was received, Webster threw all his influence toward driving through the Whig Convention of 1852 an indorsement of the compromise of 1850 "in all its parts," including, of course, the Fugitive Slave Act. The result was his own failure to receive the Whig nomination for the presidency, and the downfall of his party. Just before the election he died at his home, Marshfield Mass., October, 1852.

Webster was twice married—to Grace Fletcher, of New Hampshire, in 1808, and two years after her death to Catherine Bayard le Roy, of New York, in 1829. One of his sons, Edward, lost his life in the Mexican War; his only surviving child, Fletcher Webster, colonel of a Massachusetts' regiment, was killed at Bull Run.

WEBSTER, JOHN, the date of whose birth and death are unknown, the greatest of Shakespeare's contemporaries or successors, was a writer for the stage in the year 1601, and published in 1604 the city pageant for that year, "invented and written by John Webster, merchant-tailor." In the same year a tragedy by Ford and Webster was licensed for the stage. Three years later, in 1607, two comedies and a tragedy, *Westward Ho! Northward Ho!* and *The Famous History of Sir Thomas Wyatt*, "written by Thomas Dekker and John Webster," were given to the press. In 1612 John Webster stood revealed to the then somewhat narrow world of readers as a tragic poet and dramatist of the very foremost rank in the very highest class. *The White Devil*, also known as *Vittoria Corombona*, is a tragedy produced about this time. *The Duchess of Malfy* (an Anglicized version of Amalfi, corresponding to such designations as Florence, Venice, and Naples) was probably brought on the stage about the time of the death of Shakespeare; it was first printed in the memorable year which witnessed the first publication of his collected plays.

WEBSTER, NOAH, American lexicographer, was the son of a farmer, and was born in West Hartford, Conn., October 16, 1758. In his early years he was engaged in agricultural work, but attended a district school in the winter, and when fourteen years of age began the study of the classics under the Rev. Nathan Perkins, D.D. He entered the freshman's class at Yale College in 1774, and while in his junior year there he took part as a volunteer in the expedition against General Burgoyne. After graduating in 1778 he supported himself by teaching while prosecuting the study of law. Having begun at this time to note down every word whose meaning he did not properly understand, he was first led to conceive the scheme of a new dictionary from his frequent inability to find proper definitions of

words in those in current use. His experience as a teacher soon convinced him also of the need of better instruction books in English, and this he endeavored to supply by his *Grammatical Institute of the English Language*, the first part of which appeared in 1783, and a second and third part in the following years. It comprehended a spelling-book, English grammar, and compilation of English reading, and very soon found a place in most of the schools of the United States. In 1785 he prepared a course of lectures on the English language, which he delivered in the principal American cities, and published in 1789 under the title *Dissertations on the English Language*. Meanwhile he also continued to take a deep interest in all prominent political questions. In his *Sketches of American Policy* (1784) he made the first distinct proposal for a new constitution for the United States, and when the work of the commissioners was completed, in 1787, he was asked by them to recommend the new constitution to the American people, which he did in an *Examination of the Leading Principles of the Federal Constitution*. After his marriage in 1789 he established himself in the practice of law at Hartford. In 1793 he was induced to found at New York a paper called *Minerva*, with which was connected the *Herald*, a semi-weekly; the titles of the papers were subsequently altered respectively to the *Commercial Advertiser* and the *New York Spectator*. In 1795 he contributed to his paper several articles, under the signature of Curtius, in vindication of Jay's treaty with Great Britain, which were reprinted and had considerable effect in allaying opposition to it. In 1798 he removed to New Haven, which town he was chosen soon afterward to represent in the general assembly of Connecticut. In 1802 appeared his well-known treatise on *The Rights of Neutrals*. Having removed in 1812 to Amherst, he took there a leading part in the establishment of the academy and then of the college, of which he was chosen the first president. He also represented Amherst in the court of Massachusetts. In 1822 he returned to New Haven. Meanwhile his lexicographical studies, though much interrupted by his professional and political duties, had never been entirely suspended. In 1806 he published his *Compendious Dictionary of the English Language*, but this was only preparatory to a larger work. In 1824 he sailed for Europe to complete his researches, and after spending some time in Paris, continued his labors in the library at Cambridge, where he finished the dictionary. It was published in 1828, and a second edition with many additions appeared in 1841. He also completed the revision of an appendix a few days before his death, which took place May 20, 1843.

WEBSTER, THOMAS, figure painter, was born at London, March 20, 1800. In 1821 he was admitted student of the Royal Academy, to whose exhibition he contributed, in 1824, portraits of *Mrs. Robinson and Family*. In the following year he gained the first medal in the school of painting. Till 1879 he continued to exhibit in the Royal Academy, work of a genial and gently humorous character, dealing commonly with subjects of familiar incident, and especially of child life. Many of these were exceedingly popular, particularly his *Punch* (1840), which procured in 1841 his election as A.R.A., followed five years later by full membership. He became an honorary retired academician in 1877, and died at Cranbrook, Kent, on September 23, 1886.

WEBSTER, a village of Massachusetts, located in Worcester county, on the Norwich division of the New York and New England road, sixteen miles south of Worcester, and fifty-seven miles southwest of Boston.

The town is also situated on French river, and is the site of many and important manufacturing undertakings. Webster is described as a typical New England town, not only in respect to its plan, improvements, etc., but also in respect to the enterprise and go-ahead spirit of the inhabitants, to which the villages of that section are indebted for their growth and possessions. Webster contains one national and one savings bank, two weekly papers, several churches and schools, two hotels, and quite a number of stores. The manufacture of boots and shoes is extensively carried on; also that of plain and fancy cassimeres, cloths, and cambrics, woolen and linen fabrics, yarns and worsteds, lumber and lumber products, carriages, hardware and hardware novelties. In 1880 the population was 5,696; in 1900 it had increased to 8,804.

WEDDERBURN, ALEXANDER, Baron Loughborough in 1780, earl of Rosslyn in 1801, lord high chancellor of Great Britain, was the eldest son of Peter Wedderburn (a lord of session as Lord Chesterhall), and was born in East Lothian, February 13, 1733. He acquired the rudiments of his education at Dalkeith, and in his fourteenth year was sent to the university of Edinburgh. It was from the first his desire to practice at the English bar, though in deference to his father's wishes he qualified as an advocate at Edinburgh, June 29, 1754. His father was called to the bench in 1755, and for the next three years Wedderburn stuck to his practice in Edinburgh. Through his prudence in having taken the preliminary steps some years previously, he was called to the English bar at the Inner Temple November 25, 1757. In his new position he acted with characteristic energy. In 1763 he became king's counsel and bencher of Lincoln's Inn, and for a short time went the northern circuits, but was more successful in obtaining business in the Court of Chancery. When George Grenville, whose principles leaned to Toryism, quarreled with the court, Wedderburn affected to regard him as his leader in politics. At the dissolution in the spring of 1768 he was returned by Sir Lawrence Dundas for Richmond as a Tory, but in the struggles over Wilkes he took the popular side of "Wilkes and liberty," and resigned his seat (May, 1769). In recompense for the loss of his seat in parliament, he was returned by Lord Clive for his pocket-borough of Bishop's Castle, in Shropshire (January, 1770). During the next session he acted vigorously in opposition, but his conduct was always viewed with distrust by his new associates. In January, 1771, he was offered and accepted the prize of solicitor-general. The high road to the woolsack was now open to his steps, but his defection from his former path has stamped his character with general infamy. All through the American War his declamation was consistently employed against the cause of the colonies, and his treatment of Franklin is indelibly written in history. In June, 1778, Wedderburn was promoted to the post of attorney-general, and in the same year he refused the dignity of chief baron of the exchequer because the offer was not accompanied by the promise of a peerage. In June, 1780, he was created justice of the Court of Common Pleas, and he was at the same time gratified by the title of Baron Loughborough. During the existence of the coalition ministry of North and Fox, the great seal was in commission (April to December, 1783), and Lord Loughborough held the leading place among the commissioners. In 1792, during the period of the French Revolution, Lord Loughborough seceded from Fox, and January 28, 1793, he received the great seal in the Tory cabinet of Pitt. It was probably through his advice that George III. refused his assent to Pitt's proposals, and that the removal of



the disabilities under which the Catholics groaned was delayed for another quarter of a century. When the prime minister found that he could not carry out his compact with his Catholic fellow-subjects he resigned, and Addington succeeded to his place. Much to Lord Loughborough's surprise, no place was found for him in Addington's cabinet, and he was obliged to resign his post of lord chancellor (April 14, 1801). His fall, in 1801, was softened by the grant of an earldom (he was created earl of Rosslyn April 21, 1801, with remainder to his nephew). After this date he rarely appeared in public, but he was a constant figure at all the royal festivities. He attended one of those gatherings at Frogmore, December 31, 1804. On the following day he was seized with gout in the stomach, and, January 2, 1805, he died at his seat, Baylis, near Salt Hill, Windsor. His remains were buried in St. Paul's Cathedral on January 11th.

**WEDGE**, one of the mechanical powers, and in principle a modification of the inclined plane. The power is applied by pressure, or more generally by percussion, to the back, thus forcing the edge forward. The wedge is employed for such purposes as the splitting of wood, the fastening firmly the handle of an axe, the raising of a ship in a dry dock, etc. The investigation on statical principles of the mechanical advantage of the wedge is extremely unsatisfactory, the power, which is scarcely ever a "pressure," being always assumed to be one, and the enormous friction on the sides of the wedge being generally neglected; the theoretical result thus arrived at is that the pressure applied at the back is to the resistance or weight as one-half width of the back of the wedge is to the length of side. In the application of the wedge to the splitting of wood in direction of the fibers, the split generally extends some distance in advance of the edge of the wedge, and the action of the latter is then a combination of the action of the wedge with that of the lever; in fact, this action is found more or less in all applications of the wedge as a cutting or splitting weapon and tends further to complicate the statical investigations of its mechanical properties. The best and simplest illustrations of the single wedge are axes, nails, plugs, planes, chisels, needles, and all sharp-pointed instruments.

**WEDGWOOD, JOSIAH**, the most distinguished of English manufacturers of pottery, born in 1730, was the youngest child of Thomas Wedgwood, who owned a thriving pottery in Burslem. In 1744 he was apprenticed to his eldest brother, who had succeeded to the management of his father's pottery; and in 1751, when the term of his apprenticeship had expired, Josiah Wedgwood became manager of the neighboring Alder pottery, with a very moderate salary. In 1759 he started as an independent potter at the Ivy-House works in Burslem. In 1769 Wedgwood opened new potteries on a larger scale at Etruria in Staffordshire, having entered into partnership with Thomas Bentley of Liverpool. After Bentley's death in 1780, Wedgwood became sole owner of the Etruria pottery till 1790, when he took some of his sons into partnership. He died on January 3, 1795, in the 65th year of his age, leaving to his children a well-earned fortune of more than half a million.

**WEDNESBURY**, a market-town and parliamentary borough of Staffordshire, England, is situated near the source of the Tame, on the Great Western and London and North-Western railway lines, eight miles northwest of Birmingham, and 13½ miles northwest of London. The neighborhood of Wednesbury has been long celebrated for its iron and coal mines, the coal being unequaled as fuel for the smith's forge. A special kind of iron ore is obtained which is manufactured into axes

and other edge-tools. The town possesses large steel and iron works, the more important manufactures being those of the large kind of iron work used by railway companies (such as bridges, cranes, switches, roofs, wheels, axletrees, boiler-plates, and rails), water, steam, and gas pipes, and various kinds of wrought-iron work. The population of the urban sanitary district (area 2,124 acres), which is identical with the township, in 1871 was 25,030, and in 1881 it was 24,566. Until 1885 the parliamentary borough had an area of 11,340 acres, with a population in 1871 of 116,809 and in 1881 of 124,437. West Bromwich, formerly included in it, has been erected into a separate borough, leaving in Wednesbury an area which in 1901 had a population of 38,142.

**WEEK.** See **CALENDAR** and **SABBATH**.

**WEEVER.** The weevers (*Trachinus*) are small marine fishes which are common on the coasts of Europe, and which have attained notoriety from the painful and sometimes dangerous wounds they are able to inflict upon those who incautiously handle them. They belong to a family of spiny-rayed fishes (*Trachinidae*), and are distinguished by a long low body with two dorsal fins, the anterior of which is composed of six or seven spines only, the posterior being long and many-rayed; their anal resembles in form and composition the second dorsal fin. The ventral fins are placed in advance of the pectorals, and consist of a spine and five rays. The caudal fin has the hind margin not excised. The body is covered with very small scales, sunk in and firmly adherent to the skin, but the upper surface of the head is bony, without integument. The head, like the body, is compressed, with the eyes of moderate size and placed on the side of the head; the mouth is wide, oblique, and armed with bands of very small teeth.

Several species of weevers are known, but two only occur on the British coasts, viz., the Greater Weever (*Trachinus draco*) and the Lesser Weever (*T. vipera*.) The weevers are bottom fish, burying and hiding themselves in the sand or between shingle—the lesser species living close inshore and the greater preferring deeper water, and being found sometimes floating on the surface at a distance of several miles from the shore. The wounds are inflicted by the dorsal and opercular spines are very painful, and sometimes cause violent local inflammation. In the absence of any special poison organ, it is most probable that the mucous secretion in the vicinity of the spines has poisonous properties. The spines are deeply grooved, the poisonous fluid which is lodged in the grooves being thus introduced into the punctured wound.

**WEEVIL**, a very old Anglo-Saxon term, now commonly applied to the members of a group of *Coleoptera* termed the **RHYNCHOPHORA**.

**WEIGHING MACHINES.** See **BALANCE**, also **MECHANICS** and **MINT**.

**WEIGHTS AND MEASURES.** This subject may be best divided for convenience of reference into two parts.—I. **SCIENTIFIC**, including the facts and data usually needed for scientific reference; and II. **COMMERCIAL**, including the weights and measures of modern countries as used in commerce.

I. **SCIENTIFIC.** A unit of length is the distance between two points defined by some natural or artificial standard, or a multiple of that. A unit is an abstract quantity, represented by a certain standard, and more or less perfectly by copies of the standard. A unit of mass is the matter of a standard of mass, or a multiple of that. A unit of weight is the attractive force exerted between a unit of mass and some given body at a fixed distance—this force being the weight of the unit in relation to the given body, or any other body of equal

mass. Usually the given body is the earth, and the distance a radius of the earth. Standards of length are all defined on metal bars at present in civilized countries. Various natural standards have been proposed, such as the length of the polar diameter of the earth (inch), the circumference of the earth (meter) in a given longitude, a pendulum vibrating in one second at a fixed distance from the earth, a wave of light emitted by an incandescent gas, etc. Standards of length are of two types, the defining points being either at a certain part of two parallel lines engraved in one plane (a line standard), or else points on two parallel surfaces, which can only be observed by contact (an end-standard). The first type is always used for accurate purposes. Units of surface are always directly related to standards of length, without any separate standards. Volume is either determined by the lineal dimensions of a space or a solid, or, for accurate purposes, by the mass of water contained in a volume at a given temperature, which again is measured either by liquid measure, or, more accurately, by weight.

*Comparisons.*—Lengths nearly equal are compared accurately by fixing two micrometer microscopes with their axes parallel, and at the required distance apart, on a massive support which will not quickly vary with temperature; then the two lengths to be compared, *e.g.*, the standard yard and another, are alternately placed beneath the microscopes, and their lengths observed several times. The error of a single observation in the standards department is stated to be a 100,000th of an inch.

Volumes are always most accurately defined by their weight of water, as weighing can be more accurately done than measuring. Volumes of liquid are similarly ascertained by their weight. Volumes of gas are measured in a graduated glass vessel inverted over a liquid, or for commercial purposes by some form of registering flow-meter. Masses are compared by the *BALANCE* (*g.v.*), which may be made to indicate a 100,000,000th of the mass.

*Temperature and the Atmosphere.*—All the serious difficulties of weighing and measuring result from these causes, the effects of which and their corrections we will briefly notice. In measurement, since all bodies expand by heat, the temperature at which any measure or standard bar represents the abstract unit requires to be accurately stated, and observed, the accuracy of optical observation being about equal to  $\frac{1}{100}$  of a degree F. of expansion in a standard. Another method is to attach a parallel bar of very expansible metal to one end of the standard, and read its length on the standard at the other end; this insures a more thorough uniformity of mean temperature between the standard and the heat-measurer. The most accurate method is by immersing the measures in a liquid, of which the temperature is read by several thermometers.

The temperature adopted for the standards is not the same in different countries. In any case an aliquot part of the thermal unit from freezing to boiling of water should be adopted;  $62^{\circ}$  is  $\frac{1}{6}$  and  $68^{\circ}$  is  $\frac{1}{5}$  of this interval. Whether a much higher temperature would not be more conducive to accuracy is a question. No substance expands uniformly with temperature, most materials expanding more rapidly at higher temperatures. But variations of 3 or 4 per cent. may easily be found in the rates of different specimens apparently alike; hence the individual expansion of every important measure needs to be ascertained.

Weighing is complicated by being done in a dense and variable atmosphere, unless—as in the most refined work—the whole balance is placed in a vacuum. When in the air all bodies placed in the balance must, for

accurate purposes, have their volume known; and the weight of an equal volume of such air as they are weighed in must be added to their apparent weight to get their true weight.

The composition of the air also varies, and most seriously in the amount of aqueous vapor; so that it may be concluded that the moisture of the air is the main point to be noted, after its temperature and pressure.

The weight of a cubic inch, or other linearly measured volume, of water is not yet very accurately known. The observations have been made by weighing closed hollow metal cases in and out of water (thus obtaining the weight of an equal volume of water) and then gauging the size of the case with exactitude. Cubes, cylinders, and spheres have been employed.

The English imperial standard yard is a bronze bar thirty-eight inches long, one inch square; the defining lines, thirty-six inches apart, are cut on gold studs, sunk in holes, so that their surface passes through the axis of the bar. This bar when in use rests on a lever frame, which supports it at 8 points, 4.78 inches apart, on rollers which divide the pressure exactly equally. The standard pound is a thick disk of platinum about one and one-sixth inches across, and one inch high, with a shallow groove around it near the top.

The toleration of error in copies for scientific purposes, by the English Standards Department, is .0005 inch on the yard or lesser lengths, about equal to 15 divisions of the micrometer; on the pound .0025 grain, about  $\frac{1}{2}$  a division of the official balances; on the ounce .001 grain; on the gallon 1 grain, and on the cubic foot 4 grains. The toleration for commercial copies is .005 on the yard, .001 on the foot and under, and .1 grain on weights of 1 ounce to 1 pound. The first French standard meter (of 1799) is a platinum bar end-standard of about 1 inch wide and  $\frac{1}{2}$  inch thick; the new standard of the International Metric Commission is a line-standard of platino-iridium, 40 inches long and .8-inch square, grooved out on all four sides so that its section is between X and H form. The new standard kilogram, like the old one, is a cylinder of platinum of equal diameter and height.

The legal theory of the British system of weights and measures is—(A) the standard yard, with all lineal measures and their squares and cubes based upon that; (B) the standard pound of 7,000 grains, with all weights based upon that, with the troy pound of 5,760 grains for trade purposes; (C) the standard gallon, declared to contain 10 pounds of water at  $62^{\circ}$  F., being in volume 277.274 cubic inches, which contain each 252.724 grains of water in a vacuum at  $62^{\circ}$ , or 252.458 grains of water weighed with brass weights in air of  $62^{\circ}$  with the barometer at 30 inches.

The legal theory of the metric system of weights and measures is—(A) the standard meter, with decimal fractions and multiples thereof; (B) the standard kilogram, with decimal fractions and multiples thereof; (C) the liter (with decimal fractions and multiples), declared to be a cube of  $\frac{1}{10}$  meter, and to contain a kilogram of water at  $4^{\circ}$  C. in a vacuum. No standard liter exists, all liquid measures being legally fixed by weight.

The legal equivalents between the British and French systems are—meter = 39.37079 inches; kilogram = 15,432.34874 grains. By the more exact comparisons of Captain Clarke (1866) the meter (at  $0^{\circ}$  C.,  $32^{\circ}$  F.) is equal to 39.37043196 inches of the yard at  $62^{\circ}$  F.; but Rogers in 1882 compared the meter as 39.37027. The kilogram determination above is that of Professor Miller (1844) against the kilogram des Archives, but in 1884 the international kilogram yielded 15,432.35639.



**II. COMMERCIAL.**—In this section we shall only refer to such measures as are in actual use at the present time; the various systems of the Continental towns have been superseded by the metric system now in force, and are therefore not needed now except for historical purposes.

*\*United States and Great Britain.*—

Length—

inch,	12 = foot,	3 = yard,	5½ = pole,
1 in.	12	36	198
4 = chain,	10 = furlong,	8 = mile.	
792	7,920	63,360	

Hand, 4 inches; fathom, 2 yards; knot or geographical mile = 1' = 1.1507 miles. The chain is divided in 100 links for land measure; link = 7.92 inches.

Terms of square measure are squares of the long measures.

Volume: dry—

pint,	2 = quart,	4 = gallon,
cub. in. 34.659	69.318	277.274
2 = peck,	4 = bushel,	8 = quarter.
554.548	2,218.19	17,745.6

Gill = ¼ pint; pottle = 2 quarts; 5 quarters = wey or load; 2 weys = last.

Volume: wet—

Pint and quart as above.	Gallon, 9 = firkin,
cub. ins. 277.274	2,495.5
4 = barrel or hoghead,	2 = pipe, butt, or puncheon.
9,981.9	19,963.8

Avoirdupois weight, for everything not excepted below—

drachm,	16 = ounce,	16 = pound,	14 = stone,
27.3 grains	437.5	7,000	98,000
2 = quarter,	4 = hundred,	20 = ton.	
196,000 grs.	112 lb.	2,240 lb.	

Troy weight (gold, silver, platinum, and jewels except diamonds and pearls)—

grain,	24 = pennyweight,	20 = ounce,	12 = pound.
1 grain	24	480	5,760

Diamond and pearl weight—

grain,	4 = carat,	150 = ounce Troy.
.8 grain	3.2	480

Apothecaries' dispensing weight, for prescriptions only—

grain,	20 = scruple,	3 = drachm,	8 = ounce,	12 = pound.
1 grain	20	60	480	5,760

Apothecaries' fluid measure—

minim,	60 = drachm,	8 = ounce,	20 = pint,	8 = gallon.
.91 gr., water	54.7	437.5	8,750	70,000
.036 cub. in.	.216	1.733	34.059	277.274

**Metric System.**—The report to the French National Assembly proposing this system was presented March 17, 1791, the meridian measurements finished and adopted June 22, 1799, an intermediate system of division and names tolerated May 28, 1812, abolished and pure decimal system enforced January 1, 1840. Since then Netherlands, Spain (1850), Italy, Greece, Austria (legalized 1876), Germany, Norway and Sweden (1878), Switzerland, Portugal, Mexico, Venezuela, Argentine Republic, Hayti, New Grenada, Mauritius, Congo Free State, and other states have adopted this system. The use of it is permissive in Great Britain, India, Canada, Chili, etc. The theory of the system is that the meter is a 10,000,000th of a quadrant of the earth through Paris; the liter is a cube of 10 meter; the gram is 1/1000 of the liter filled with water at 4°C.; the franc weighs 5 grams. In land measure the unit is the are (10 metres square)=119.60 square yards; and the hectare=2.4736 acres. Other multiples of the units are merely nominal and not practically used.

*\*United States*—Inch = 1.000049 British inch, and other measures in proportion. Gallon = .83202 British gallon. Bushel = .6946 British bushel. Weight, as Great Britain.

**WEIMAR**, the capital of the grand-duchy of Saxe-Weimar-Eisenach, the largest of the Thuringian states is situated in a pleasant valley on the Ilm, 50 miles southwest of Leipsic and 136 miles southwest of Berlin. Weimar has now no actual importance, though it will always remain a literary Mecca. It is a peaceful little German town, abounding in excellent educational, literary, artistic, and benevolent institutions; its society is cultured, though perhaps a little narrow; while the even tenor of its existence is undisturbed by any great commercial or manufacturing activity. The population in 1885 was 21,565; in 1782, six years after Goethe's arrival, it was about 7,000; and in 1834, two years after his death, it was 10,638. Pop. (1900), 28,489.

**WEISSENFELS**, an industrial town in the province of Saxony, Prussia, is situated on the Saale, eighteen and one-half miles southwest of Leipsic, and nineteen south of Halle. Weissenfels manufactures machinery, sugar, pasteboard, paper, leather goods, pottery, and gold and silver wares. It contains also an iron foundry, and carries on trade in timber and grain. In the neighborhood are large deposits of sandstone and lignite. The population of the town in 1900 was 24,766.

**WEKA**, or **WEEKA**. See **OCYDROME**.

**WELDING**, the process by which some substances are united together in a softened state. It is generally applied to such metals as malleable iron, two pieces of which, heated to redness, may be made to unite by applying them together and beating with a hammer. Other substances, such as horn and tortoise shell, can be welded by making separate pieces soft by heat, and pressing them together, which causes so intimate a union that no traces of the junction remain after cooling.

**WELLESLEY**, **RICHARD WESLEY** (or **WELLESLEY**) **MARQUIS OF**, eldest son of the first earl of Mornington, an Irish peer, and eldest brother of the duke of Wellington, was born June 20, 1760. By his father's death in 1781 he became earl of Mornington, taking his seat in the Irish House of Peers. In 1784 he entered the English House of Commons as member for Beralston. Soon afterward he was appointed a lord of the treasury by Pitt, with whom he rapidly grew in favor. In 1793 he became a member of the board of control over Indian affairs; and, although he was best known to the public by his speeches in defense of Pitt's foreign policy, he was now gaining the acquaintance with Oriental affairs which made his rule over India so wonderfully effective from the moment when, in 1797, he accepted the office of governor-general. That Pitt and Wellesley had consciously formed the design of acquiring a great empire in India to compensate for the loss of the American colonies has not been proved; but the rivalry with France, which in Europe placed England at the head of coalition after coalition against the French republic and empire, made Wellesley's rule in India an epoch of enormous and rapid extension of English power. Soon after his landing in April, 1798, he learned that an alliance had been formed between Tippoo Saib and the French republic. Wellesley resolved to anticipate the action of the enemy, and ordered preparations for war. The invasion of Mysore followed in February, 1799, and the campaign was brought to a rapid close by the capture of Seringapatam (see **INDIA** and **WELLINGTON**). In 1803 the restoration of the peshwa was taken in hand, which proved the prelude to the great Mahratta war against Sindhia and the raja of Berar. The result of these wars and of the treaties which followed them was that French influence in India was extinguished, that forty millions of population and ten millions of revenue were added to the British dominions, and that the powers of the Mahratta and all other princes were so reduced that

England became the really dominant authority over all India.

On the fall of the coalition ministry in 1807, Wellesley (an English peer from 1797 and marquis in the peerage of Ireland from 1799) was invited by George III. to join the duke of Portland's cabinet, but he declined, pending the discussion in parliament of certain charges brought against him in respect of his Indian administration. Resolutions condemning him for the abuse of power were moved both in the Lords and Commons, but defeated by large majorities. In 1809 Wellesley was appointed ambassador to Spain. A few months later, after the duel between Canning and Castlereagh and the resignation of both, Wellesley accepted the post of foreign secretary in Percival's cabinet. In 1821 he was appointed to the lord-lieutenancy of Ireland. Catholic emancipation had now become an open question in the cabinet, and Wellesley's acceptance of the vice-royalty was believed in Ireland to herald the immediate settlement of the Catholic claims. But the hopes of the Catholics still remained unfulfilled; Lord Liverpool died without having grappled with the problem. Canning in turn passed away; and on the assumption of office by Wellington, who was opposed to Catholic emancipation, his brother resigned the lord-lieutenancy. In 1833 he resumed the office of lord-lieutenant under Earl Grey, but the ministry fell a few months later, and, with one short exception, Wellesley did not further take part in official life. He died on September 26, 1842.

**WELLINGBOROUGH**, a market-town of Northamptonshire, England, is situated on the declivity of a hill near the junction of the Ise with the Nen, and on the London and North-Western and Midland railway lines, sixty-three and one-half miles north-northwest of London, and ten and one-half east-northeast of Northampton. Formerly the town was famed for the chalybeate springs to which it owes its name. It is now of some importance as a center of agricultural trade; but the staple industry is leather. A great impulse to the prosperity of the town was given by the introduction of the boot and shoe trade, especially the manufacture of uppers. Smelting, brewing, and iron-founding are also carried on, as well as the manufacture of portable steam engines. A coal depot of the Midland railway is also situated in the town. The population of the township and urban sanitary district (area 3,992 acres) in 1871 was 9,385 and in 1901 it was 16,794.

**WELLINGTON**, a town of Shropshire, England, on the Great Western and London and North-Western railway lines, and on the Shropshire Union canal, 151¼ miles northwest of London, 11 east of Shrewsbury, and 31 northwest of Birmingham. The manufacture of agricultural implements, iron and brass founding, and maling are carried on. The population of the urban sanitary district (area 352 acres) in 1871 was 5,926, and in 1901 it was 8,217.

**WELLINGTON**, a market-town of Somerset, England, is situated on a gentle elevation at the foot of the Blackdowns near the river Tone, and on the Great Western railway, 170 miles south-southwest of London, and 7 southwest of Taunton. The staple industry is the woolen manufacture; iron-founding and brick and tile making are also carried on. The population of the township and urban sanitary district (area 5,195 acres) in 1871 was 6,286, and in 1901 it was 8,360.

**WELLINGTON**, the chief town of Hutt county, New Zealand, and the seat of the colonial government, is situated in the southwest of North Island, on the shores of Port Nicholson, in 41° 16' 25" S. latitude, and 174° 47' 25" E. longitude, 80 miles east of Nelson, 160 south of New Plymouth, and 1,200 southeast of Sydney.

Wellington was the first settlement of the New Zealand colonists. As a shipping port Wellington ranks next to Auckland and Lyttelton. It possesses foundries, ship-building yards, boot factories, soap and candle works, tanneries, woolen, coffee, flour, and saw-mills, breweries, aerated water-works, coach factories, brick and tile works, and a very extensive meat-preserving establishment, which exports large supplies to Europe. The area of the municipal borough is 1,100 acres, and from 4,176 in 1861 the population increased to 13,488 in 1871 and 20,563 in 1881, while in 1901 the city and suburbs had 49,344 inhabitants.

**WELLINGTON**, the county seat of Sumner county, Kan., an enterprising and thriving city, is situated on Slate creek, 30 miles from Wichita and 252 miles from Kansas City. It is also located on the Kansas City and St. Joe line of the Rock Island road, and is a prominent shipping station of the Atchison, Topeka and Santa Fe system, possessing superior facilities for handling the heavy consignments of grain and produce from the surrounding country, for which Wellington is the market and distributing point. In addition to advantages in this connection, the city is the location of a line of manufactures that are steadily increasing in number, while its mercantile, monetary, and educational features have contributed to the extension of its influence and importance. Four national banks are established at Wellington, and two daily and four weekly papers are regularly issued. The city also contains churches, schools, and other improvements of a public character, four large hotels, an opera house and one or more public halls, together with additional evidences of the progressive character of residents, and which have given it a conspicuous position among the cities of the State. A number of grist and lumber mills are in continuous operation; the manufacturing industries also embracing salt works, galvanized iron and electric light works, foundries and machine shops, carriage, sash, door and blind, and broom factories, with other enterprises perfected and prospective. The population, quoted at 6,500 in 1885, had decreased to nearly 4,245 by 1900.

**WELLINGTON, ARTHUR WELLESLEY, DUKE OF**, was the fourth son of Garrett, earl of Mornington, now remembered only as a musician. Arthur (born in Ireland in the spring of 1769) was sent to Eton, and subsequently to the military college at Angers. He entered the army as ensign of the 73d regiment in 1787, passed rapidly through the subaltern grades, became major of the 33d, and purchased the lieutenant-colonelcy of that regiment in 1793 with money advanced to him by his eldest brother. His first experience of active service was in the disastrous campaign of 1794-95, when the British force under the duke of York was driven out of Holland by Pichegru. In 1796 he was sent with his regiment to India. In 1798 Colonel Wellesley's eldest brother, Lord Mornington, afterward marquis of Wellesley, arrived in India as governor-general. The war with Tippoo Saib followed. The 33d regiment was attached to the subsidiary force furnished by the nizam, and Colonel Wellesley was intrusted with the command of this division, under the orders of General Harris. In a preliminary attack upon the works of Seringapatam, Wellesley met with a repulse; in the successful assault upon the town he commanded the reserve. Though his military services in this short campaign were not of a striking character, he was appointed by his brother to the supreme military and political command in Mysore.

The result of Wellesley's singular personal ascendancy among the Mahrattas came into full view when the Mahratta war broke out. In the meantime, however,



his Indian career seemed likely to be sacrificed to the calls of warfare in another quarter. Wellesley was ordered by the governor-general, in December, 1800, to take command of a body of troops collected for foreign service at Trincomalee, in Ceylon. It was at first intended that these troops should act against Java or Mauritius; their destination was, however, altered to Egypt, and a notification was made to Wellesley that in consequence of this change General Baird would be placed in command above him. Though deeply offended at the loss of the command, Wellesley so completely sank all personal grievance in his devotion to the public cause, that, in opposition to his instructions, and at the risk of incurring severe censure, he moved the troops on his own responsibility from Trincomalee to Bombay, from the conviction that, if they were to be of any use in Egypt, it was absolutely necessary that they should provision at Bombay without delay. At Bombay Wellesley was attacked by fever, and prevented from going on to Egypt. He returned with great satisfaction to his government in Mysore, where he remained until the Mahratta war broke out.

In the spring of 1805, Wellesley, now Sir Arthur, quitted India and returned home. He was immediately sent on the expedition to Hanover which was rendered abortive by the battle of Austerlitz. In 1806 he was elected member of parliament for the borough of Rye, and in the following year was appointed Irish secretary. After serving in this office for a few months he was employed in the expedition against Copenhagen, where little glory was to be gained. In the summer of 1808 he took command of a body of troops destined to operate against the French in Spain or Portugal. Finding that the junta of Coruña wished for no foreign soldiery, he proceeded to fulfill his instructions by acting against Junot at Lisbon. He landed at Mondego Bay in the first week of August, and moved southward, driving in the enemy's posts at Roliça on August 17th. On the 21st the battle of Vimiero was fought and won. In the midst of this engagement, however, Sir Harry Burrard landed, and superseded Wellesley in the command. Wellesley in vain called upon this general to follow up the pursuit when the victory was gained. The convention of Cintra provided for the evacuation of Portugal by the French, but it gave Junot and all his troops a free return to France. So great was the public displeasure in England at the escape of the enemy, that a court of inquiry was held into all the circumstances attending the convention of Cintra. At this inquiry the rejection of Wellesley's counsels by his superior officer at the close of the battle of Vimiero was fully proved.

After the failure of Sir John Moore's campaign in the winter of 1808-9, Wellesley, who had in the meantime resumed his duties as Irish secretary, returned to the Peninsula as chief in command. His first move was against Soult, who had captured Oporto. He drove the French out of this city by a singularly bold and fortunate attack, and then prepared to march against Madrid by the valley of the Tagus. Wellesley, unconscious of Soult's presence in force on his flank, advanced against Madrid, and finally drew up at Talavera to meet the attack of Victor, who had defeated Cuesta and driven him back on the English. The battle was begun on July 27th and continued on the 28th. Wellesley gained a complete victory, and decisively proved the superiority of English troops under his command over those of the enemy. A peerage, with the title of Viscount Wellington, was conferred upon him for his victory at Talavera. Up to this time Napoleon, with the bulk of his armies, had been occupied with the war against Austria. The peace of Vienna, concluded in October, 1809, made him free to throw an almost

unlimited force into the Spanish Peninsula. The English army in the meantime wintered in the neighborhood of Almeida. As summer approached, Wellington's anticipations were realized. Masséna, who had distinguished himself above every other general in the Austrian war of 1809, arrived in Spain, and moved against Portugal with an army of 70,000 men. Wellington was unable to prevent Ciudad Rodrigo from falling into the hands of the French. But in the spring of 1811 Wellington received reinforcements from England. He now moved against the enemy. Masséna retreated northward, devastating the country with unsparring severity in order to check the pursuit.

In the meantime Soult, who was besieging Cadiz, had received orders from Napoleon to move to the support of Masséna. Leaving part of his force in front of Cadiz, he marched northward and captured Badajoz. Here, however, he learnt that Masséna was in full retreat, and also that his own army besieging Cadiz had been attacked and beaten. He in consequence returned and resumed the blockade. Wellington, freed from pressure on the south, and believing Masséna to be thoroughly disabled, considered that the time had come for an advance into Spain. The fortresses of Almeida, Ciudad Rodrigo, and Badajoz had to be recaptured from the French. Leaving a small force to besiege Almeida, Wellington went southward to arrange with Beresford for the siege of Badajoz. During his absence Masséna again took the field, and marched to the relief of Almeida. Wellington returned in time to defeat him at Fuentes d'Onoro, and Almeida passed into the hands of the British. Wellington resumed the offensive, and on January 19, 1812, Ciudad Rodrigo was taken by storm. The road into Spain was now open; it only remained to secure Portugal itself and the line of communication by the capture of Badajoz. Wellington crossed the Tagus and completed the investment of this fortress by the middle of March. It was necessary at whatever cost to anticipate the arrival of Soult with a relieving army, and on April 6th Wellington ordered the assault. The fearful slaughter which took place before the British were masters of the defenses caused Wellington to be charged with indifference to the loss of human life.

The advance into Spain against the French line of communication between Madrid and the Pyrenees was now begun. Marmont, who had succeeded Masséna in the command, fell back and allowed Wellington to occupy Salamanca; but on reaching the Douro he turned upon his assailant, and, by superior swiftness in marching, threatened to cut the English off from Portugal. Wellington now retreated as far as Salamanca, and there extricated himself from his peril by one of the most brilliant victories which he ever gained (July 22d). Instead of immediately following this up, which from a military point of view would have been the better course, Wellington thought it wise to advance upon the Spanish capital. King Joseph retired southward and the English entered Madrid in triumph. The political effect of this act was very great, but the delay gave the French northern army time to rally. On marching against them Wellington was checked by the obstinate defense of Burgos. Moreover, in consequence of the loss of the capital, Soult was now ordered to raise the siege of Cadiz, and to move to the support of King Joseph. Gathering his forces, and uniting them with the French army of the center, he pressed on toward Madrid. It was impossible for Wellington to maintain his position, and he was compelled once more to retire into Portugal, while Madrid passed back into the hands of the French. Wellington was now invested by the cortes with the supreme command of the Spanish armies.

The disasters of the Russian campaign had com-



pelled Napoleon to withdraw some of his best regiments from the Peninsula. Against a weakened and discouraged adversary Wellington took the field with greatly increased numbers, and with the utmost confidence of victory. His design was to throw himself directly upon the French line of communication, keeping his left pushed forward in advance of his center, so as to threaten the envelopment of the fortified posts held by the enemy. Napoleon had foreseen that this would be the strategy of the English commander, and had ordered King Joseph to neglect every point to the center and east, and to concentrate at Valladolid. This order had been but imperfectly obeyed. The advance of the allied army was irresistible. Position after position was evacuated by the French, until Wellington, driving everything before him, came up with the retreating enemy at Vitoria, now encumbered with an enormous train of fugitives, and with the spoils of five years' occupation of Spain. His victory, won on June 21st, was overwhelming. All the artillery and almost all the treasure and stores of the French army fell into the hands of the conquerors. Both armies now rested for some weeks, during which interval Wellington gained the confidence of the inhabitants of the district by his unsparing repression of marauding, his business-like payment for supplies, and the excellent discipline which he maintained among his soldiers. In February, 1814, the advance was renewed. The Adour was crossed, and Soult, leaving a garrison in Bayonne, fell back on Orthes. At Orthes he was attacked and defeated. Bordeaux now declared in favor of the Bourbons, and admitted the English. Soult's last move was upon Toulouse. Here, after the allies had entered Paris, but before the abdication of Napoleon had become known, the last battle of the war was fought. Peace being proclaimed, Wellington took leave of his army at Bordeaux, and returned to England, where he was received with extraordinary honors.

After the treaty of Paris (May 30) Wellington was appointed British ambassador at the French capital. He remained in France until February, 1815, when, in consequence of the return of Lord Castlereagh to England to meet the House of Commons, he took that minister's place at the congress at Vienna. His imperfect acquaintance with French feeling was strikingly proved in the dispatch which he sent home on learning of Napoleon's escape from Elba. "He has acted," he wrote, "upon false or no information, and the king (Louis XVIII.) will destroy him without difficulty and in a short time." Almost before Wellington's unfortunate prediction could reach London, Louis had fled beyond the frontier, and France was at Napoleon's feet. The ban of the congress, however, went out against the common enemy of mankind, and the presence of Wellington at Vienna enabled the allies at once to decide upon their plans for the campaign. To Wellington and Blücher was committed the invasion of France from the north, while the Russians and Austrians entered it from the east. Wellington, with 35,000 English troops and about 60,000 Dutch, Germans, and Belgians, took his post in the Netherlands, guarding the country west of the Charleroi road. Blücher, with 120,000 Prussians, lay between Charleroi, Namur, and Liège. In the meantime Napoleon had outstripped the preparations of his adversaries, and by June 13th had concentrated 130,000 men on the northern frontier about Philippeville.

Although the French advance on the center became evident at the front on the morning of the 14th, it was unknown to Wellington till the afternoon of the 15th (after the Prussians had been driven out of Charleroi) that the French had made any movement whatever.

How it was that the advance remained unknown to Wellington for twenty-four hours has not been explained. Commencing his concentration eastward twenty-four hours too late, he was unable to fulfill his design of assisting Blücher. Ney, getting a start on the Brussels road, kept the English occupied at Quatre Bras during the 16th, while Napoleon was dealing with the Prussians at Ligny—though the ultimate defeat of the French at Quatre Bras, and Napoleon's own failure to follow up his victory at Ligny by a rapid pursuit, rendered it possible for the allies to effect two days later the combination which they had failed to effect at Ligny. On the morning of Sunday, June 18, Wellington, assured of Blücher's assistance, awaited Napoleon's attack on the memorable plain of Waterloo. How, at the head of 30,000 English and 40,000 mixed troops, he withstood the onslaught of the French army, and ultimately, in union with Blücher, swept them from the field, needs not to be recounted here.

Ending his military career with one of the greatest achievements in history, Wellington suddenly became, from the peculiar circumstances of the moment, the most influential politician in Europe. The czar and the emperor of Austria were still at Nancy when Paris surrendered. Wellington had reason to believe that Alexander bore so hostile a feeling toward Louis XVIII., that if matters were not settled before the arrival of the czar at Paris, the Bourbon dynasty might not be restored at all. He therefore took affairs into his own hands, and concluded an arrangement whereby the regicide Fouché, at that moment the most powerful man in Paris, was accepted as the minister of Louis XVIII. The negotiation with Fouché was not a dignified episode in Wellington's life; he stooped, however, to a somewhat humiliating expedient in order to avert substantial mischief. The next manifestation of his personal ascendancy was of a finer kind. The conditions of peace with France had to be determined by the allies; and, while the czar urged that France should be left with undiminished territory, Prussia demanded, as a guarantee against renewed aggression, the annexation of Alsace and Lorraine. The British cabinet at first inclined to the Prussian view. Wellington, however, argued strongly for the opposite policy. Wellington's arguments brought the English Government round to his own view, and so turned the balance in favor of the czar's policy of forbearance and against the annexations demanded by Prussia.

Peace being concluded, Wellington was appointed commander-in-chief of the joint army of occupation, by which it was stipulated that France should be watched for the next five years. Returning to England, he sank into the comparative insignificance of master-general of the ordnance, with a seat in the cabinet. For the next three years he was little before the world; but in 1822, on the death of Castlereagh, he was sent in the place of that minister to represent Great Britain at the congress of Verona. The main question before the congress was the policy to be adopted with regard to the Spanish movement, whether called revolutionary or constitutional, by which the absolute monarchy of King Ferdinand had been overthrown. No sooner had Wellington arrived at Verona than he found that the czar was bent upon obtaining a joint declaration of all the powers condemning the Spanish constitution, and committing to the Russian army, as the mandatory of Europe, the task of overthrowing it. In pursuance of his instructions, Wellington now stated that Great Britain would rather sever itself from the European alliance cemented at Aix-la-Chapelle than consent to any such joint declaration; and the information which he had privately acquired at Paris enabled him to inform the



czar that his project of employing Russian troops in Spain would certainly be thwarted by France. Armed with these two powerful arguments—the one public and official, the other personal and private—Wellington had no great difficulty in preventing the summary framing of a decree against Spain like that which had been issued two years before by the congress of Troppau against the constitution of Naples.

In the cabinet of Lord Liverpool the influence of Canning had, since Castlereagh's death, been predominant on all matters of foreign policy. Though Wellington disliked the tone of defiance frequently used by Canning toward the autocratic courts, he was sincerely at one with Canning's Spanish policy; and, when Canning, abandoning his position of passive neutrality between the Turkish Government and insurgent Greece, proposed to attempt joint diplomatic action with Russia in hope of terminating the struggle, the duke was willing to cooperate in this policy within certain limits. Canning, while really anxious to assist the Greeks, based his new policy officially on the need of preventing Russia from acting alone. He therefore consented, on the coronation of the czar Nicholas in 1826, to carry proposals to St. Petersburg for the diplomatic cooperation of Russia and England in bringing about a settlement of the Greek question. On April 4, 1827, the protocol of St. Petersburg was signed, by which the two powers agreed that the mediation of England should be offered to the Porte, on terms that Greece should be granted local autonomy, but remain part of the Ottoman empire and tributary to the sultan. Scarcely had this protocol been signed when the accession of Canning to the premiership caused Wellington to withdraw from the government.

Canning died in August, 1827, and on the fall of Lord Goderich's cabinet five months later Wellington became prime minister. His cabinet included at the first Huskisson, Palmerston, and other followers of Canning. The repeal of the Test and Corporation Acts having been carried in the House of Commons in the session of 1828, Wellington, to the great disappointment of Tories like Lord Eldon, recommended the House of Lords not to offer further resistance, and the measure was accordingly carried through. Soon afterward a quarrel between the duke and Huskisson led to the retirement from the ministry of all its more liberal members. It was now hoped by the so-called Protestant party that Wellington, at the head of a more united cabinet, would offer a steady resistance to Catholic emancipation. Never were men more bitterly disappointed. Catholic emancipation was the great act of Wellington's ministry; in other respects his tenure of office was not marked by much success.

As soon as Catholic emancipation was carried, the demand for a reform of parliament agitated Great Britain from end to end. The duke was ill-informed as to the real spirit of the nation. He conceived the agitation for reform to be a purely fictitious one, worked up by partisans and men of disorder in their own interest, and expressing no real want on the part of the public at large. Met with a firm resistance, it would, he believed, vanish away, with no worse result than the possible plunder of a few houses by the city mobs. Thus wholly unaware of the strength of the forces which he was provoking, the duke, at the opening of the parliament which met after the death of George IV., declared against any parliamentary reform whatever. This declaration led to the immediate fall of his government. Lord Grey, the chief of the new ministry, brought in the Reform Bill, which was resisted by Wellington as long as anything was to be gained by resistance. When the creation of new peers was

known to be imminent, Wellington was among those who counseled the abandonment of a hopeless struggle. His opposition to reform made him for a while unpopular. He was hooted by the mob on the anniversary of Waterloo, and considered it necessary to protect the windows of Apsley House with iron shutters.

For the next two years the duke was in opposition. On the removal of Lord Althorpe to the House of Lords in 1834, King William IV. unexpectedly dismissed the Whig ministry and requested Wellington to form a cabinet. The duke, however, recommended that Peel should be at the head of the government, and served under him, during the few months that his ministry lasted, as foreign secretary. On Peel's later return to power in 1841 Wellington was again in the cabinet, but without departmental office beyond that of commander-in-chief. On Peel's defeat in 1846, the duke retired from active public life. He was now nearly eighty. His organization of the military force in London against the Chartists in April, 1848, and his letter to Sir John Burgoyne on the defenses of the country, proved that the old man had still something of his youth about him. But the general character of Wellington's last years was rather that of the old age of a great man idealized. To the unbroken splendors of his military career, to his honorable and conscientious labors as a parliamentary statesman, life unusually prolonged added an evening of impressive beauty and calm. Death came to him at last in its gentlest form. He passed away on September 14, 1852, and was buried under the dome of St. Paul's in a manner worthy both of the nation and of the man. His monument, a mere fraction of the work originally designed, stands in the chapel at the southwestern end of the cathedral.

WELLINGTONIA is the name given by Lindley to a genus including only one species, the *W. gigantea*, the greatest of all pines. Americans refer the Wellingtonia to the genus *Sequoia*, which contains two species, *S. sempervirens* and *S. gigantea*. The foliage of the latter is very similar to that of an arbor vitae, the leaves being very small like scales, and closely appressed to small slender branchlets. The *W. gigantea* has a columnar stem, which branches only on the upper half of it, the branches of comparative small size, and not forming an umbrageous head. The stem attains a height of 300 feet, and sometimes is perfectly straight and erect.

One Californian tree is known 321 feet in height; and near it lies a large one which has fallen, and which was broken against another large tree in its fall; its diameter when broken 300 feet from its base being 18 feet. Another tree is 102 feet in circumference at the base. This tree is found only in a limited district in California, on the Sierra Nevada, or at an elevation of 4,000 to 5,000 feet above the level of the sea. It was discovered in 1850 by Mr. Dowd, who, being engaged in deer hunting, came with astonishment into the midst of a group of these trees, now known as the Mammoth Trees of Calaveras. In this locality, within an area of fifty acres, there are 123 large trees, 20 of which exceed 25 feet in diameter at the base, and are therefore about 78 feet in circumference. A tree which was felled was 302 feet in height, and 96 feet in circumference at the ground. It was sound in the center. Its age may be guessed at something like 3,000 years. It was calculated to contain about 500,000 cubic feet of timber. Five men were employed twenty-two days in felling it, by boring great auger holes and sawing between them. When it was cut through it remained steadfast on its base, and more than two days were spent in driving in great wedges to cause it to fall. A



wooden house has been erected on the stump, where dancing parties sometimes enjoy themselves. For several years the Wellingtonias of Calaveras were supposed to be the only trees of their kind in existence, but groups have been found in other parts of the same district, and scattered trees in a number of localities.

WELLS, a municipal borough in the county of Somerset, England, at the foot of the Mendip Hills, 135 miles west of London. At present it is a place of little importance, except for its cathedral, markets, and assizes. The population of the city (726 acres) in 1901 was 5,834.

WELLSVILLE, a prominent town of Columbiana county, Ohio, is situated on the Ohio river, twenty miles above Steubenville, and forty-eight miles below Pittsburgh. It is also located on the Cleveland and Pittsburgh railroad, 102 miles from Cleveland, and has direct communication with Cincinnati and Southern cities by way of the river. The scenery in the vicinity of Wellsville is varied and attractive, and the interests centered there are extensive and valuable, special reference being had to those of a productive character. These latter include five foundries, beside iron and steel works, terra-cotta works, electric light works, grist, lumber, and planing mills, manufactories of leather belting and mechanical supplies, rockingham ware, fire-brick, hardware, woodenware, paper, brooms, etc., etc., all of which are in successful operation and annually turn out large invoices of goods, which supply a constant demand in trade centers throughout the country. One daily and two weekly papers are issued, and two banks meet the requirements of the public service. The city contains, in addition, seven churches, a union school, a number of public improvements, halls, hotels, etc., and a large number of stores. The population of 2,315 in 1870 was increased to 3,500 in 1880, and to 6,146 in 1900.

WELSHPOOL, or POOL, a market-town and municipal and parliamentary borough in Montgomeryshire, North Wales, is situated in the upper Severn valley not far from the river, on the Shropshire Union canal, and on the Cambrian railway, 207 miles northwest of London, 8 north of Montgomery, and 18 west of Shrewsbury. The flannel manufacture, formerly its chief industry, has now ceased, but there is a large manufactory of tweeds and woolen shawls. The population of the municipal borough (area 19,549 acres) in 1871 was 7,370 and in 1881 it was 7,107. The population of the parliamentary borough (area 6,761 acres) in 1901 was 7,211.

WENCESLAUS, German king, was the eldest son of Emperor Charles IV., of the house of Luxemburg. He was born in 1361, and when three years of age was crowned as his father's successor in Bohemia. In 1376 he was elected king of the Romans, and in 1378, on the death of Charles IV., he mounted the Bohemian and German thrones. In 1393, in the course of a struggle with the archbishop of Prague, he shocked both friends and enemies by the murder of the vicar-general John of Pomuk, who, after being subjected to torture, was bound and thrown into the river Moldau. With all his faults, Wenceslaus was sincerely anxious to check the violence of the Bohemian nobles. They accordingly plotted against him, and in Jobst of Moravia, to whom Brandenburg had been given in pledge by Sigismund, the brother of Wenceslaus, they found a powerful friend and leader. Wenceslaus was taken prisoner in 1394, and kept for some months in close confinement, and he was set free only when the German princes threatened that if he were detained the conspirators would be treated as enemies of the empire. He was unable to recover more than the appearance of power, and in 1395

he made himself an object of general contempt by selling to John Galeazzo Visconti, of Milan, the dignity of a duke of Lombardy. In 1402 he was made prisoner by his brother Sigismund, who kept him in confinement for nineteen months. After his release he was not less arbitrary than before, and he caused much discontent by encouraging the disciples of Huss, whom he supported, not apparently because he cared for their doctrines, but because he found it convenient to use them as an instrument against the clergy. On the death of Rupert in 1410 Wenceslaus, while retaining the title of the king of the Romans, resigned his claims to the imperial dignity in favor of Sigismund, who was elected to the German throne. Wenceslaus died of a stroke of apoplexy on August 16, 1419.

WENDS. See SAXONY.

WENDS (from the same root as to wend, to wander, and signifying the wandering or roving border tribes), the name given by the Germans to a branch of Slavs, which, as early as the sixth century, occupied the north and east of Germany from the Elbe along the coast of the Rhine to the Vistula, and as far south as Bohemia. They were divided into several tribes which were subdued by the Germans, and either extirpated or gradually Germanized and absorbed, although remains of them are still here and there to be found. In a narrower sense the name of Wends is given to those remnants of a Slavic population of Lusatia, who still speak the Wendic tongue, and preserve their peculiar manners and customs. They number about 150,000. The Wends, like the other subject Slavic tribes, were in early times cruelly oppressed by their German masters; in recent times their lot has been more tolerable.

WENLOCK, or MUCH WENLOCK, a market-town and municipal borough of Shropshire, England, is situated on a branch of the Great Western railway, 163½ miles northwest of London, 11 south of Wellington, and 12 southeast of Shrewsbury. The town is chiefly dependent on its agricultural trade. There are limestone quarries in the neighborhood. The population of the municipal borough (the area of which is about 33,000 acres and embraces 17 parishes) in 1871 was 19,401 and in 1881 it was 18,442. In addition to the municipal authority the town itself is under the government of a local board. The population of the urban sanitary district (area 9,737 acres) in 1871 was 2,531, and in 1901 it was 2,821.

WENTWORTH. THOMAS, See STRAFFORD.

WENZEL, KARL FRIEDRICH, German metallurgist, was born at Dresden in 1740. In Amsterdam he took lessons in surgery and chemistry, and then entered the Dutch navy as a surgeon. After some years a sea life lost its charm for him, and he resigned, returning to his native land in 1766 to complete his chemical studies at Leipsic. He also made some very careful chemical experiments, particularly on the mixture of solutions of various salts, and wrote several books on chemical subjects; his claim for remembrance rests on one of these, *Vorlesungen über die chemische Verwandtschaft der Körper*. It was published in 1777; a second edition appeared in 1782, and a third with additions in 1800. In 1780 Wenzel received the appointment of director of mines at Freiberg from the elector of Saxony, and in 1786 that of chemist in the porcelain works at Meissen. He died at Freiberg on February 26, 1793.

WERDAU, a manufacturing town of Saxony, is situated on the Pleisse, in the industrial district of Zwickau, about forty miles south of Leipsic. Its chief industries are cotton and wool-spinning and the weaving of cloth, but machinery of various kinds, paper, and a few other articles are also manufactured. The population, 4,994 in 1834, was 17,638 in 1901. The adjoining village of



Leubnitz, with 2,400 inhabitants, is now practically a part of Werdau.

WEREWOLF. See LYCANTHROPY.

WERGELAND, HENRIK ARNOLD, Norwegian poet and prose writer, was born in 1805, and died in 1845.

WERNER, ABRAHAM GOITLOB, the father of German geology, was born in Oberlausitz, Saxony, September 25, 1750. In 1771 he repaired to the university of Leipsic and went through the usual curriculum of study, but continued to devote himself with the greatest ardor to mineralogical pursuits. While still a student he wrote his first work on the external characters of minerals (*Ueber die äussern Kennzeichen der Fossilien*, Leipsic, 1764) which at once gave him a name among the mineralogists of the day. His friends in Freiberg, who had watched his progress with much gratification, called him at the close of his college life to be inspector in the mining school and teacher of mineralogy there. To the development of that school and to the cultivation of mineralogy and geognosy he henceforth devoted the whole of his active and indefatigable industry. He died at Freiberg on June 30, 1817.

WERNER, FRIEDRICH LUDWIG ZACHARIAS, German poet, was born at Königsberg on November 18, 1768, and died at Vienna on January 17, 1823.

WERNIGERODE, a town of Prussian Saxony, about twelve miles to the southwest of Halberstadt, is situated on the Holzemme, on the north slopes of the Harz Mountains. The population of Wernigerode in 1900 was 11,083; including the immediately adjoining villages of Nöscherode and Hasserode, it was 15,804.

WESSEL, a strongly fortified industrial town in Westphalia, Prussia, is situated at the confluence of the Rhine and the Lippe, forty-six miles southwest of Münster, and thirty-five miles southeast of Nimeguen in Holland. Wesel carries on a considerable trade both by railways and its two rivers; wood and fish are perhaps the main exports. It has manufactures of wire, leaden pipes, and other metal goods, pianofortes, sugar, etc. The population was 27,677 in 1901.

WESSEL, JOHN KUCHRATH, of Oberwesel (see above), was born in the early years of the fifteenth century, and died under sentence of imprisonment for life on a charge of heresy in the Augustinian convent in Mainz in 1481. He appears to have been one of the leaders of the humanist movement in Germany, and to have had some intercourse and sympathy with the leaders of the Hussites in Bohemia.

WESER (O. Germ. *Visuracha*, *Wisura*, Lat. *Visurgis*), one of the chief rivers of Germany, formed by the union of the Werra and the Fulda at Münden, in the Prussian province of Hanover, flows to the north and north-northwest, and enters the North Sea below Bremerhafen, to the east of the Jade Bay. The mouth is 170 miles from Münden, but the winding course of the river is 279 miles long; if the measurement be made from the source of the Werra, in Thuringia, the total length of the stream is 439 miles. The Weser drains a basin estimated at 18,360 square miles. Its principal tributaries on the right are the Aller, Wümme, Drepte, Lune, and Geeste, and on the left the Diemel, Nehe, Emmer, Werre, Aue, and Hunte. The Werra and Fulda are both navigable when they unite to form the Weser; the Aller, Wümme, Geeste, and Hunte are also navigable. Beyond the junction of the Hunte, the Weser, hitherto a single stream, is divided into several channels by islands.

WESLEY, an English family of special ecclesiastical distinction, claims descent from the ancient De Wellesleys, one of whom, Guy, was made a thane by Athelstan about 938, the family seat being at Welswe, near Wells, in Somerset. Two brothers, John and Bartholomew,

were among the ministers ejected for nonconformity in 1662.

SAMUEL, son of the above John, was born December 17, 1662. He was educated at an academy at Stepney, London, and in August, 1683, entered Exeter College, Oxford, as a *pauper scholaris*, shortly after which he joined the Church of England. He graduated B.A. 1688, was ordained priest February 24, 1689, and the following year was presented to the living of South Ormsby, Lincolnshire. In 1697 he removed to Epworth, Lincolnshire, where he died April 25, 1735. Among other works he was the author of *Life of Christ* (1693), *Elegies on Queen Mary and Archbishop Tillotson* (1695), *History of the Old and New Testaments in Verse* (1704), *Pious Communicant Rightly Prepared* (1700), and *Latin Commentary on the Book of Job* (1733). After the battle of Blenheim he published (1705) a long poem on *Marlborough, or the Fate of Europe*, for which Marlborough made him chaplain of a regiment. He had nineteen children, of whom three sons, Samuel, John, and Charles, acquired eminence. He died in 1735.

SAMUEL was born in London, February 10, 1690, and educated at Westminster school, where he was nominated king's scholar. In 1711 he entered Christ Church, Oxford, and on taking his M.A. degree returned to Westminster as tutor. Wesley became master of Tiverton grammar-school in 1732, and died there November 6, 1739.

JOHN, brother of the preceding and founder of Methodism, was born, probably at Epworth, June 17 (O.S., 28 N.S.), 1703. There was a tradition in the family that he was christened John Benjamin, but he never made use of the second name. When his father's rectory was burned down in 1709, he was for a time left in the building, and narrowly escaped death. He entered Charterhouse in 1714, whence, in 1720, he was elected to Christ Church, Oxford. In 1726 he became fellow of Lincoln, and in 1727 graduated M.A. After acting for some time as his father's curate, he settled in November, 1729, at Oxford, and began to take pupils. About the same time, along with his brother Charles and others, he commenced that systematic course of religious life which led to their being termed by the Oxonians, Methodists. A full record of the religious labors of Wesley is given under METHODISM. In the organization of Methodism he displayed not only extraordinary energy and capacity for work, but remarkable administrative powers. His oratory was colloquial, terse, and homely, but never vulgar, while his expressive and refined features, and intense yet reasoned earnestness, enabled him to acquire among his followers a personal influence of an unrivaled kind. He died March 2, 1791. Wesley translated several hymns from the German for the collections edited by him and his brother Charles, but is not known to have been the author of any original hymns (see HYMNS). The first collection of *Psalms and Hymns* edited by the brothers appeared anonymously in 1738, and a *Collection of Moral and Sacred Poems from the Most Celebrated Authors*, in 1744. He was the author of *Primitive Physic* (1747), *Explanatory Notes on the New Testament* (1755), *Notes on the Old and New Testaments* (1764), *Doctrine of Original Sin* (1757), *Survey of the Wisdom of God in Creation* (1763), *Preservative Against Unsettled Notions in Religion* (1770), and *A Calm Address to our American Colonies* (1775). He also edited the *Christian Library*, in fifty volumes.

CHARLES, brother of the preceding, was born prematurely at Epworth, December 18, 1708. He entered Westminster school in 1716, was admitted a king's scholar in 1721, and entered Christ Church, Oxford, in



1726. To a serious illness which happened to him in February, 1738, he attributed a moral change which he associated with conversion and a conscious sense of pardon. He seconded his brother in his evangelizing labors in England with unceasing diligence, and, although not possessing his brother's gifts of oratory and personal magnetism, contributed by his hymns an element of success to the movement, of prime and permanent importance. He published no fewer than 4,100 hymns of his own composition, and left about 2,000 in manuscript. He died March 29, 1788. His *Sermons*, with memoir, appeared in 1816; a *Life*, by Rev. Thomas Jackson, in 1841, and his *Journal*, with notes by Rev. Thomas Jackson, 1849.

Two sons of Charles Wesley attained eminence as musicians: CHARLES, born 1757, died 1815, organist of St. George's, Hanover Square, London, who in 1778 published *Six Concertos for the Organ and Harp*; and SAMUEL (1766-1837), organist of the Chapel Royal, noticed below.

WESLEY, SAMUEL, musical composer, son of Charles Wesley (see above), was born at Bristol, February 24, 1766, and developed so precocious a talent for music that at three years old he played the organ and at eight composed an oratorio entitled *Ruth*. He died, October 11, 1837, leaving a vast number of MSS. and printed compositions.

WESSEL. WESSELUS GANSFORTIUS, German theologian and mystic, was born at Groningen in 1400 (Hardenberg), in 1419 (Suffridus Petri), or in 1421. For thirty years he was the foremost theological academician in Paris, where he had many famous pupils. He died on October 4, 1489, with the confession on his lips, "I know only Jesus the crucified." He is buried in the middle of the choir of the church of the "Geestelichen Maegden," whose director he had been.

WESSEX. See ENGLAND.

WEST, BENJAMIN, history and portrait painter, was born in 1738, at Springfield, in Pennsylvania, coming of an old Quaker family who had emigrated from Buckinghamshire. When a boy of seven he began to show his inclination to art, and at the age of eighteen he settled in Philadelphia as a portrait-painter. After a short time he removed to New York, where he practiced his profession with considerable success. In 1760, through the assistance of some friends, he was enabled to complete his artistic education by a visit to Italy. On the expiry of his Italian visit he settled in London as an historical painter. His success was not long doubtful. George III. took him under his special patronage; and commissions flowed in upon him from all quarters. In 1768 he was one of the four artists who submitted to the king the plan for a royal academy, of which he was one of the earliest members; and in 1772 he was appointed His Majesty's historical painter. So high did he stand in public favor that on the death of Sir Joshua Reynolds, in 1792, he was elected his successor as president of the Royal Academy, an office which he held for twenty-eight years. In 1804 he resigned his office, but an all but unanimous request that he should return to the chair induced him to recall his resignation. Time did not at all weaken the energy with which he labored at his easel. When sixty-five, he painted one of his largest works, *Christ Healing the Sick*. This was originally designed to be presented to the Quakers in Philadelphia, to assist in erecting a hospital. On its completion it was exhibited in London to immense crowds, and was purchased by the British Institution for 3,000 guineas, West sending a replica to Philadelphia. He died in 1820, in his eighty-second year, and was buried in St. Paul's.

WESTALL, RICHARD, subject painter, was born in

Hertford in 1765, of a Norwich family. In 1808 he published a poem, *A Day in Spring*, illustrated by his own pencil. He became an associate of the Royal Academy in 1792, and a full member in 1794; and during his later years he was a pensioner of the Academy. His last employment was to give art instruction to the Princess Victoria. He died on December 4, 1836. His brother, William Westall, A.R.A. (born in 1781), landscape painter, is mainly known by his illustrations to works of travel. He died in 1850.

WEST BAY CITY, a leading and growing city of Bay county, Mich., is located on Saginaw river, opposite Bay City proper, with which it is connected by bridges; also on the Bay City divisions of the Michigan Central and the Flint and Pere Marquette railroads. A line of steamers plies regularly between West Bay City, Alpena, Mackinaw City, and other points on Lake Huron, and railways now in progress of construction will soon place it in direct communication with other points in the State and Northwest. The city was formerly known as Wenona, but, during the seventies, became incorporated and included the villages of Banks and Salzburg within its municipal limits. In 1888 an act was adopted by the Michigan legislature providing for the consolidation of West Bay City and Bay City, but it has never been carried into effect, the former electing to retain its corporate privileges. It is the center of a large trade and among the most important cities in the State, making a specialty of the manufacture of lumber and salt. Two banks, one State and one savings, are successfully operated, and a daily and weekly paper is published there. The city also contains six churches, a high school and number of graded schools, besides being the location of the State normal school and of a public school library founded by a resident of the county and containing many thousand volumes. The manufactures are chiefly lumber, shingles, laths, and salt-boiler works, however, with electric light works, foundries, and machine shops, being successfully conducted, and two ship-yards, among the largest on the chain of lakes between Duluth and Buffalo, in constant operation during the season of navigation. The city is lighted by electricity, supports well regulated municipal departments, has several fine hotels, and is reached from Bay City by means of a thoroughly-equipped street railroad. The population in 1900 was 13,110.

WESTBOROUGH, a manufacturing town of Worcester county, Mass., with a population of 5,400. It has good railroad and banking facilities and contains several seminaries and schools.

WEST BROMWICH, a municipal and parliamentary borough of Staffordshire, Eng., is situated near the River Tame, and on the Great Western railway, six miles northwest of Birmingham, and 133¼ miles from London. There are several large foundries, smelting-furnaces, and forges, but the staple manufactures are the various kinds of implements of wrought-iron used for household, agricultural, and mechanical purposes. The town also possesses brass foundries, maltings, limekilns, and brickyards. Population, 1901, 65,172.

WESTBURY, RICHARD BETHELL, BARON, English statesman, was the son of Dr. Richard Bethell, and was born at Bradford, Wilts, in 1800.

In 1851 he obtained a seat in the House of Commons, where he continued to sit, first as member for Aylesbury, then as member for Wolverhampton, until he was raised to the peerage. Attaching himself to the Liberals, he became solicitor-general in 1852, and attorney-general in 1856 and again in 1859. On June 26, 1861, on the death of Lord Campbell, he was created lord high chancellor of Great Britain, with the title



of Baron Westbury of Westbury, county Wilts. His principal legislative achievements were the passing of the Divorce Act, 1857, and of the Land Registry Act, 1862 (generally known as Lord Westbury's Act), the latter of which in practice proved a failure. Lord Westbury died on July 20, 1873, within a day of the time of the death of Bishop Wilberforce, his special antagonist in debate.

**WEST CHESTER**, a borough and the county seat of Chester county, Penn., is situated twenty-seven miles west of Philadelphia, in a thickly settled farming region, devoted principally to market gardening and the dairy industry. Its population in 1880 was 7,046, and in 1900 was 9,524.

**WEST DERBY**, a township in Lancashire, England, now virtually a suburb of Liverpool, about four miles northeast of Liverpool Exchange. It is chiefly composed of houses inhabited by the wealthier merchants of Liverpool. The population of the urban sanitary district (area 5,561 acres) was 48,614 in 1901.

**WESTERLY**, a growing town of Washington county, R. I., is situated on the Pawcatuck river at the head of navigation, and on the main line of the New York, Providence and Boston railroad, half-way between Providence and New London. It is located in the immediate vicinity of quarries producing granite of unsurpassed quality and susceptible of the finest finish, the quarrying and working of which give employment to nearly five hundred experienced operatives, and an equal number of laborers. The stone is adapted both to building and artistic purposes, and many of the leading edifices of Hartford, New Haven, Stonington, New London, and other cities in the East and in the West, are constructed of this material. Westerly is also an important trade and manufacturing center, and one of the most substantially built towns along the Sound. It contains four savings and four national banks, with an aggregate capital of nearly one million dollars. Two weekly papers, ten churches, a high school, public library, an opera house, a number of hotels, one of which was recently completed at a cost of \$300,000, and many stores, commercial warehouses, etc. The manufactures include cotton, woolen, and flannel goods, proprietary medicines, carriages, flour machinery, and building materials. The city is lighted by gas and is otherwise supplied with conveniences and appliances adaptive to municipal demands. The city population in 1900 was about 7,541.

**WESTFIELD**, a city of Hampden county, Mass., handsomely situated on the river of the same name and surrounded by a country of surpassing beauty and fertility, is conspicuous for its importance as an industrial and trade center. The Boston and Albany and New York, New Haven and Hartford railroads meet at Westfield and furnish complete traffic facilities to all points in New England and the east, communication with the southern and western markets being obtained by means of connecting lines, through which an outlet is afforded for the large and varied lines of manufacture turned out. These embrace whips, lashes and stocks, in the manufacture of which from fifteen to twenty firms are extensively engaged, furnace-drafts, drain-pipe, organ-pipes, cotton-waste, steam-heating apparatus, steam-power, corundum and emery wheels, wooden-ware, lumber, paper, extracts, leather, thread, cigars, advertising novelties, etc., annually footing up in values to a very large amount. The city contains two national and two savings banks, two weekly papers, ten churches, a high school and academy, also the Westfield State Normal School, three hotels, an opera house and music hall with a total seating capacity of 2,000, and a large number of well-stocked and maintained commercial

enterprises. The city is lighted by gas and has recently completed a system of water supply at an expense of \$250,000. In 1888 the population was stated at 8,400, and in 1900 at 12,310.

**WESTERN AUSTRALIA**. This British colony, the portion of Australia that lies to the west of 129° E. longitude, forming considerably more than one-third of the whole, has an area of 975,020 square miles, is 1,280 miles in length and 800 in breadth, and has a coast-line of 3,500 miles. It is divided into five districts—Central, Central Eastern, South-Eastern, North, and Kimberley. With little or no cold anywhere, the heat of summer over the whole area is considerable. Western Australia differs from the country to the east in having no extensive ranges to collect vapor, while the trade winds blow off the dry land instead of from the ocean; for these two reasons the climate is very dry. Thunderstorms often supply almost the only rainfall in the interior. The southwestern corner, the seat of settlements, is the only portion where rains can be depended on for cultivation; but even there few places have a rainfall of forty inches. As one goes northward the moisture lessens. The northwest and all the coast along to Kimberley, with most of that district, suffer much from dryness.

The hot wind of Swan river is from the east and northeast; but it is from the south in summer to Kimberley and the northwest. In one season the land breeze is hot, in another cool, but always dry. Perth has an average rainfall of twenty-nine inches with an evaporation of sixty-six. The temperature ranges from 34° to 100° in the shade. In 1880 there fell 32½ inches on 100 days, while Albany had 32 on 138 days, Augusta 46 on 122 days, and York less than 18 on 81 days. The estimated population (1901) was 182,553.

The earliest mines were of lead and copper in Victoria district. Berkshire valley has in addition plumbago, the Irwin antimony, and Woongong silver. The Geraldine lead and silver ores were first worked in 1845. Wheal Fortune and Tortura mines are of silver-lead; Gelira, Wheal Alpha, and Narra Narra of copper. Iron ores are abundant; they are magnetic at Mount Magnet. Coal has not yet been found in any quantity. Carboniferous rocks are seen in several places, and fair specimens of coal have been obtained. A semi-bituminous mineral near the Swan and the Murray yields a pale oil, which would serve to varnish wood. Gold, long looked for, has been found in Kimberley, and diggers rushed to the country about the Margaret, Mary, and Elvira rivers. The majority did not find returns equal to expenditure; but auriferous quartz of great richness has been reported recently. The proclaimed gold-field lies between 16° and 19½° S., 126° and 129° E. Building stone is found of many varieties.

Agriculture was once confined to the Swan river quarter, but is rapidly extending northward in Victoria district, where the land is free of timber, though the rain-fall is very light. In Kimberley, tropical produce, especially sugar, cotton, spices, and rice, can be readily raised. The southwest is essentially a farming country, but the soil is generally sandy. In 1901 201,946 acres were in crop (hay, 104,104; wheat, 74,130; barley, 2,579; oats, 5,881; maize, 100). The total area under vines in 1900 was 3,246 acres.

Timber was too thick in the old settlement for flocks and herds; the squatting districts are eastward of the dividing range and north of the Swan. The want of water both eastward and northward stops progress, but sheep stations are established in oases of eastern deserts. The northwest, in spite of drought, is a favorite locality for squatters; but the better watered Kimberley



is regarded as the most hopeful. The total area alienated in the colony up to the end of 1900 was 6,619,284 acres. The live stock consisted, at the end of 1900, of 68,231 horses, 338,665 cattle, and 2,431,861 sheep. Some parts, chiefly in the southwest, are troubled with poison plants. Boring in ill-watered places, as the southern and central districts, furnishes water for stock. The Angora goat has been a success there. Rabbits already begin to trouble squatters. In proportion to inhabitants Western Australia has advanced in pastoral pursuits beyond its neighbors, except in the quality of stock and the get-up of wool. At the census of 1891, 8,746 persons were returned as directly engaged in agricultural pursuits and 6,380 persons were engaged in industrial pursuits.

Judged by its vegetable forms, Western Australia would seem to be older than Eastern Australia, South Australia being of intermediate age. Indian relations appear on the northern side, and South African on the western. There are fewer Antarctic and Polynesian representatives than in the eastern colonies. European forms are extremely scarce. Compared with the other side of Australia, a third of the genera of the southwest is almost wanting in the southeast. In the latter, fifty-five, having more than ten species each, have 1,260 species; but the former has as many in fifty-five of its eighty genera. Baron Von Mueller declared that "nearly half of the whole vegetation of the Australian continent has been traced to within the boundaries of the Western Australian territory."

The timber trees of the southwest are almost unequalled. Of the eucalypts, the jarrah or mahogany, *E. marginata*, is first for value. It runs over five degrees of latitude, and its wood resists the teredo and the ant.

Of the mammals, fossil forms partake of the existing marsupial character, *Diprotodon* being allied to the wombat and kangaroo. Nail-bearing kangaroos are in the northwest; the banded one, size of a rabbit, is on Sharks Bay. Nocturnal phalangers live in holes of trees or in the ground. Carnivorous *Phascogale* are found in southwest. There are three kinds of wombat. The colony has only two species of wallabies to five in New South Wales. The dingo is the wild dog. The platypus (*Ornithorhynchus*) and the *Eckidna* are the only forms of the *Monotremata*. The seal, whale, and dugong occur in the adjacent seas.

The west is not so rich as the east of Australia in birds. Many forms are absent and others but poorly represented, though some are peculiar to the west. The turtle is obtained as an article of food. The freshwater fishes are not all like those of the east. They include the mullet, snapper, ring fish, guard fish, bonita, rock cod, shark, saw fish, parrot fish, and cobbler. Under the head of fisheries may be mentioned the pearl oyster, which is dived for by natives at Sharks Bay; the trepang or bêche-de-mer is also met with in the north. Insects are well represented, especially *Coleoptera*, *Lepidoptera*, *Hymenoptera*, *Hemiptera*, and *Diptera*.

Safe harbors are few, and hundreds of miles of the coast-line are without shelter for a vessel. The coasting traffic, until recently, was confined to the southwest, from the Sound to Victoria district, but wool is now shipped at the northwest, as well as pearls, while wool, pearl shells, hides, tallow, and gold are claiming attention in the tropical northeast. The imports for 1900 amounted to \$29,810,890; the exports reached \$34,260,270, the main items being wool, shells, guano, timber, sandalwood, pearls, lead, copper, manna gum, and gold.

The pastoral industry occupies the first place. Fish-

eries are taking an important position (pearl shell, bêche-de-mer, and preserved or tinned fish). Mandurah, at the mouth of the Murray, and Freemantle have preserving sheds for mullet and snapper. Guano beds are worked to much advantage at the Lacepede Isles. Salt is produced largely at Rottnest Island. Raisins are dried, and the oil of castor trees is expressed. The mulberry tree succeeds well, and sericulture is making progress. Dugong oil is got from Sharks Bay. Honey and wax are becoming valuable exports; from the abundance of flowers the hives can be emptied twice a year. Manna and gums of various kinds are among the resources of the country. Among the wines made are the Riesling, Burgundy, Sweetwater, Hock, and Fontainebleau.

Excellent roads were made during the period of convict labor. The northern railway from Northampton mines to Port Geraldton is thirty-five miles long. The eastern line is from Freemantle through Perth to Guildford (twenty miles) and to Beverley (ninety miles). Communication between the several ports is conducted by steamers, which have been aided by a state subsidy.

Western Australia is a crown colony, administered by a governor, his executive council, and a legislative council partly nominated by the governor. The colonial revenue for 1900 amounted to \$15,050,025, the expenditure to \$14,493,270. In 1901 there were 1,978 miles of railroad.

As in other colonies, the denominational system formerly prevailed; but lately an effort has been made to have public schools on a broader basis. The total expenditure in 1900 was \$390,155. The *Perth Inquirer* was the first newspaper; there are now eleven in the colony.

Of the 182,553 inhabitants 36,199 are in Perth, the capital, 20,359 in Freemantle, 1,000 at Albany, 900 at York. Some trouble from the aborigines was experienced by settlers at first, but now many of them are useful upon stations, making good shepherds. A successful mission for natives has been conducted for many years at New Norcia, about eighty miles north of Perth, by Spanish monks.

WEST HAM, an eastern suburb of London, in the county of Essex, England. It possesses large chemical works, match works, candle factories, manure works, flour-mills, cocoa-nut fiber factories, patent leather cloth factories, smelting works, and copper works. The population of the parish, urban sanitary district, and parliamentary borough (area about 5,390 acres) in 1901 was 267,308.

WEST HOBOKEN, a village of West Hoboken township, Hudson county, N. J., is two miles west of Hoboken proper, and three miles from New York city. It is popular as a resort and summer residence, but derives its chief importance from the manufacture of silk and silk plush carried on, there being no less than fifteen establishments operating in that field of industry. The village is so situated as to command a fine view of the Hudson river and the surrounding country, and contains schools, churches, and many fine private residences. Besides the manufacture of silk, there are a number of houses which devote their attention to the production of kid-gloves, plush-cases, rock-candy, chemicals, and other standard articles of ornament and utility. The population in 1900 was stated at 23,094.

WEST HOUGHTON, a township of Lancashire, England. There are coal-mines in the neighborhood, and the town possesses a silk factory, print-works, and cotton-mills. The population of the urban sanitary district (area 4,341 acres) in 1901 was 11,197.

WEST INDIES. This important archipelago received the name of the West Indies from Columbus,









who hoped that, through the islands, he had found a new route to India. It is also sometimes known as the Antilles (a name, however, more properly applied to a part than to the whole), as Columbus, on his arrival here, was supposed to have reached Antilla, a fabled country, said to lie far to the westward of the Azores, which found a vague and uncertain place on the maps and charts of many geographers before that time. Columbus first landed on St. Salvador, or Watling Island, named by the natives Guanahani, and took possession of it for the Spanish crown.

Spain was not long allowed to retain an undisputed hold upon the islands: British and Dutch seamen soon sought the new region, accounts concerning the fabulous wealth and treasure of which stirred all Europe, and a desultory warfare began to be waged among the various voyagers who flocked to this El Dorado, in consequence of which the Spaniards found themselves gradually but surely forced from many of their vantage grounds, and compelled very materially to reduce the area over which they had held unchecked sway. The first care of the English settlers was to find out the real agricultural capabilities of the islands, and they diligently set about planting tobacco, cotton, and indigo. A French West India Company was incorporated in 1625, and a settlement established on the island of St. Christopher, where a small English colony was already engaged in clearing and cultivating the ground; these were driven out by the Spaniards in 1630, but only to return and again assume possession. About this time, also, the celebrated buccanniers, Dutch smugglers, and British and French pirates began to infest the neighboring seas, doing much damage to legitimate traders and causing commerce to be carried on only under force of arms, and with much difficulty and danger. Indeed, it was not till the beginning of last century—some time after Spain had, in 1670, given up her claim to the exclusive possession of the archipelago—that these rovers were rendered comparatively harmless; and piracy yet lingered off the coasts down to the early years of the present century. In 1640 sugar-cane began to be systematically planted, and the marvelous prosperity of the West Indies commenced; it was not from the gold and precious stones, to which the Spaniards had looked for wealth and power, but from the cane that the fortunes of the West Indies were to spring. The successful propagation of this plant drew to the islands crowds of adventurers, many of them men of considerable wealth. The West Indies were for many years used by the English Government as penal settlements, the prisoners working on the plantations as slaves. In 1655 a British force made an unsuccessful attack on Hayti, but a sudden descent on Jamaica was more fortunate in its result, and that rich and beautiful island has since remained in the possession of Great Britain. The Portuguese were the first to import Negroes as slaves, and their example was followed by other nations having West-Indian colonies, the traffic existing for about 300 years. In 1660 a division of the islands was arranged between England and France, the remaining aborigines being driven to specified localities, but this treaty did not produce the benefits expected from it, and as wars raged in Europe the islands frequently changed hands. Hayti, now divided into two republics, has suffered much from internal broils and revolutions.

The West Indies are situated in about 20° N. latitude, and 75° W. longitude, and form a broken, but upon the whole, continuous barrier, shutting out as it were the Atlantic Ocean from the lesser basins of the Caribbean Sea and Gulf of Mexico. These two seas are separated by the island of Cuba and the isthmus of

Yucatan, with the great Campeche Bank surrounding three sides of the latter. Spring tides do not rise above four feet, nor neaps above two and one-half feet. The equatorial current sweeps around Trinidad and the Antilles into the Caribbean Sea, and the Gulf Stream passes from the Gulf of Mexico by way of the Florida Channel. The well-known Sargasso Sea lies to the northeast of the islands.

The average surface temperature of the sea in the neighborhood of the islands is from 75° to 78° F. in February, from 70° to 80° in May, and from 82° to 84° in August. The mean annual temperature of the Gulf Stream in the Florida Channel is 80° F.

The various groups which go to form the West Indies have in some cases more than one name, but the following classification is that usually adopted: To the north lie the Bahamas, situated upon the Great Bahama Bank, south from which is Cuba; Jamaica, again, lies to the south of the latter, and to the east of Jamaica are Hayti and Porto Rico. Still farther to the east lie the Virgin Islands, south of which are the Caribbee Islands, or Antilles proper, divided by mariners into the Leeward and Windward groups. Trinidad lies close to the coast of South America. Thus the whole archipelago stretches, in the form of a rude arc, from Florida and Yucatan in North America to Venezuela in South America.

*Area and Population of the Islands according to the latest Returns.*

	Year.	Square Miles.	Pop.
<b>UNITED STATES:</b>			
Cuba (now [1902] independent)	1899	35,994	1,572,797
Porto Rico	....	3,600	953,243
<b>BRITISH:</b>			
Bahamas	1901	5,450	53,735
Barbados	1901	166	195,000
Jamaica	1901	4,200	745,104
Turks and Caicos	1901	224	5,350
<b>Leeward Islands:</b>			
Antigua, etc.	1901	170	34,971
Virgin Islands	1901	58	4,908
Dominica	1901	291	28,894
St. Kitts, Nevis, etc.	1901	150	46,446
Montserrat	1901	32	12,215
Trinidad and Tobago	1901	1,868	272,000
<b>Windward Islands:</b>			
Grenada	1901	133	65,523
St. Vincent	1901	132	41,954
St. Lucia	1901	233	49,895
<b>INDEPENDENT:</b>			
Hayti	1894	10,204	1,210,625
San Domingo	1888	18,045	610,000
<b>FRENCH:</b>			
Guadeloupe, etc.	1900	688	172,100
Martinique	1900	380	189,600
<b>DUTCH:</b>			
Curaçoa	1900	210	30,119
Bonaire	1900	95	4,926
Aruba	1900	69	9,591
St. Martin, St. Eustache, and Saba	1900	29	7,057
<b>DANISH:</b>			
St. Thomas, St. John, Santa Cruz, etc.	1900	138	30,504

The principal rivers are the Cauto, the Sagua la Grande, and the Sagua la Chica in Cuba, the Rio Grande and Plantain Garden in Jamaica, and the Gram Yacui, the Neiba, and Yuna in Hayti, all have, necessarily, short courses, and none of them are of much importance.



The population is almost entirely of European, Negro, or East-Asiatic origin. The Negroes far outnumber the others, but the Asiatics are rapidly increasing in numbers. With the exception of part of the Bahamas, all the islands lie between the isotherms of 77° and 82° F. The extreme heat, however, is greatly tempered by the sea breezes, and by long, cool, refreshing nights. Frost is occasionally formed in the cold season when hail falls, but snow is unknown. The seasons may be divided as follows. The short wet season, or spring, begins in April and lasts from two to six weeks, and is succeeded by the short dry season, when the thermometer remains almost stationary at about 80° F. In July the heat increases to an extent well nigh unbearable, and thunder is heard to rumble in the distance. No change need now be looked for till after a period varying from the end of July to the beginning of October, when the great rainfall of the year commences, accompanied by those tremendous and destructive hurricanes, so intimately and truly associated with popular ideas regarding this region, on which the annual rainfall averages sixty-three inches.

The mineral wealth of the islands is not remarkable. Gold, silver, iron, copper, tin, platinum, lead, coal of a poor quality, cobalt, mercury, arsenic, antimony, manganese, and rock salt either have been or are worked. Of late years asphalt has been worked to considerable advantage among the pitch lakes of Trinidad. Opal and chalcidony are the principal precious stones.

The fauna of the region is Neotropical, belonging to that region which includes South and part of Central America, although great numbers of birds from the North American portion of the Holarctic realm migrate to the islands. The resident birds, however, eighteen genera of which are certainly Neotropical, show beyond doubt to which faunal region the islands properly belong. Mammals are, as in most island groups, rare. The agouti abounds, and wild pigs and dogs are sufficiently numerous to afford good sport to the hunter, as well as smaller game, in the shape of armadillos, opossums, muskrats, and raccoons. The non-migrating birds include trogons, sugar-birds, chattering, and many parrots and hummingbirds. Waterfowl and various kinds of pigeons are in abundance. Reptiles are numerous: snakes—both the boa and adder—are innumerable, while lizards, scorpions, tarantulas, and centipedes are everywhere. Insects are in great numbers, and are often very annoying. Among domestic animals mules are largely reared, and where the country affords suitable pasture and forage cattle-breeding is extensively engaged in.

The flora of the islands is of great variety and richness, as plants have been introduced from most parts of the globe, and flourish either in a wild state or under cultivation; grain, vegetables, and fruits, generally common in cool climates, may be seen growing in luxuriance within a short distance of plants which only attain perfection under the influence of extreme heat, nothing being here required for the successful propagation of both but a difference in the height of the lands upon which they grow. The forests, which are numerous and wide-spreading, produce the most valuable woods and delicious fruits. Palms are in great variety, and there are several species of gum-producing trees. But it is to the agricultural resources of the islands that the greatest importance attaches. For centuries almost the whole care of the planters was bestowed upon the cultivation of the sugar-cane and tobacco plant, but since the emancipation of the slaves and the fall in the price of sugar, attention has been turned to the production of other and more varying crops. Sugar is still the staple product, and has for some time been grown in considerable quantities on the small holdings of the Negroes and

other laborers. Crops of tobacco, beans, peas, maize, and Guinea corn are also becoming popular, and a species of rice, which requires no flooding for its successful propagation, is largely produced. For further particulars see CUBA, JAMAICA, HAYTI, and other articles on separate islands.

WESTMACOTT, SIR RICHARD, one of the principal English sculptors of the classical revival, was born in London in 1775, and while yet a boy learned the rudiments of the plastic art in the studio of his father, who was then a sculptor of some reputation. In 1805 he was elected an associate, and in 1811 a full member of the Royal Academy; in 1827 he was appointed to succeed Flaxman as Royal Academy professor of sculpture, and in 1837 he was knighted. A large number of important public monuments were executed by him, including many portrait statues; but, like most sculptors of the pseudoclassic revival, he was not successful with this class of draped figure. He died September 1, 1856, after about fifteen years of retirement from active work.

WESTMEATH, an inland county of Ireland, in the province of Leinster, is bounded northwest by Longford, north by Cavan, northeast and east by Meath, south by King's county, and west by Roscommon. Its greatest length from east to west is about forty miles, and its greatest breadth from north to south about thirty-five miles. The total area is 453,453 acres, or about 708 square miles. The general average height of the surface of the county is over 250 feet above sea-level. Being diversified with hill, valley, lake, and river, it is highly picturesque, but in no part can it be termed mountainous. Good limestone is obtainable for building or agricultural purposes, but in some cases the limestone is difficult to calcine. Copper, lead, coal, and marble have been dug, but are not found in sufficient quantities to make the speculation profitable. A large surface is occupied by bog. A special feature of Westmeath is the number of large loughs, which have a combined area of nearly 17,000 acres. The occupations are almost wholly agricultural, dairy farming predominating. Flour and meal are largely made. The only textile manufactures are those of friezes, flannels, and coarse linens for home use. The only mineral of any value is limestone.

De Burgo in 1760 placed the population at 50,340; in the parliamentary census of 1812 it was given as 112,000; in 1821 it amounted to 128,819, in 1841 to 141,300, in 1861 to 90,879, and in 1901 to 61,527 (males 31,790, females 29,737). Between 1841 and 1881 the decrease has thus been 49.18 per cent. Roman Catholics in 1881 numbered 92.2 per cent. of the population, and Protestant Episcopalians 6.9. In 1881 54 per cent. of the population could read and write, 14.7 per cent. could read, but not write, and 31.3 per cent. could neither read nor write—14.8 per cent. being under seven years of age. There were none who could speak Irish only, 828 could speak Irish and English. The principal towns are Athlone, of which half (3,072 inhabitants out of 6,755) is within the county, the remainder being in Roscommon, and Mullingar (4,787), the county town, a Catholic cathedral city, and an important railway junction. The county is divided into 12 baronies, and contains 63 parishes and 1,356 townlands. It is in the home circuit, and assizes are held at Mullingar, and quarter sessions at Mullingar and Moate.

WESTMINSTER. See LONDON.

WESTMORLAND, a northern inland county of England, adjoins Cumberland on the northwest, Lancashire on the southwest and south, Yorkshire on the east, and a small part of Durham on the extreme northeast. In form it may be regarded as an irregular poly-



gon, with two large re-entering angles on the southwest and southeast. Its length from northeast to southwest is forty-two miles, while from east to west it measures forty miles. The total area is 505,864 acres, whereof 4,958 acres are foreshore, and 8,519 are water.

Physically the county may be roughly divided into two areas. (1) The great upland tract in the north-eastern part, bordering on the western margin of Yorkshire and part of Durham, consisting mainly of a wild moorland area. (2) The area comprising about a third of the mass of the Lake District proper, with its eastward continuation, the Langdale and Ravenstonedale Fells, and also the fells of Middleton and Barbon farther south.

The rainfall is exceptionally heavy. The largest quantity recorded appears to be that in the mountains along the county boundary, west of Grasmere, where the mean amounts to as much as 140 inches. At Sty Head the rainfall amounts to 243.98 inches. The heaviest precipitation takes place in the months of January, September, and October, and the smallest in July.

Among the denizens of the mountains are several plants distinctly alpine in character; and others, more or less boreal in their principal stations, are here found at nearly their southernmost point of distribution. Bog plants are also conspicuous in their variety, and include several forms of some rarity. The lichens, mosses, and ferns are well represented. Of trees the oak and the common elm do not seem quite at home anywhere except in the more sheltered nooks, and in parks and other cultivated places. But the place of the common elm is well supplied by the wych elm, which grows to great perfection. In place of the oak the sycamore is seen almost everywhere in the lower lands; and there are probably few parts of England where the ash thrives so well, or attains to so large dimensions.

Coal, the most important mineral product, occurs in connection with the Carboniferous rocks, but most of the seams are thin and their quality is inferior, so that they have long ceased to have the industrial importance they once possessed. Fireclays of excellent quality and of unusual thickness occur with the coals at Argill, but have not hitherto been turned to industrial account. Among the building-stones those of the New Red deserve the first rank. The warm-tinted, easily-worked, and durable Penrith Sandstone furnishes one of the finest building-stones in the kingdom.

According to the agricultural returns for 1887 the total extent of green crops was 10,232 acres; of grain crops, 19,124, whereof 17,320 were of oats, and only 469 of wheat, and 118 of rye; seed-grasses, 14,951; and 207,017 acres of permanent pasture. The total number of horses is given as 8,547; of cows and heifers in milk or in calf, 24,097; of other cattle, 39,225; of sheep, 334,978; and of pigs, 4,731.

The manufacturing industries, owing to the absence of any large supplies of native fuel, are not numerous. The principal is woollen manufacture in one form or another, and this is chiefly confined to the low country in and near Kendal. Paper-making is also carried on. The assizes are held at Carlisle. The principal town is Kendal, which had in 1881 a population of 13,696. Other towns, all much less important as regards both size and population, are Appleby, Kirkby Lonsdale, Bowness, Kirkby Stephen, Ambleside, Shap, and Orton. The county sends two members to parliament. According to the census of 1901 there were 64,411 inhabitants (31,515 males, 32,676 females), the decrease since 1871 being 819. The proportion of population to acreage is one person to 7.80 acres.

WEST NEW BRIGHTON, a city of Richmond

county, N. Y., situated on the north shore of Staten Island, and eight miles from New York city, with which it is connected by ferry. Its beauty of location, adjacency to New York and Brooklyn, and easy access thereto, have made the city a popular place of residence for merchants engaged in business in those two cities, who have completed improvements of a substantial character, that add materially to the attractions of the place, and the country surrounding. Two weekly papers are published there, and some manufacturing is carried on, the latter consisting principally of carriages, confectionery, and lumber, also some lighter articles of lesser importance and utility. The population is now included in Greater New York.

WESTON-SUPER-MARE, a watering-place of Somerset, England, is situated at the northern extremity of Uphill Bay, a recess of the Bristol Channel. The town has been long famed for its potteries. The population of the urban sanitary district (area 2,770 acres) in 1901 was 14,884.

WESTPHALIA (Germ. *Westfalen*), a province in the west of Prussia, is bounded on the north by the province of Hanover, on the east by the province of Hanover, the principalities of Lippe-Detmold and Schaumburg-Lippe, the duchy of Brunswick, the province of Hesse, and the principality of Waldeck, on the southwest by Rhenish Prussia, and on the northwest by Holland. Its greatest length from north to south is 110 miles, its greatest breadth is 124 miles, and its total area is 7,800 square miles.

About forty-two per cent. of the surface is given up to agriculture, twenty-five per cent. to pastures and moors; twenty-eight per cent. is under wood; and the remainder is unproductive. The fertility of the soil varies; it is most unfertile in the north and northeast. A great proportion of the land is in the hands of small farmers and peasant proprietors, who as a class are well to do, though their system of farming is in some respects antiquated. Grain of various kinds is grown, though not in sufficient quantity to meet the demands of the province; potatoes, peas and beans, fruit, and tobacco, are also produced; but perhaps the most important crops are hemp and flax, which places Westphalia among the leading flax-producing districts of Germany. The forests are chiefly on the mountains of the Sauerland, and in the south generally. Considerable numbers of cattle and pigs are reared, the latter yielding the well-known Westphalian hams; goats are also numerous in some districts; and the government pays some attention to the breeding of horses in this province. Sheep are comparatively few. (Compare the agricultural statistics under PRUSSIA.)

In virtue of its abundant coal and iron Westphalia is one of the busiest industrial quarters of Germany. There are coal-fields in the north and in other districts, and the great coal-field of the Ruhr extends into the province. The district of Arnsberg, occupying the south of the province, is the center of the mineral industry. Dortmund gives name to one of the five mining districts into which Prussia is officially divided. Westphalia produces more iron ore than any other province in Prussia except the Rhine province and Silesia; next to Silesia it produces the most zinc, and next to Saxony the most copper; and it yields more sulphur than any other province. Argentiferous lead, antimony, limestone, gypsum, marble, and slates are also worked. There are seven salt-works and numerous mineral springs.

The mineral wealth of the province encourages an extensive manufacturing industry, the leading branches of which are linen-weaving and iron-working. The linen industry is very ancient, and since the fourteenth



century has flourished in this province between the Lippe and Weser. Its chief center is now Bielefeld, which also manufactures jute. The cotton factories of Münster are important. Woolens, stockings, and ribbons are also manufactured to some extent. The population is 2,202,726, or 282 per square mile. About 52 per cent. are Roman Catholics, most of whom are found in the southern district of Arnsberg. About 46½ per cent are Protestants. Education is well attended to. The seat of government is at Münster; and the province is divided into the three districts of Minden, Münster, and Arnsberg. It has thirty-one members in the Prussian parliament, and seventeen in the imperial diet.

Westphalia was the name given to the western portion of the early duchy of SAXONY, (*q.v.*) When Henry the Lion fell under the ban of the empire his Saxon domains were distributed by the emperor. The Sauerland and some other parts of Westphalia fell to the archbishops of Cologne, who afterward received from Frederick Barbarossa the title of dukes of Westphalia and Angria. The northern portion of the original Westphalia became the nucleus of the circle of Westphalia in Maximilian's administrative organization of the empire, while the duchy of Westphalia, as an appanage of Cologne, was included in the scattered circle of the Lower Rhine. The circle of Westphalia embraced, roughly speaking, what is now Oldenburg, Hanover to the West of the Weser, the districts of Münster and Minden, and a few other territories, an area of about 27,000 square miles, which in Maximilian's time was divided among four bishoprics and innumerable small secular states with an aggregate population of about 3,000,000. The peace of Lunéville in 1801 transferred all parts of this circle west of the Rhine to France, while in 1803 the duchy of Westphalia was granted to the duke of Hesse-Nassau as compensation for his former possessions to the west of the Rhine, which had also been added to France.

In 1807 Napoleon constituted the kingdom of Westphalia and gave it to his youngest brother Jerome. It comprised all the Prussian provinces as far east as the Elbe, and extended south to Fulda and the Thuringian states, embracing an area of about 14,880 square miles, with a population of 2,000,000. Nearly the whole of Hanover was added to this kingdom in 1810; but next year Napoleon again took away the greater part, as well as other territories, leaving, however, 17,740 square miles, with 2,057,000 inhabitants. This kingdom was intended to take the lead in the Confederation of the Rhine. After the battle of Leipsic in 1813 the kingdom of Westphalia was abolished, and things reverted to their previous order until the congress of Vienna rearranged the map of Europe, when Westphalia, as we now understand the term, was assigned to Prussia.

The peace of Westphalia, concluded in 1648 at Osnabrück and Münster, put an end to the Thirty Years' War (see GERMANY). Pop. (1900), 3,187,777.

WEST POINT, the site of the United States Military Academy, and a fortress erected during the war of independence, on the right bank of the Hudson river, fifty-two miles north of New York. The military academy is on a plain 160 to 180 feet above the river, surrounded by the bold scenery of one of the finest river passes in the world. The forts and a river chain were taken by the British in 1777, but abandoned after Burgoyne's surrender, and stronger forts were built which Gen. Benedict Arnold bargained to betray, a plot foiled by the arrest of Major André. The academy was established in 1802 for fifty cadets. Since the present system of appointment was adopted in 1843, the number has increased to above 300. It is governed by a board of five visitors, and has a staff of fifty-one professors and teachers. The education is free, each

pupil engaging to serve eight years. Each member of congress has the right to nominate one cadet from his district, and ten are appointed by the president. The course of study and discipline is four years: (1) mathematics, engineering, bayonet exercising, fencing, school of the soldier; (2) mathematics, French, tactics of infantry, fencing, artillery and cavalry; (3) natural philosophy, chemistry, drawing, riding, tactics; (4) military and civil engineering, mineralogy, geology, chemistry, law, literature, practical military engineering, tactics.

WEST SPRINGFIELD, a town of Hampden county, Mass., opposite Springfield, on the Connecticut river. It has manufactories of paper and cotton cloth and a population (1900) of 7,105.

WEST SUPERIOR, a city of Douglas county, Wis., and the center of an extensive mining district, is situated on the borders of Lake Superior, half-a-dozen miles southeast of Duluth and 171 miles north of St. Paul. It is one of the leading railroad points in the State, being a prominent station on the Chicago, St. Paul, Minneapolis and Omaha; Duluth, South Shore and Atlantic, Eastern Railway of Minnesota and the Northern Pacific lines, and is also the seat of a number of metal industries and other manufacturing plants. The city contains three weekly papers, three banks, a number of hotels, municipal buildings, public halls and stores, besides boiler works, foundries, iron and steel works, lumber and planing mills, sheet iron works and other lines of production, the yearly output from which is constantly increasing in volume and value. The same is true as to the population, which during recent years has been largely increased in number, and which was returned at 11,983 by the United States census of 1890. Pop. Superior City (1900), 31,091.

WEST TROY, a village of Albany county, N. Y., is situated in the bottom-land on the west bank of the Hudson, opposite Troy, with which it is connected by an iron bridge; it is five miles north of Albany. It is at the terminus of the Erie and Champlain canals, and is on a railroad line of the Delaware and Hudson Canal Company. The village is well laid out, has water and gas, is provided with street cars, and has extensive manufactories of a varied character, but particularly of iron. The Watervliet (U. S.) arsenal is situated here. The pop. is now included in Colonie and Green Island.

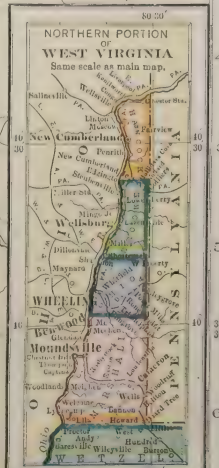
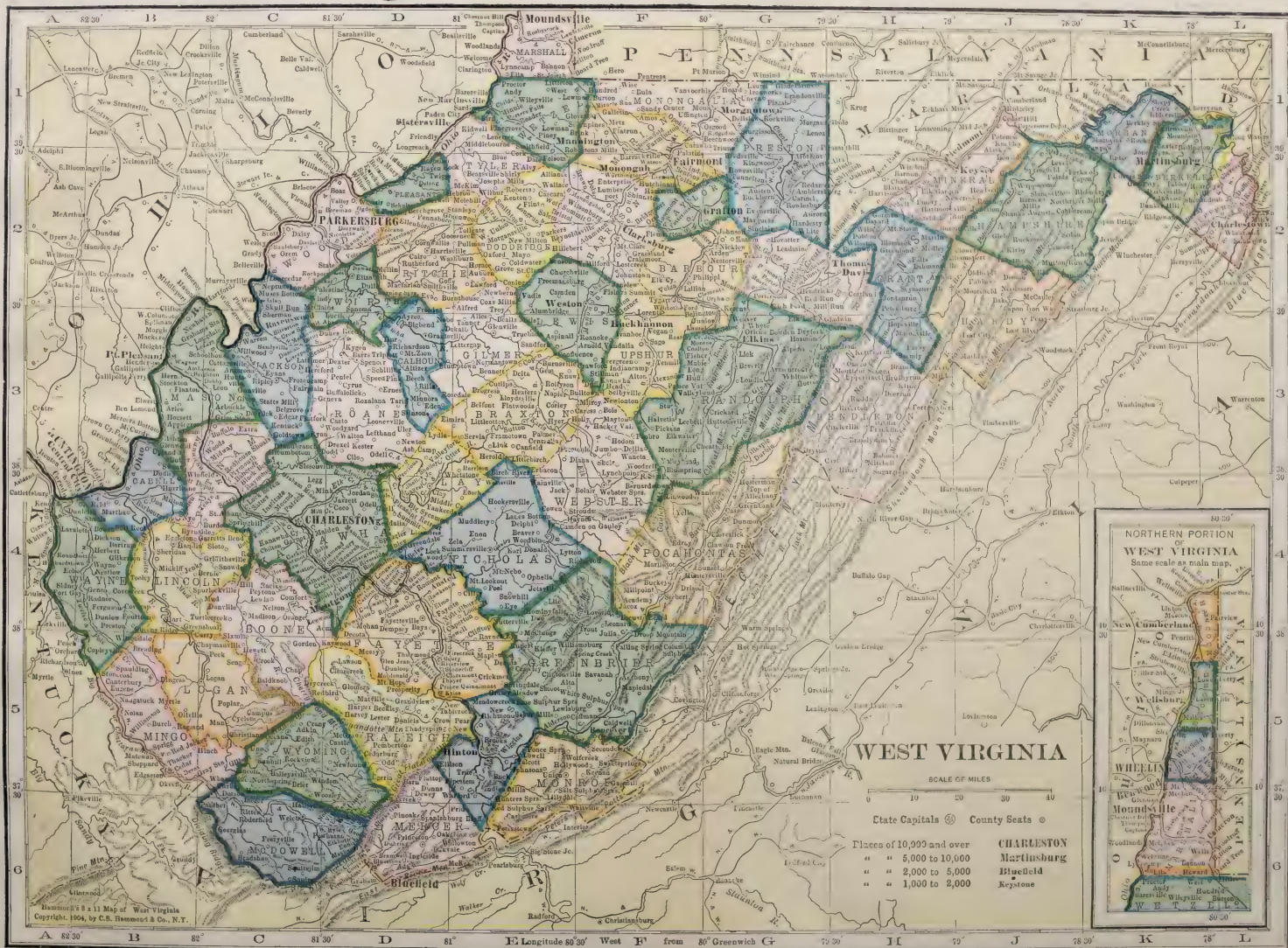
WEST VIRGINIA, one of the northeastern central States of the American Union, is bounded on the north by Pennsylvania and Maryland, on the east and south by Virginia, and on the west by Kentucky and Ohio, and has an area of 24,780 square miles.

The form of the State is extremely irregular. It may be roughly likened to an ellipse, the greatest diameter of which lies nearly northeast and southwest. Its boundary upon the east and south is made up of the irregular line which limited the counties which were set off from Virginia for the formation of this State. Upon the west the boundary is low-water upon the further shore of the Big Sandy and Ohio rivers. A long narrow strip, known as the "Panhandle," projects northward some sixty miles along the Ohio—the boundary being the continuation of the straight line which separates Ohio and Pennsylvania. To the east of this the northern boundary follows Mason and Dixon's line; then, dropping in a due south direction to the "Fairfax Stone," it follows thence easterly the course of the Potomac to its junction with the Shenandoah.

The entire State is mountainous or hilly, being comprised within the region known as the Cumberland or Alleghany plateau. The highest land in the State is upon the eastern and southern boundary, where the plateau in many places reaches elevations exceeding









4,000 feet. Thence the country has a general slope to the northwest, and is lowest along the Ohio, where the elevation is but 600 to 800 feet. This plateau has been subjected to stream erosion until it has become a network of narrow crooked ridges with deep gorges or narrow valleys. The height of the ridges and the depth of the valleys, together with the ruggedness of the country, diminish toward the northwest, until, near the Ohio, the hills become rounded and softer in outline, and the valleys are broad and fertile.

The drainage system of the State is in some respects peculiar. Although the general slope is toward the northwest, the Potomac, which flows southeasterly to the Atlantic Ocean, has cut its way far back into the plateau, and drains, by means of numerous long branches, the northeastern quarter of the State. The remainder of the State is drained to the Ohio by means of several large branches which flow in a general northwesterly direction. Heading in the southwest is the Big Sandy, forming a portion of the State boundary. Fourteen miles above its mouth enters the Guyandotte, and fifty miles above the Guyandotte comes the Great Kanawha, one of the principal branches of the Ohio. It is known in North Carolina and Virginia, and in West Virginia to the Great Falls, by the name of New river. In West Virginia it has numerous large tributaries—the Big and Little Coal rivers, Piney, and Blue-stone from the south, and the Pocotaligo, Elk, Gauley, and Greenbrier from the north. The next branch of the Ohio, proceeding northward, is the Little Kanawha, which empties into the Ohio at Parkersburg. The northwestern part of the State is drained by the Monongahela, one of the two head branches of the Ohio, and its tributaries. Of these streams the Ohio is navigable for river steamers at nearly all stages of water. The same may be said of the Kanawha to a point near the Kanawha Falls, while the Big Sandy, the Guyandotte, and the Monongahela are navigable for flatboats for long distances, and these, as well as numerous other streams, are largely used for the floating of lumber. All the streams of the State, and especially the smaller ones, have a rapid fall, but their enormous water-power has as yet been utilized only to a trifling extent.

The climate is nowhere severe, although, owing to the range in elevation within the State, there is a considerable range in temperature. The mean annual temperature ranges from 54° to 55° F., being highest in the neighborhood of the Ohio, in the western part of the State, and lowest upon the high mountains, in the eastern and northeastern portion. The rainfall may be given broadly at between forty and fifty inches annually. It also varies with the elevation, being less in the lower portions and greatest upon the high mountains.

The fauna of the State is that common to the whole southern Appalachian region. Much of the area being as yet in a state of nature, deer of the white-tailed species are still abundant, and black bear are not infrequently met with in the more rugged and remote portions. Wild turkeys are still found in some localities, and the mountains have long been a popular resort for hunters, while the streams, abounding in trout, afford an equally attractive field for the angler. The timber resources of the State are enormous, and a small proportion of its area, amounting to only about 25 per cent., has been cleared. The remainder is covered with virgin forest. This consists mainly of broad-leaved trees of the most valuable sorts for lumber, such as chestnut, black walnut, cherry, ash, poplar, hickory, locust, maple, oak, etc. Considerable areas of white pine are found in the highest portions of the plateau, being practically the only original

forest of this wood left in the United States. Besides these there are considerable quantities of yellow pine, hemlock, spruce, and cedar, scattered through the State.

Viewed broadly, the geological structure of West Virginia is extremely simple. Practically the entire State is overlaid by nearly horizontal beds of the Carboniferous formation. The coal of West Virginia forms its principal mineral wealth. It is estimated that of its entire area not less than 16,000 square miles are underlaid by workable beds of coal. In the matter of coal production the State is rapidly acquiring prominence. From a production in 1873 of 600,000 tons, it reached in 1900 a production of over 21,153,000 tons, being exceeded by only two of the states, viz., Pennsylvania and Illinois. The production is limited only by the demand, as the supply is almost inexhaustible. The coals of the State are of every variety except anthracite, and are noted for their purity for coking, steam, and gas purposes and for domestic fuel. Iron ore is abundant. In 1900, about 1,000,000 tons of coke were produced.

Salt springs are found in the valley of the Kanawha, and in that of the Ohio; and there are extensive evaporating works in both these localities. The production, however, has been retarded by the competition of those in Michigan, owing to the greater cheapness of fuel and better facilities for transportation in the latter locality. The production of salt in West Virginia in 1900 amounted to 221,534 barrels. West Virginia contains numerous valuable mineral springs, among the best known of which are the Greenbrier White Sulphur springs in Greenbrier county, Capon springs in Hampshire county, Irondale springs, in Preston county, and Red Sulphur springs and Salt Sulphur springs both in Monroe county.

While the entire State may be said to be either mountainous or hilly, it contains a large extent of arable land. Nearly all of the lower hill country can be cultivated, while in the mountainous region there are numerous broad valleys of excellent soil, and everywhere the hill and mountain sides can be cultivated if the slope is not excessively steep. The twelfth census (1900) reported an area of 10,654,513 acres of land in farms, of which 5,498,981 acres, or about one-half the area of the State, was improved land, this being mainly in the lower and less mountainous portion. The average size of farms was 115 acres, showing as compared with the average 10 years earlier, viz., 142 acres, a decided decrease. The value of farms and farming implements amounted to \$173,336,090. The numbers of live stock upon farms, as distinguished from animals owned for business purposes in cities, consisted in June, 1900, of 185,188 horses, 11,470 mules, 968,843 sheep and lambs, 442,884 hogs, 205,601 milch cows, and 434,181 other cattle—showing that the live stock interests of the State are very large. The estimated value of all farm products sold, consumed, or on hand was \$25,696,189. The principal agricultural products are wheat, Indian corn, hay and forage, tobacco, oats, and garden vegetables. The cereal products for 1899 consisted of 16,610,730 bushels of corn, 4,326,150 of wheat, and 1,833,840 of oats.

The manufactures, which rapidly developing, are concentrated mainly at Wheeling, on the Ohio, in the northern part of the State; they consist mainly of manufactures of iron and steel, glass, flouring and, grist mill products, lumber, and leather. There were in 1900 4,415 manufacturing establishments, employing a capital of \$55,719,938 and 35,000 persons. The value of manufactured products was \$74,177,681.

There are 2,460 miles of completed railroads.



The State early in its history (December, 1863) adopted a liberal system of free schools. The plan is, known as the township or district system—the magisterial district or subdivision of each county being taken as the unit for taxation, and the general control of all the school interests of the district being placed in the hands of a district board of education, elected by the people, and authorized among other duties to levy taxes, to determine the number of months of school and the number of sub-districts, to plant and build school-houses, and to manage the financial and other school interests of the districts. There is likewise in each county a superintendent, and in the State a general superintendent. This system has since been maintained and strengthened by legislative enactment, till from 133 school-houses and 431 public schools of all grades in 1865, there were in 1900, 5,856 school-houses in the State. In 1865 the amount expended in support of free schools was \$7,722; this gradually increased, till in 1901 the amount was \$2,250,000. The number of teachers employed by public appropriation was 387 in 1865; in 1901 it was 7,350. The estimated value of school-houses in the State, \$140,000 in 1865, was \$3,471,697 in 1900. The school system involves also what is known as the irreducible school fund. The principal, which amounts to over \$620,000, is permanently invested. This fund is constantly augmented from sources provided by law and by voluntary contributions.

The financial condition of the State is highly satisfactory. The receipts of the State Treasury for the fiscal year 1899-1900, including a balance of \$119,212 brought forward, were \$1,806,015; the disbursements for all purposes \$1,799,478; leaving a balance October 1, 1900, of \$1,134,750. This balance consisted of \$127,532 of the State fund, and of \$324,048 school funds.

The assessed valuation of real estate in 1900 amounted to \$147,058,218, and that of personal property to \$53,101,906; that of railroad property \$22,028,362. In 1900 the assessed valuation was \$222,182,486.

The development of population is steady. The principal cities are Wheeling, Parkersburg, Martinsburg, Charleston (the State capital), Crafton and Charlestown. The increase in population from 1890 to 1900 was 25.7 per cent. The proportion of native whites was 93 per cent. of the whole number of whites, which is larger than that of any other State in the Union. The population at the U. S. census of 1900 was returned at 958,800 and that of Wheeling, Charleston and Parkersburg is shown by local investigation to have very largely increased.

The executive power is vested in a governor elected by the people for a term of four years, and ineligible under the constitution for reelection. There are also an auditor, a treasurer, an attorney-general, a secretary of State and State superintendent of free schools, who with the governor constitute a board of public works, and are likewise elected by the people for terms of four years, except the secretary of State and a librarian (who is *ex officio* adjutant-general), who are appointed by the governor. The legislative power is vested in a Senate and house of delegates. The Senate embraces twenty-six members, half of whom are elected every alternate two years, for a term of four years. The house of delegates consists of sixty-six members, who are elected every two years. The legislature meets biennially, and may be convened in extraordinary session by the governor, or by the concurrence of three-fifths of its members. The veto power is vested in the governor, but a majority concurring in each house of the legislature overrides it. The judiciary consists of a supreme court of appeals, with four judges, who in case of their equal division affirm the judgment of the lower

court, and of circuit courts, with one judge each, exercising general original power and appellate jurisdiction over magistrates or justices of the peace, and of magistrates and justices of the peace, whose jurisdiction in civil cases is limited to \$300, and who exercise criminal jurisdiction in petty offenses, and may issue warrants of arrest and make preliminary examination and commit for trial in the circuit court in cases of crime. The fiscal regulations of the counties are confided to a board, consisting of three county commissioners. The county organization consists of these commissioners, a sheriff, deputy sheriffs, a circuit court clerk, a county clerk, who is recorder of deeds, wills, etc., board of education, school trustees, overseers of roads, a commissioner of school lands, an overseer of the poor, and a commissioner of accounts. All these, except the deputy sheriffs, commissioner of accounts, commissioner of school lands, and overseer of the poor, are elected by the people.

The establishment of West Virginia as a State was consummated on June 20, 1863. Its creation and admission were due to conditions which existed prior to the Civil war of 1861-5, to popular sentiment which those conditions developed when the war was precipitated, and to the exigencies of the war itself. The Alleghany Mountains had divided the State of Virginia politically and commercially, and in the sentiment relating to her systems of taxation, revenue, and public expenditure, into a Virginia and a "Western" Virginia, long before the civil conflict gave permanent result, and fixed an official definition to the line of demarcation between them. Even after the war and the formation of the new State the title to two counties, Jefferson and Berkeley, "lying east of the mountains," was the subject of legislation and contention before the courts. They were in 1870 judicially declared by the supreme court of the United States to be a part of the State of West Virginia. The western part of Virginia was sparsely peopled, its great forests undeveloped, its vast mineral resources only partially realized, and its slave interests comparatively small. The eastern section contained the larger population, owned the great bulk of slave property, and exercised controlling power over State affairs. The Alleghanies, dividing the two sections, in the absence of transverse railroad facilities, naturally sent the citizens of one side with the flow on their navigable waters to western and southern markets, while those of the other, moved by similar natural causes, turned to the seaboard for their commercial and business intercourse. The basis of taxation, the basis of representation, and the relation of the slave interests to these, with the measure and distribution of public funds for works of internal improvement and other questions of local concern, constituted elements of continual controversy, and served to detract largely from the homogeneity of the population. Early in January, 1861, the legislature of Virginia, in extra session, passed a bill calling a convention of the people to meet in the following month. At the same election the people were to vote on the question whether the separation of Virginia from the Union should be determined by the convention or be submitted by the convention to the people for ratification or rejection. The majority at the election in favor of submitting the question of secession to the people was overwhelming, and was construed as indicating the loyal sentiment of the people of northwestern Virginia. On April 17th, after the bombardment of Fort Sumter, the convention passed an ordinance of secession, and on the 24th a schedule submitting it to the people. The ordinance of secession was adopted by the people of Virginia, but the majority against it in the northwestern part of the State was very large. A convention of the unionist



counties, which met at Wheeling in June, adopted an ordinance for the reorganization of the State government, and in August adopted an ordinance providing for the formation of a new State, to be named "Kanawha," comprising thirty-nine specified counties, and to include other counties also named, provided their vote should indicate such desire. Under this provision a number of counties were afterward added to the original thirty-nine. At the time of the vote upon the proposition to form a new State, war was raging throughout its proposed borders, and many of its counties had been the scene of violence and bloodshed. Many citizens were in the field as soldiers on the respective sides, and this fact, coupled with the general conditions, caused a small vote to be polled. Of this comparatively small vote, however, a large majority was for the new State, and members were elected to a constitutional convention. This convention met at Wheeling, in November, and formed a constitution for the proposed new State, and designated it the State of West Virginia. This constitution was submitted to the people, and adopted by an overwhelming majority in April, 1862. In May the legislature of the "reorganized government" of Virginia passed a bill to authorize the formation of the new State out of the territory of the old State of Virginia, as indicated by the recently ratified constitution, and in the same month this Act of the Legislature, accompanied by its memorial and a certified copy of the constitution and proceedings by which it had been adopted, was presented to Congress. The subject led to grave discussion in that body, but ultimately the proposed constitution was carried, with but one modification affecting the freedom of children of slaves thereafter to be born within the limits of the new State. A new constitution was adopted in 1872. The State of West Virginia being the result of a double revolution—that of the State of Virginia against the Federal Union and that of her northwestern counties against the seceding State of Virginia—its people are conservative and strikingly homogeneous. Even in the throes of revolution declaring separation from the mother State provision was made for the assumption of a just share of the old State debt, though its adjustment has never yet been reached. West Virginia has no other debt. Falling naturally, as did most of the border States, immediately after the war, into violent proscriptions of the returning Confederate element, West Virginia was one of the first of the States to modify and repeal these enactments. By the election of 1870 they were abrogated forever, and since that time the issues and consequences of war have so far disappeared as to leave no perceptible trace behind.

WETSTEIN, JOHN JACOB, New Testament critic, was born at Basel, March 5, 1693. While still a student he began to direct his attention to the special pursuit of his life—the text of the Greek New Testament. Wetstein paid great attention also to Syriac and Talmudic Hebrew. In the spring of 1714 he undertook a learned tour, which led him to Paris and England, the great object of his inquiry every where being manuscripts of the New Testament. In Paris he examined the *Codex Ephraemi*, and on arriving in England, in August, 1715, the *Codex Alexandrinus* and the *Codex Beza* with many others.

In 1720 the charge of projecting an addition of the Greek Testament savoring of Socinianism was formally laid against him. The end of the long and unedifying trial was his dismissal, May 13, 1730, from his office of curate of St. Leonard's. He then removed from Basel to Amsterdam. As soon as he reached Amsterdam he published anonymously the *Prolegomena*, which he had

proposed should accompany his Greek Testament, and which was republished by him, with additions, as part of his great work, 1751. The next year (1731) the Remonstrants offered him the chair of philosophy in their college at Amsterdam, vacated by the illness of John Le Clerc, on condition that he should clear himself of the suspicion of heresy. He thereupon returned to Basel, and procured a reversal (March 22, 1732) of the previous decision, and readmission to all his clerical offices. But, on his becoming a candidate for the Hebrew chair at Basel, his orthodox opponents procured his defeat and his retirement to Amsterdam. For the rest of his life he continued professor in the Remonstrant college, declining in 1744 the Greek chair at Basel. In 1746 he once more visited England, and collated Syriac MSS. for his great work. At last this appeared in 1751–52, in two folio volumes, under the title *Novum Testamentum Græcum Editionis Receptæ cum Lectionibus Variantibus Codicum MSS.*, etc. He did not long survive the completion of this work. He died at Amsterdam, March 9, 1754.

WETTE, DE. See DE WETTE.

WEXFORD, a maritime county of Ireland, in the province of Leinster, is bounded north by Wicklow, east and south by St. George's Channel, and west by Waterford, Kilkenny, and Carlow. Its greatest length from its northeastern extremity at Kilmichael Point to Hookhead Point at Waterford Harbor is upward of sixty miles, and its greatest breadth from east to west thirty-four miles. The area is 576,588 acres, or about 901 square miles.

The soil for the most part is a cold and stiff clay resting on clay-slate. The interior and western districts have it much inferior to those round the coasts. In the southeastern peninsula of Forth and Bargy the soil is a rich alluvial mold mixed with coralline sandstone and limestone. The peninsula of Hookhead, owing to the limestone formation, is specially fruitful. In the western districts of the county there are large tracts of turf and peat-moss.

There has been no marked change in the area under green crops, which was 44,735 acres in 1849, 50,498 in 1876, and 45,958 in 1886. The area under grain crops has, however, declined nearly a half, being in 1849 163,321 acres, in 1876 109,193 acres, and in 1886 only 95,512 acres. Of green crops there has been since 1849 a great increase in the area under turnips, and a corresponding decrease in the area under potatoes. The number of horses in 1886 was 27,878, of which 942 were used for recreation. Mules numbered 1,767, and asses 8,031. Cattle numbered 126,410, of which 37,936 were milch cows. The number of sheep was 122,373, of which 48,243 were one year old and upward. Pigs numbered 67,478, goats 6,369, and poultry 571,107.

The Dublin, Wicklow and Wexford railway intersects the county, and from Wexford a branch of the Great Southern and Western passes northwestward, joining the lines to Kilkenny and Kildare. The river Slaney is navigable for barges to Ennisclorthy, and the Barrow for large vessels to New Ross.

Except in the town of Wexford the manufactures and trade are of small importance. There are important fisheries at Wexford, and one or two fishing villages along the south coast. The fishing grounds are good.

According to the calculation of De Burgo the population in 1760 was 66,804; the parliamentary census of 1812 places it at 112,000; in 1821 it amounted to 170,806, in 1841 to 202,033, in 1861 to 143,954, in 1871 to 132,666, and in 1901 to 103,860 (51,614 males and 52,246 females). Roman Catholics in 1881 formed 91.1



per cent. of the population, and Protestant Episcopalians 8.2 per cent. In 1881 the number of persons who could read and write amounted to 51.5 per cent. of the population, 15.3 per cent. could read but not write, and 33.2 per cent. could neither read nor write—14.7 per cent. being under seven years of age. All could speak English, and 512 could speak English and Irish. The principal towns are Wexford (12,163), New Ross (of which a portion containing 6,375 is in this county, the other portion containing 295 inhabitants being in Kilkenny), Enniscorthy (5,666), and Gorey (2,450). The county is divided into ten baronies, and contains 144 parishes and 1,600 town-lands.

WEXFORD, a seaport, market-town, and municipal borough, and the chief town of the above county, is finely situated on the south side of the Slaney, where it discharges into Wexford Harbor, on the Dublin, Wicklow and Wexford railway and a branch line of the Great Southern and Western, eighty-two miles south of Dublin and fifteen southeast of Enniscorthy. The port has communication by steamer with Liverpool and Bristol. The principal exports are agricultural produce, live stock and whisky. Ship-building is carried on, and also tanning, malting, brewing, iron-founding, distilling, and the manufacture of artificial manure, flour, agricultural implements, and rope and twine. The population of the town in 1901 was 12,163.

WEYMOUTH, AND MELCOMBE REGIS, a seaport, watering-place, market-town, and municipal borough of Dorset, England, is situated at the mouth of the small river Wey, on Weymouth Bay. Weymouth has steam connection with the Channel Islands, France, and various ports on the English coast. The principal exports are Portland stone, bricks and tiles, and provisions, and the imports are coal, timber, garden and dairy produce, and wine. Ship and boat building, rope and sail making, and brewing are carried on. The population of the municipal borough of Weymouth and Melcombe Regis (area 763 acres) in 1871 was 13,259, and in 1901 it was 15,715.

WEYMOUTH, a city of Norfolk county, Mass., organized by the consolidation of north, south, and east Weymouth and Hingham, and largely engaged in manufactures, is located on the Old Colony railroad twelve miles southeast of Boston. The city proper has four churches, two banks, and one weekly paper, but with the villages embraced in the consolidation, contains fifteen churches and two high schools besides the educational facilities of the several district organizations of the township. The publishers of the weekly above referred to also issue a separate edition for each village designated in the act of the consolidation under the several following names: *The Shore*, *The News*, and *The South Shore Citizen*. The importance of Weymouth is due to its manufactures; that of boots and shoes is the most extensively engaged in, there being not less than thirty firms, employing an aggregate of more than 2,000 skilled and experienced hands thus occupied. The remaining industries include stoves, engines, stationary and movable, also marine engines, furniture, paper-boxes, phosphates, hammocks, carpet-sweepers, isinglass, fireworks, mittens, leather, feed-bags, and patent medicines. The population of the city in 1890 was 10,866.

WHALE, a name applied rather loosely to various animals of the order *Cetacea*, the general characteristics and classification of which have been described in the article MAMMALIA. All the members of the sub-order *Mystacoceti*, or *Cetacea* with whalebone, are called "whales." But of the *Odontoceti*, or *Cetacea* with teeth, only certain of the larger ones are so termed, the smaller species being popularly spoken of as "bottlenoses," "dol-

phins," and "porpoises;" yet so indefinitely has the word been applied that a true dolphin (*Delphinus tursio*), not exceeding eight feet in length, is described in some works as the "smaller bottlenosed whale."

Although by their mode of life so far removed from close observation that it is impossible to become as familiar with them in their natural conditions as with many other animals, whales are in many respects the most interesting and wonderful of all creatures; and there is much in their structure and habits which is well worthy of study, much that is difficult to understand, and much that leads to great generalizations and throws light upon far-reaching philosophical speculations. There was once, and may still be in many places, a common idea that a whale is a fish. To realize the fallacy of this notion we have only to consider what a fish really is, what under all the diversities of form, size and color known among fishes there is common to them all, and we see that in everything which characterizes a true fish and separates it from other classes, as reptiles, birds, and mammals, the whale resembles the last-named and differs from the fish. It is as essentially a mammal as a cow or a horse, and simply resembles a fish externally because it is adapted to inhabit the same element; but it is no more on that account a fish than is a bat, because adapted to pass a great part of its existence on the wing in the air, nearly related to a bird. The whole structure of a whale is a most instructive instance of a type of organization which is common to and characteristic of the class *Mammalia*, only specially modified or adapted to a peculiar mode of life.

The external fish-like form is perfectly suited for swimming through the water; the tail, however, is not placed vertically as in fishes, but horizontally, a position which accords better with the constant necessity for rising to the surface for the purpose of breathing. The hairy covering characteristic of all mammals, which if present might interfere with rapidity of movement through the water, is reduced to the merest rudiments—a few short bristles about the chin or upper lip—which are often only present in very young animals. The function of keeping the body warm is supplied by a thick layer of non-conducting material, the "blubber," a peculiarly dense kind of fat placed immediately beneath the skin. The fore-limbs, though functionally reduced to mere paddles, with no power of motion except at the shoulder joint, have beneath their smooth and continuous external covering all the bones, joints, and even most of the muscles, nerves, and arteries, of the human arm and hand; and rudiments even of hind legs are found buried deep in the interior of the animal, apparently subserving no useful purpose, but pointing an instructive lesson to those who are able to read it.

The Greenland, or more properly Arctic, right whale (*Balaena mysticetus*) attains, when full-grown, a length of from forty-five to fifty feet. In this species all the peculiarities which distinguish the head and mouth of the whale from those of other mammals have attained their greatest development. The head is of enormous size, exceeding one-third of the whole length of the creature. The cavity of the mouth is actually larger than that of the body, thorax, and abdomen together. The upper jaw is very narrow, but greatly arched from before backwards, to increase the height of the cavity and allow for the great length of the baleen or "whalebone" blades; the enormous rami of the mandibles are widely separated posteriorly, and have a still further outward sweep before they meet at the symphysis in front, giving the floor of the mouth the shape of an immense spoon. The baleen blades attain the number of 380 or more on each side, and those in the middle of the



series have a length of ten or sometimes twelve feet. They are black in color, fine and highly elastic in texture, and fray out at the inner edge and ends into long, delicate, soft, almost silky, but very tough, hairs. The remarkable development of the mouth and of the structures in connection with it, which distinguishes the right whale among all its allies, is entirely in relation to the nature of its food. It is by this apparatus that it is enabled to avail itself of the minute but highly nutritious crustaceans and pteropods which swarm in immense shoals in the seas it frequents. The large mouth enables it to take in at one time a sufficient quantity of water filled with these small organisms, and the length and delicate structure of the baleen provide an efficient strainer or hair-sieve by which the water can be drained off. If the baleen were rigid, and only as long as is the aperture between the upper and lower jaws when the mouth is shut, a space would be left beneath it when the jaws were separated, through which the water and the minute particles of food would escape together. But instead of this the long, slender, brush-like, elastic ends of the whalebone blades fold back when the mouth is closed, the front ones passing below the hinder ones in a channel lying between the tongue and the lower jaw. When the mouth is open, their elasticity causes them to straighten out like a bow unbent, so that at whatever distance the jaws are separated the strainer remains in perfect action, filling the whole of the interval. The mechanical perfection of the arrangement is completed by the great development of the lower lip, which rises stiffly above the jaw-bone and prevents the long, slender, flexible ends of the baleen from being carried outward by the rush of water from the mouth, when its cavity is being diminished by the closure of the jaws and raising of the tongue.

The southern right whale (*B. australis*) resembles the last in the absence of dorsal fin and of longitudinal furrows in the skin of the throat and chest, but differs in that it possesses a smaller head in proportion to its body, shorter baleen, a different-shaped contour of the upper margin of the lower lip, and a greater number of vertebrae. The genus inhabits the temperate seas of both northern and southern hemispheres and is divided into several species according to their geographical distribution:—*B. biscayensis* of the North Atlantic, *B. japonica* of the North Pacific, *B. australis* of the South Atlantic, and *B. antipodarum* and *B. novae-zelandiae* of the South Pacific.

The whale commonly called "humpback" (*Megaptera boops*) by whalers, perhaps on account of the low hump-like form of the dorsal fin, is very distinctly characterized from all others of the group, especially by the immense length of the pectoral fins or flippers, which are indented or scalloped along their margins, and are, except at their base, of a white color, nearly all the rest of the body being black. It differs from the right whale and resembles the rorqual in having the skin of the throat and chest marked with deep longitudinal furrows. The baleen plates are short and broad and of a deep black color. The usual length of the adult ranges from forty-five to fifty feet. Whales of the genus *Megaptera* are found in the South Atlantic and in both the North and the South Pacific.

The rorquals or fin whales have the plicated skin of the throat like that of *Megaptera*, the furrows being more numerous and close-set; but the pectoral fin is comparatively small and the dorsal fin distinct and falcate. The head is comparatively small and flat, and pointed in front, the baleen short and coarse, the body long and slender, and the tail very much compressed before it expands into the "flukes." The rorquals are perhaps the most abundant and widely distributed of all

the whales, being found in some of their modifications in all seas, except the extreme Arctic, and probably Antarctic regions. Owing to the small quantity and inferior quality of their whalebone, the comparatively limited amount of blubber or subcutaneous fat, and their great activity and the difficulty of capturing them by the old methods, these whales were not until recently an object of pursuit by whale-fishers; but, since the introduction of steam-vessels, and especially of explosive harpoons fired from guns in the place of those hurled by the human hand, a regular fishery has been established on the coast of Finmark.

Only one member of the toothed whale group, the sperm whale or cachalot (*Physeter macrocephalus*), rivals the large whalebone whales in size, its length and bulk being about equal to, or somewhat exceeding, the Arctic right whale, from which, however, it is very different in outward appearance and in structure. The head is about one-third of the length of the body, very massive, high and truncated in front, owing its huge size and remarkable form mainly to the great accumulation of a peculiarly modified form of fatty tissue, filling the large hollow on the upper surface of the skull. The oil contained in cells in this great cavity, when refined, yields spermaceti, and the thick covering of blubber, which everywhere envelops the body, produces the valuable sperm-oil of commerce. The food of the sperm whale consists mainly of various species of cephalopods (squid and cuttlefish), but they also eat fish of considerable size. The substance called "ambergris," formerly used in medicine and now in perfumery, is a concretion formed in the intestine of this whale, and is found floating on the surface of the seas it inhabits. Its genuineness is proved by the presence of the horny beaks of the cephalopods on which the whale feeds.

The remaining members of this group are all animals of much smaller size than the sperm whale, but to several of them the name of "whale" is commonly applied. The hyperoodon, sometimes called "bottle-nose," a name also vaguely given to several species of dolphin, is a regular inhabitant of the North Atlantic, passing the summer in the Spitzbergen seas and going farther south in winter. It is allied to the sperm whale, and resembles it in possessing a large store of oil in the upper part of the head, which yields spermaceti when refined; on this account, and also for the sake of the blubber, which supplies an oil almost indistinguishable from sperm oil, this whale has been the object of a regular chase in recent years.

The other cetaceans of this group are generally distinguished as narwhals, grampuses, killers, bottlenoses, dolphins, and porpoises, and are not usually called whales.

**WHALE FISHERIES.**—Commercially these may be conveniently classified under three heads—the British, the American, and the Norwegian. The implements used, and the mode of capture of the different kinds of whales, being for the most part the same in all cases, the detailed account given below may be held to be of general application, unless the contrary is expressly stated.

The whaler is a vessel of from 400 to 500 tons gross register, rigged either as a ship or a barque, and provided with auxiliary engines of some seventy-five horsepower. Built after the strongest fashion, she is protected along the water-line by an additional planking of iron bark, an Australian wood of great hardness; the bows are strengthened inside by beams and knees and outside by plates of iron. Underneath the hold-beams about fifty iron tanks are fitted, each capable of containing 200 to 250 tons of oil; above the hold-beams a deck is laid, engine and boiler space being reserved in



the stern. A vessel of this description carries eight whale-boats, and is manned by fifty to sixty hands all told. The *whale-boat* is twenty-seven feet in length and six feet in breadth, with a depth amidships of two feet six inches. The bow is covered in for the distance of a few feet, forming a sort of platform, through which there project two wooden posts, that farthest forward being called the "gun-bollard head," on which the harpoon gun is mounted, while round the other, farther aft, the whale-line is run. At the stem, between the "head boards," a pulley is sunk, over which the whale-line glides. On the port bow, beside the gun-bollard head, a small tub is fitted, into which is coiled that part of the whale-line known as the "foregoer." The after-part of the boat, as well as a part amidships, is fitted up for the reception of the whale-line. The whale-boat is manned by five oarsmen and a boat-steerer. The bow oar acts as harpooner and has charge of the boat; the stroke oar is "line-manager" and watches the whale-line while it is running. The *harpoon gun*, now almost universally used, measures four feet six inches in length and weighs seventy-five pounds; the barrel is three feet long with one and a half inches bore and is mounted in a wooden stock, tapering behind into a pistol handle. The weapon is fired by means of percussion caps, dog-head, and trigger-line, the nipples being protected from sea spray by a movable brass cover. Mounted in a swivel on the gun-bollard head, the harpoon gun from its elevated position commands both bows as well as right ahead; and with a charge of eleven drachms of powder it projects the harpoon with force and precision to a distance of twenty-five yards. *Harpoons* are of two kinds, known respectively as gun and hand harpoons; the former are used as weapons of attack, the latter to assist in securing a whale that is already harpooned. The *gun harpoon* measures four feet in length and weighs twelve pounds. The "shank," or that part which enters the gun, is perforated throughout its length by an elongated slit, so as to allow the "shackle" connecting the harpoon with the line to remain outside the mouth of the gun when the shank is inserted in the barrel. When the gun is fired, the shackle travels along the slit until it is brought up by the butt, where the two rods of which the shank is composed unite, and after that the line is drawn out by the harpoon. The head of the harpoon is triangular and flattened, the two sides being continued backward to form the barbs, which may be movable or fixed. When movable, they are attached to the head by steel pins, and previous to being fired, fold backward and lie parallel to the shank; the weapon having pierced a whale, and the strain on the whale-line causing it to retract, the barbs spread out and assume a transverse position, so as greatly to impede the withdrawal of the instrument. The *hand harpoon* is a light and efficient weapon, which was introduced by the Americans, by whom it is known as a "toggle iron." It consists of a head and shank of iron, and is mounted on a wooden stock, by which it is darted. The head, a flattened piece of steel, somewhat triangular in form, is connected with the extremity of the shank by a steel pin, on which it pivots and moves freely. Previous to use, the head folds back along the shank, in which position it is retained by a wooden pin. After the weapon has been darted into a whale, the strain on the line breaks the wooden pin, and the head assumes a position at right angles to the shank, somewhat in the form of the letter T, and becomes transfixed in the fibrous tissue under the blubber. The shank is a rod of one-half inch iron, two feet six inches long, expanding at its upper extremity to form a socket to receive the wooden stock. The *hand harpoon* measures eight feet in length, and

exclusive of the line, weighs ten pounds. Expert harpooners can dart the weapon about five yards with considerable force and accuracy. *Whale-line* is three-stranded rope, two and three quarter inches in circumference, composed of the finest hemp, thirty-two yarns per strand; 600 fathoms are coiled into each whale-boat. The line is joined to the harpoon by the "foregoer," a piece of rope somewhat lighter and more pliable than whale-line. The foregoer being the only part of the line drawn out by the harpoon while in flight, its length, usually from ten to twelve fathoms, regulates the distance the harpoon may be fired. The *whale-lance* consists of a simple rod of one-half inch iron, six feet long, one end flattened to form a small lance-shaped point with cutting edges, the other expanding to form a socket to receive a short wooden handle. Gun lances, bomb lances, and exploding harpoons of various forms and devices have from time to time been introduced; but, mainly from the fact that in recent years the difficulty in securing a cargo lies not so much in effecting the capture of the animal as in discovering its whereabouts, and in approaching sufficiently near to permit the use of the harpoon, they have never come into general use.

Whether the ship is cruising among loose ice under canvas or lying "made fast" to a floe, a careful look-out is kept on board from the crow's nest (a barrel lashed to the main-top-gallant masthead) as well as from the deck. Immediately on a whale being seen, boats are manned and sent in pursuit. If the animal is feeding, which it generally does when near the surface by swimming backwards and forwards horizontally round an ellipse, great caution is necessary to prevent its becoming aware of the approach of the boats. On the other hand, if the whale is "spanning," i.e., swimming in a decided direction and appearing at the surface at intervals more or less regular, less caution is observed. In either case as well as under less usual circumstances the whale boat, endeavoring to keep out of the angle of vision of the animal, approaches it from behind, swiftly but quietly; the harpooner rises to his gun and points it at the animal's back, withholding his fire, however, until within as short a distance as possible. On being harpooned the Greenland right whale usually dives perpendicularly, remaining under water about forty minutes and drawing out some 600 to 700 fathoms of line before it returns to the surface. Whales descend with such velocity that they have been known to break their upper jaw by coming into violent contact with the bottom even at 400 fathoms of water. Before the animal has returned to the surface other boats have arrived upon the scene, and, on the reappearance of the whale, give chase and attach more harpoons. Again the whale dives, but soon returns to the surface, still more exhausted. Whenever its motions become sufficiently slow to permit the approach of the boats, the lance is used, a few thrusts in the region of the heart or lungs being speedily fatal. Quantities of blood are thrown up by the spiracles; the animal lashes the water with its fins, and, after rushing violently through the water in its dying agony, rolls over on its side and lies stiff and rigid at the surface. Under favorable circumstances the capture of a full-grown whale from the time of first harpooning until its death occupies from one to one and a half hours. The operation of flensing is next performed. The body of the whale is lashed lengthwise alongside the ship with its under surface above water; the "cant-purchase," a powerful tackle, is then attached to the commencement of a transverse slip of blubber cut at the neck, known as the "cant-piece." By means of the cant-purchase the body is caused to rotate, while the fat is removed from the



different parts as they appear above water in large "slips" or "blanket-pieces," each a ton or more in weight. After being received on deck, the blubber is cut into pieces about a foot square and stowed into the "tween-decks." The whalebone is removed from each side of the upper jaw as it appears above water *en bloc*. The process of "cutting-in" occupies the ship's company about three hours. The only subsequent operations are the cutting up of the blubber into small pieces and its stowage into the oil tanks. The removal of the gum from the whalebone, the separation of the plates, and their stowage in the 'tween decks are operations performed subsequently.

The American whale fisheries embrace the Behring's Strait or Arctic fishery and the sperm whale or southern fishery. As already mentioned above, the object of this fishery is the capture of *Balena mysticetus*. In this case, however, the whales are mostly sought, not among the ice, but in open water, the vessels used being less adapted to ice navigation than those of the British, and nearly all are propelled by sail power alone. The hand harpoon is preferred and bomb lances are used to kill the whales. The vessels sail mostly from San Francisco in March, and arrive at the ice edge off Cape Navarin, where the fishing is first prosecuted, in May. The whales disappear during summer, but return in the autumn, when the "fall" fishing is carried on in the neighborhood of Point Barrow; between seasons the vessels go south and prosecute the sperm whaling. The Behring Strait fishery was commenced in 1848, and in the three following years 250 ships obtained cargoes. In 1871 thirty-four vessels were abandoned in the ice off Cape Belcher, the crews making good their escape to other vessels; again in 1876 twelve vessels experienced a similar fate.

The capture of the sperm whale (*Physeter macrocephalus*) is prosecuted throughout the tropical seas of the globe. The distribution of the animal being, however, restricted to deep water, the fishing is usually carried on at a distance from land. The vessels used are generally barques of about 300 tons, carrying five boats and manned by a crew of thirty hands all told. The vessels have no particular time for sailing or arriving in port; the duration of a voyage is generally three years. The sperm whale is killed in the same manner as the Greenland right whale; the use of the hand harpoon is, however, preferred; and the whale-boats, which are not required to withstand contact with ice, are less strongly built, and much lighter and swifter than those used in the northern fisheries. The ordinary sperm whale yields about sixty barrels of oil (= 10 tons), although large males are occasionally killed which yield a greater quantity. The oil is boiled at sea; hence its freedom from smell and the consequent high price which it commands as compared with that of the bottlenose whale.

Sperm whale fishing seems to have commenced early in the eighteenth century, the whaling community of Nantucket embarking in the industry about 1712; and in 1774, before the commencement of the War of Independence, a fleet of 360 vessels was engaged in it. This fishery perhaps reached its climax in 1846, when it occupied a total of 735 vessels, having an aggregate capacity of 233,199 tons. During the period 1877 to 1886 inclusive, the average annual number of vessels employed was 159, their average annual aggregate burden being 35,713 tons. The average annual imports into the United States of whaling produce were as follows:—of sperm oil 31,824 barrels (= 5,304 tons), of whale oil 29,180 barrels (= 4,863 tons), of whalebone 325,559 pounds (= 145 tons). New Bedford and San Francisco are the principal whaling-ports.

WHALEBONE is the inaccurate name under which the baleen plates of the right whale are popularly known; and the trade-name of whale-fin, which the substance receives in commerce, is equally misleading. Three kinds of whalebone are recognized by traders—the Greenland, yielded by the Greenland whale, *Balena mysticetus*; the South Sea, the produce of the Antarctic black whale, *B. australis*; and the Pacific or American, which is obtained from *B. japonica*. Of these the Greenland whalebone is the most valuable. It formed the only staple known in earlier times, when the northern whale fishery was a great and productive industry. This whalebone usually comes into the market trimmed and clean, with the hairy fringe which edges the plates removed. To prepare whalebone for its economic applications, the blades or plates are boiled for about twelve hours, till the substance is quite soft, in which state it is cut either into narrow strips or into small bristle-like filaments, according to the use to which it is to be devoted.

Whalebone possesses a unique combination of properties which render it peculiarly and almost exclusively suitable for several purposes. It is light, flexible, tough, and fibrous, and its fibers run parallel to each other without intertwinning. It has been found practicable to employ flexible steel for several purposes to which whalebone was formerly applied, especially in the umbrella and corset industries, in which steel is now almost exclusively used. Whalebone is, however, still in large demand among dressmakers and milliners; but it is principally used in the brush trade.

WHALE OILS. The whale or train (Germ., *Thran*) oil of commerce may be obtained from the blubber of any species of whale or dolphin (see WHALE FISHERIES, above). The only whale oil that is otherwise commercially distinguished is sperm or spermaceti oil, yielded by the sperm whales. Whale oil varies in color from a bright honey yellow to a dark brown, according to the condition of the blubber from which it has been extracted. At best it has a rank fishy odor, and the darker the color the more disagreeable the smell. The oil, which has an acid reaction, is purified by treatment with a solution of potash, which precipitates impurities held by the acid of the oil. Refined sperm oil is a most valuable lubricant for small and delicate machinery.

WHARTON, MARQUIS OF. Two noblemen with this title, father and son, hold a certain place in English literary history as subjects of satiric portraiture.

THOMAS WHARTON, a prominent Whig politician at the Revolution, is reputed by Doctor Percy to have been the author of the famous political ballad *Lilliburlero*, which "sang James II. out of three kingdoms." Wharton was lord-lieutenant of Ireland in Anne's reign, and incurred the wrath of Swift, who attacked him as Verres in the *Examiner*. He was born in 1640, and died in 1715.

PHILIP WHARTON, the son of Thomas, succeeded to the title and fortune at the age of sixteen, and quickly earned for himself, by his wild and profligate frolics and reckless playing at politics, Pope's satire of him as "the scorn and wonder of our days" (*Moral Essays*, i. 179). He spent his large estates in a few years, then went abroad and gave eccentric support to the Old Pretender. He was born in 1699, and died in 1731.

WHATELY, RICHARD, archbishop of Dublin, was born in London on February 1, 1787. After attending a private school near Bristol (where his father was prebendary), he went to Oxford in 1805 and entered Oriel College, then the most distinguished in the university. Whately took a double second-class in honors in 1808, afterward gaining the prize for the English essay, and in



1811 was elected fellow of Oriol. He continued to reside at Oxford as a private tutor, and in 1814 took holy orders. It was at this time that Whately wrote his celebrated tract, *Historic Doubts relative to Napoleon Bonaparte*, a clever *jeu d'esprit* directed against excessive skepticism as applied to the Gospel history. In 1822 he was appointed Bampton lecturer. The lectures, *On the Use and Abuse of Party Spirit in Matters of Religion*, were published in the same year, and were followed by a volume of *Sermons* in 1823. In August, 1823, he removed to Halesworth in Suffolk, a country living to which he had been presented. Here two years were spent in vigorous parish work, but when he was appointed in 1825 to the principalship of St. Alban Hall, he returned with his family to Oxford. In the same year he took the degree of doctor of divinity. At St. Alban Hall Whately found much to reform, and he left it a different place. In 1825 he published a series of *Essays on Some of the Peculiarities of the Christian Religion*, followed in 1828 by a second series *On Some of the Difficulties in the Writings of St. Paul*, and in 1830 by a third *On the Errors of Romanism Traced to their Origin in Human Nature*. He also published in 1829 a volume of his Halesworth sermons, under the title *A View of the Scripture Revelations concerning a Future State*. It was while he was at St. Alban Hall (1826) that the work appeared which is perhaps most closely associated with his name—his treatise on *Logic*, originally contributed to the *Encyclopædia Metropolitana*. By this work, which gave a great impetus to the study of logic not only in Oxford but throughout Great Britain, Whately has been known to generation after generation of students; and, though it is no longer so much in use, the qualities of the book make much of it as admirable now as when it was written. A similar treatise on *Rhetoric*, also contributed to the *Encyclopædia*, appeared in 1828. In 1829 Whately was elected to the professorship of political economy at Oxford in succession to Senior. His tenure of office was cut short by his appointment to the archbishopric of Dublin in 1831. Whately's appointment by Lord Grey to the see of Dublin came as a great surprise to everybody, for though a decided Liberal, Whately had from the beginning stood aloof from all political parties, and ecclesiastically his position was that of an Ishmaelite fighting for his own hand.

In 1837 he wrote his well-known handbook of *Christian Evidences*, which was translated during his lifetime into more than a dozen languages. At a later period he also wrote, in a similar form, *Easy Lessons on Reasoning, on Morals, on Mind*, and on the *British Constitution*. He also edited Bacon's *Essays*, Paley's *Evidences*, and Paley's *Moral Philosophy*. His cherished scheme of unsectarian religious instruction for Protestants and Catholics alike was carried out for a number of years with a measure of success, a selection of Scripture lessons and of Christian evidences by the archbishop himself being actually used in the model schools. But in 1852 the scheme broke down through the opposition of the new Catholic archbishop of Dublin, and Whately felt himself constrained to withdraw from the education board. This was felt by him as a grievous disappointment. From the beginning Whately was a keen-sighted observer of the condition of Ireland question, and gave much offense by openly supporting the State endowment of the Catholic clergy as a measure of justice. During the terrible years of 1846 and 1847 the archbishop and his family were unwearied in their efforts to alleviate the miseries of the people. He died October 8, 1863.

WHEAT (*Triticum*), the most important and the most generally diffused of cereal grasses, is an annual

plant, with hollow, erect, knotted stems, and produces, in addition to the direct developments from the seedling plant, secondary roots and secondary shoots (tillers) from the base. Its leaves have each a long sheath encircling the stem, and at the junction of the blade or "flag" with the sheath a small whitish outgrowth or "ligula." The inflorescence or ear consists of a central stalk bent zigzag, now to the one side, now to the other, thus forming a series of notches, and bearing a number of flattened spikelets, one of which grows out of each notch and has its inner or upper face pressed up against it. At the base of each spikelet are two empty boat-shaped glumes or "chaff-scales," one to the right, the other to the left, and then a series of flowers, two to eight in number, closely crowded together; the uppermost are abortive or sterile—indeed, in some varieties only one or two of the flowers are fertile. Each flower consists of an outer or lower glume, called the flowering glume, of the same shape as the empty glume and terminating in a long, or it may be in a short, awn or "beard."

On the other side of the flower and at a slightly higher level is the "palea," of thinner texture than the other glumes, with infolded margins and with two ribs, or veins. These several glumes are closely applied on to the other so as to conceal and protect the ovary, and they only separate to allow of the passage of the empty anthers after fertilization. Within the pale are two minute, ovate, pointed, white membranous scales called "lodicles." These contain three stamens with thread-like filaments and oblong, two-lobed anthers. The stamens are placed round the base of the ovary, which is a rounded or oblong body, much smaller than the glumes, covered with down, and surmounted by two short styles, extending into feathery brush-like stigmas. The ripe fruit or grain, sometimes called the "berry," the matured state of the ovary and its contents, is oblong or ovoid, with a longitudinal furrow on one side. The ovary adheres firmly to the seed in the interior, so that on examining a longitudinal section of the grain by the microscope the outer layer is seen to consist of epidermal cells, of which the uppermost are prolonged into short hairs to cover the apex of the grain. Two or three layers of cells inside the epidermis constitute the tissue of the ovary, and overlie somewhat similar layers which form the coats of the seed. Within these last is a layer of square cells larger and more regular in form than those on each side; these contain the gluten or nitrogenous matter upon which so much of the nutritive value of the seed depends. This thin layer of gluten cells contains the albumen or perisperm, which constitutes the great mass of the seed, being composed of numerous cells of irregular form and size filled with starch grains. These layers of cells become more or less dry and inseparable one from another, forming the substance known as "bran." At the lower end of the albumen, and placed obliquely, is the minute embryoplant, which derives its nourishment in the first instance from the albumen; this is destined to form the future plant.

The prevalent opinion among botanists is that the wheat plant is nowhere found in a wild condition. Recently, however, M. Frédéric Houssay is alleged to have discovered the plant wild in the mountains to the east of Kurdistan; but the statement requires confirmation.

The classification of the different varieties of cultivated wheat has occupied the attention of many botanists and agriculturists. The latest and fullest account is that of M. Henry de Vilmorin in his *Les Blés Meilleurs* (Paris, 1881). A good selection of seed, according to the nature of the soil, demands intelligence and accu-



rate knowledge on the part of the farmer. If a good variety be grown in poor soil, the result will be unprofitable, while if bad wheat be grown on good soil, the result may be nil. In botanical collections there exist, it is stated, herbarium specimens or other evidences of plants grown in Norway as far north as latitude 65° (Schubeler), in Switzerland at an elevation of 1,200 feet above the valley of Zermatt (or 6,500 feet above the sea), near the Straits of Magellan, as well as in Teneriffe, the Cape of Good Hope, Abyssinia, Rodriguez, the Philippine Islands, and the Malay Archipelago. These widely-separated localities show the great area over which the culture is possible, and illustrate the powers of adaptation of the plant. The requirements of the consumer have also to be considered; for some purposes the soft wheats, with their large relative proportion of starch, are the best, for others the hard wheats, with their larger quantity of gluten. With the modern processes of milling, the hard wheats are preferred, for they make the best flour; and in North America the spring wheats are harder than the winter wheats. The soft wheats are those which are most general in European cultivation, and, as a rule, the beardless varieties, though more tender, are preferred. The bearded varieties are supposed to be hardier; at any rate they defy the ravages of predatory birds more completely than the unarmed varieties, and they are preferable in countries liable to storms of wind, as less likely to have their seeds detached. Hard wheats are specially employed in Italy for the fabrication of macaroni. Polish wheat is used for similar purposes. Spelt wheats are grown in the colder mountainous districts of Europe; their flour is very fine, and is used especially for pastry-making; but, owing to the construction of the grain, it requires special machinery for grinding (see FLOUR).

Wheat begins to grow at a temperature of 5° C. (41° Fahr.); and, when the aggregate temperature, as represented by the sum of the daily means, has mounted up to 185° Fahr., the germ begins to escape from the husk, if the seed be not deeply buried; but if it is deeply buried, an amount of heat is required greater in proportion to the depth. If the seed lies at a depth lower than a foot from the surface, it rarely germinates. The seedling plant ceases to grow if the mean temperature of the day remains below 42° Fahr. When the young plants have been influenced by an aggregate temperature amounting to 1,896° Fahr. from the period when sown, or 1,715° from the period of germination, branching or "tillering" goes on freely, and the young ears are formed. Under the influence of a mean temperature of 55°, or a little above, the flowers are produced. A still higher daily mean is required for the full development and ripening of the grain. The figures here cited are given by Risler and are calculated for the climate of Paris; but, of course, the same principles apply in the case of other countries. The amount of light and of moisture has also to be taken into account. The fact that the wheat plant requires less water than other cereals, and therefore does not suffer so much from drought, is one of great importance to the cultivator, and furnishes one reason for the greater proportionate culture of wheat in the eastern than in the western counties of England.

The numerous varieties of wheat now in cultivation have been obtained either by selection or by cross-breeding. In any wheat-field there may be observed on close inspection plants differing in character from the majority. If seeds of these "sporting" plants be taken and grown in another season, they may (or may not) reproduce the particular variation. If they do, and the same process of selection be continued, the variation becomes in time "fixed," though it is always more or less liable to revert to its original condition.

The production of wheat, with the use of wheat bread, has increased enormously since the extension of railways has made possible the transportation of grain for great distances by land. The annual crop of the world is now estimated at nearly 2,000,000,000 bushels. Of late years the increase of production has been most notable in southern Russia, Australia, India, and North America.

Two species of *Cecidomyia* are most destructive to wheat. *Cecidomyia tritici*, the wheat midge, has been known in Great Britain for over a century. This fly is a little over two mm. in length, of an orange yellow color, with black eyes; the female is provided with a long ovipositor, by means of which it deposits ten or more eggs in the ears of wheat. The larvæ hatch out in about ten days. They are at first transparent, but become yellow, and their color gradually deepens. Most of the larvæ fall off the plant and bury themselves in the ground, where they change into pupæ; some, however, remain in the ear and are found in some numbers in chaff. The perfect insect emerges from the pupa in the spring. It is probable that more than one brood is produced during the season. The damage caused to the crop is due to the larva feeding upon the soft tissue of the ear and thus causing the seed to be imperfect; some authorities state that it also devours the pollen. Since the larvæ exist in chaff, great care must be taken that this does not prove a source of infection, and land which has been badly affected must be plowed deep, in order to bury them. *C. destructor* is well known under the name of the Hessian fly. It was first noticed in Great Britain during the summer of 1886, in Hertfordshire, and within a few months its presence was reported throughout the eastern half of England and Scotland—a circumstance which led some authorities to believe that it had existed in Great Britain for some little time; there has been, however, no definite proof of this. The fly has been known in North America since 1776, where it has done very extensive damage, especially during warm moist summers. It is known to occur throughout central Europe; in 1879 it made its appearance in Russia, and in four years had spread over the greater part of that country. The female fly is about three mm. long, brownish in color, but becoming black in the thorax and head. The wings are fringed, rounded at their ends, and the third nerve is branched. The antennæ are also fringed and consist of two globular basal joints, and fourteen to sixteen smaller joints, which diminish in length toward the ends. The male fly is smaller than the female; the abdomen terminates in two claspers. The female lays in the spring forty or more eggs upon the leaves of the grain plants—wheat, barley, and rye; oats are not affected. The larvæ are hatched in about five or six days, and make their way down to the axils of the leaves, feeding upon the sap which is passing up the stem. After a few weeks they are transformed into the "flax seed" pupæ, which are usually found just above the second joint of the stem. From these pupæ the autumn brood of flies emerge; these lay eggs, and their larvæ tide over the winter in the pupal condition. Sometimes only one brood is produced in the year. The injury done to the plant by the larvæ living upon the sap usually causes the infected plants to bend over just above the second joint; this renders them easily distinguishable from the healthy plants. The numbers of this most injurious insect are fortunately kept down to a considerable extent by parasites. Five species of *Chalcididae* are known to be parasitic on *C. destructor* in America and six in Russia.

Another beetle, *Calandra granaria*, the corn weevil, also attacks stored grain. The eggs are deposited in



the grains of corn and the larva spends its life therein, living upon the substance of the grain, and ultimately turning to a pupa. It leaves the grain first upon attaining the mature state.

The larvæ of *Elater (Agriotes) lineatus* and of other species of this genus are among the most destructive insects known to agriculturists. They are commonly known as wire-worms from the exceedingly tough character of their skins. The mature beetles are known as skip-jacks, from the power they possess of regaining their normal position when placed on their back by means of a loose articulation between the pro-thorax and the meso-thorax. This, when put in action, causes the beetles to jump into the air, and they usually fall on their feet. The wire-worms have a rather flattened body, yellowish brown in color; it consists of twelve segments, and bears three pairs of legs. The larvæ live for several years, and then, burying themselves deep in the earth, emerge as the perfect insect in about a fortnight. The beetles pair in June, and the female deposits her eggs upon blades of grass or the sheathing leaves of corn. The best preventative for this pest is clean farming and scarifying the land after harvest, so as to kill all roots which might serve as food for the wire-worms. When a crop is badly attacked, soot or gas lime may be applied and the land well rolled to compress the earth. The numbers of the larvæ are to some extent kept down by moles and insectivorous birds.

The cockchafer, *Melolontha vulgaris*, is injurious to grain crops, in both its mature and its larval condition. During the former state it devours the leaves of wheat and of most other grasses, trees, and shrubs. The larva, which is very voracious, lives upon roots. This larva is very thick and fleshy, of a whitish hue, with three pairs of legs; it usually lies in a curled-up position. The larval condition lasts several years; but ultimately the larvæ become pupæ, and in this condition live through the winter. Much may be done to prevent the spread of this pest by shaking the cockchafers from the trees, among the leaves of which they hang, and destroying them. They are eagerly eaten by pigs and poultry.

For fungoid diseases, see FUNGUS and MILDEW.

WHEATEAR, is a bird's name perhaps of doubtful meaning, though Taylor, the "water poet," (d. 1654), in whose writings it seems first to occur, and Willughby, explain it ("in the words of Ray, the latter's translator) as given "because [in] the time of wheat harvest they wax very fat." It would seem also from this author to have been originally the local name for the species in Sussex, England, on the South Downs of which county its capture in a very simple kind of trap has been the occupation of many generations of shepherds. The Wheatear has a very wide range throughout the Old World, extending in summer far within the Arctic Circle, from Norway to the Lena and Yana valleys, while it winters in Africa beyond the Equator, and in India. But it also breeds regularly in Greenland and in some parts of North America.

More than sixty other species more or less allied to the Wheatear have been described, but probably so many do not really exist. Some eight are included in the European fauna; but the majority are inhabitants of Africa. Several of them are birds of the desert; and here it may be remarked that, while most of these exhibit the sand-colored tints so commonly found in animals of like habitat, a few assume a black plumage, which is equally protective, since it assimilates them to the deep shadows cast by projecting stones and other inequalities of the surface.

WHEATLEY, FRANCIS, English portrait and landscape painter, was born in 1747 at Wild Court, Covent Garden, London. He painted several subjects for Boy-

dell's *Shakespeare Gallery*, designed illustrations to Bell's edition of the poets, and practiced to some small extent as an etcher and mezzotint-engraver. It is, however, as a painter, in both oil and water-color, of landscapes and rustic subjects that Wheatley will be most favorably remembered. He was elected an associate of the Royal Academy in 1790, and an academician in the following year. He died on June 28, 1801.

WHEATON, HENRY, lawyer and diplomatist, was born at Providence, R. I., on November 27, 1785. He graduated at Brown University in 1802, was admitted to the bar in 1805, and, after two years study abroad, practiced law at Providence (1807-12) and at New York city (1812-25). He was a justice of the Marine Court of the city of New York from 1815 to 1819, and reporter of the United States Supreme Court from 1816 to 1827, aiding, in 1825, in the revision of the laws of New York. His diplomatic career began in 1825, with an appointment to Denmark as chargé d'affaires, followed by that of minister to Prussia, 1835 to 1845. During this period he had published a *Digest of the Law of Maritime Captures* (1815); twelve volumes of *Supreme Court Reports*, and a *Digest*; a great number of historical articles, and some collected works; *Elements of International Law* (1836); *Histoire du Progrès du Droit des Gens en Europe* (1841), translated in 1845 by William B. Lawrence as a *History of the Law of Nations in Europe and America*; and *the Right of Visitation and Search* (1842). The *History* took at once the rank which it has always held, that of the leading work on the subject of which it treats. The publication of a second translation by Dana in 1866 led to a prolonged lawsuit between him and Lawrence. In 1846 Wheaton, who was more than sixty years of age, was requested to resign by the new president, Polk, who needed his place for another appointment. The request provoked general condemnation; but Wheaton resigned and returned to the United States. He was called at once to Harvard College as lecturer on international law; but he died at Dorchester, Mass., on March 11, 1848.

WHEATSTONE, SIR CHARLES, the practical founder of modern telegraphy, was born at Gloucester, England, in February, 1802, his father being a music-seller in that city. In 1806 the family removed to London. For some years he continued making experiments in acoustics, following out his own ideas and devising many beautiful and ingenious arrangements. Of these the "acoucryptophone" was one of the most elegant—a light box shaped like an ancient lyre and suspended by a metallic wire from a piano in the room above. When the instrument was played, the vibrations were transmitted silently, and became audible in the lyre, which thus appeared to play of itself. In 1823 he published his first paper *New Experiments on Sound* in Thomson's *Annals of Philosophy*. By 1834 Wheatstone's originality and resource in experiment were fully recognized, and he was appointed professor of experimental philosophy at King's College, London, in that year. This appointment was inaugurated by two events—a course of eight lectures on sound, which proved no success and was not repeated, and the determination by means of a revolving mirror of the speed of electric discharge in conductors, a piece of work leading to enormously important results. The great velocity of electrical transmission suggested the possibility of utilizing it for sending messages; and, after many experiments and the practical advice and business-like coöperation of Cooke, a patent for an electric telegraph was taken out in their joint names in 1837. Wheatstone's early training in making musical instruments now bore rich fruit in the continuous designing of



new instruments and pieces of mechanism. His life was uneventful except in so far as the variety of his work lent it color. He became a fellow of the Royal Society in 1837; in 1847 he married, and in 1868, after the completion of his masterpiece, the automatic telegraph, he was knighted. While in Paris perfecting a receiving instrument for submarine cables, Sir Charles Wheatstone caught cold, and died on October 19, 1875.

WHEELING, a city of Ohio county, W. Va., the largest and most important in the State, stands on the eastern bank of the Ohio and on an island in the river, in what is popularly known as the "Pan-Handle." The main portion of the city lies in the bottom land, 40 to 50 feet above low water in the river, and, on an average, about 650 feet above the sea. Immediately east of it the bluffs rise to a height of 400 feet above the river. The island portion is connected with the mainland by a fine suspension bridge, 1,010 feet long. The surrounding country is quite open and well cultivated, being timbered only on the hillsides; cereals and tobacco are the principal crops, and wool is largely grown. Wheeling has railway connections eastward by the Baltimore and Ohio line to Baltimore and Washington; westward by the same line and by the Pittsburgh, Cincinnati and St. Louis; northward by the Cleveland and Pittsburgh; and southward by the Ohio River railroad. The Ohio, which is navigable to Pittsburgh, furnishes another means of communication. The depth of water in front of the city ranges from twenty inches at the lowest stage to thirty or forty feet during floods, while the width of the river varies from 100 to 1,000 feet. The principal manufacturing industries are those of iron and steel, which employ some 2,600 persons or about one-twelfth of the population. Wheeling is popularly known as the "nail city" from the large quantity of cut nails made in its workshops. It has also manufactories of glass and queensware, wine (from home grown grapes), cigars and tobacco, lanterns, and leather, as well as breweries. The city has a large market for ginseng, which is exported almost exclusively to China. The population of Wheeling in 1880 amounted to 30,737, and is now (1900) 38,878.

The first settlement (Fort Fincastle) on the present site of Wheeling was made in 1769. In 1776 its name was changed to Fort Henry; it was twice besieged by the British and Indians, in 1777 and 1782. It was incorporated as a village under its present name in 1806, and in 1836 it received a city charter. Upon the formation of the State of West Virginia in 1863 Wheeling was made the capital. In 1870 this dignity was conferred upon Charleston; in 1875 it was restored to Wheeling, but lost again in 1885 to Charleston.

WHEWELL, WILLIAM, philosopher and historian of science, was born on May 24, 1794, at Lancaster, England. He was educated at the blue school and the grammar school of Lancaster, and afterward at Haverham grammar school, where he obtained the exhibition which enabled him to enter Trinity College, Cambridge, in October, 1812. For the remainder of his life his home was within the walls of Trinity. He graduated as second wrangler in 1816, was elected fellow in 1817, appointed a mathematical lecturer in the following year, and in due course became one of the college tutors. From 1828 to 1832 he held the professorship of mineralogy and from 1838 to 1855 that of moral philosophy, or (as it was then called) moral theology and casuistical divinity. In 1841 he was appointed master of the college on the resignation of Doctor Wordsworth. He died on March 6, 1866, from the effects of a fall from his horse.

WHEEL, BREAKING ON THE, is a very barbarous mode of inflicting the punishment of death, formerly in

use in France and Germany, where the criminal was placed on a carriage wheel, with arms and legs extended along the spokes and the wheel being turned round, the executioner fractured his limbs by successive blows with an iron bar, which were repeated until death ensued. There was considerable variety in the mode in which this death was inflicted, at different times and in different places. By way of terminating sooner the sufferings of the victim, the executioner was permitted to deal two or three hard blows on the chest or stomach, known as *coups de grace*; in France, at least, the sentence contained a provision that the criminal was to be strangled after the first or second blow. Mercy of this kind, however, was not always allowed to be shown to the victim of the wheel; when Patkul, the envoy of Peter the Great, was put to death on the wheel by the order of Charles XII. of Sweden, it is said that the officer in command of the guard was cashiered by the Swedish king in consequence of having allowed the head to be struck off before life was extinct in the mangled limbs. The punishment of the wheel was abolished in France at the Revolution; in Germany it has been occasionally inflicted in the present century on persons convicted of treason and parricide.

WHEEL AND AXLE, the second of the mechanical powers, is a modification of the Lever, (*q.v.*) Its most primitive form is a cylindrical axle on which a wheel, concentric with the axle, is firmly fastened. When employed for raising heavy weights, the weight is attached to a rope which is wound round the axle, and the power is applied either to a rope wound round the grooved rim of the wheel, or to a handle fixed at right angles to the wheel's rim (in the latter case the wheel may be dispensed with, unless it is useful as a conservator of momentum, and an ordinary winch substituted). The wheel and axle are nothing more than a lever, whose extremities are not points in the normal form, but the circumference of the circles. Accordingly the power and weights are not attached to particular points in these circumferences, but to cords wound round them, and thus the imaginary simple lever (formed by joining the points where the cords become tangent to the circles) is preserved unaltered in position and magnitude.

WHIG PARTY, THE, was one of the representative political parties of the United States fifty years ago, organized upon the dissolution of the Federal party in 1812, and during its career exerted an influence so potent and widespread as to leave its impress upon succeeding legislation long after its downfall became an accomplished fact. At the close of the war of 1812, the subjects of internal improvements and a protective tariff became the leading topics of political discussion at the meetings and in the national councils, one party contending that all questions relating to internal improvements must be determined by local legislation, while others insisted to the contrary; in other words that it was the duty of the general government to furnish such aid, and that authority in the premises had been delegated by the States. Precedent favored the latter conclusions, and when the leaders of the "liberal party," as it was described, organized, they adopted the name "National Republicans," subsequently changing it to that of "Whigs," the opposing party adopting the name of "Democrat," by which it has since been known.

These questions were first brought prominently before the people during the campaign which resulted in the election of Andrew Jackson over Henry Clay. The year following, as will be remembered, South Carolina attempted to nullify the tariff laws of the United States. The attempt was suppressed, but it resulted in bringing Clay, the leader of the Whig party, to the front with a



compromise making a gradual reduction in the tariff, the same to be upon all duties above 20 per cent. ad valorem, one-tenth of the excess above that figure to be reduced annually for the ensuing ten years. It was passed by congress, notwithstanding the opposition made by the Whigs under Webster, and was followed by the election of Martin Van Buren over the candidates of the Whig party, four in number. In 1837 the panic, attributed to the tariff reductions made by Democrats, caused a radical change in public sentiment, to which was attributed the cause of Democratic defeat, and the return of the Whigs to power, the result of the campaign which closed with the election of the ticket headed by Harrison and Tyler.

About this time the slavery question began to be a source of heated and acrimonious discussion with members of all parties. In 1838 the Democrats of the House, aided by the votes of southern Whigs, adopted a rule providing for the summary disposition of appeals, petitions, and documentary references to slavery, by laying them on the table. This caused inward dissensions among Whig leaders, and as a writer on the subject has related, "tended to divide and demoralize the Whig party."

The death of General Harrison and the consequent succession of John Tyler to the presidency led to further complications, including the resignation of members of the cabinet. In the senate Clay became the leader of the party, and secured the passage of a general bankrupt act, the distribution of the public land, the tariff of 1842, and other measures of less importance. He was rewarded by the nomination to the presidency in 1844, but was defeated, owing, it was said, to his views upon the annexation of Texas, as expressed in a letter to the South, written shortly after the action of the nominating convention, making him its candidate. The effect of this letter was dissatisfaction among northern Whigs, many of whom enlisted in the ranks of the Free-soil party, and to still further antagonize the party on the subject of slavery—the southern wing insisting upon the legality of "their Institution," while the northern Whigs were divided in sentiment, part of them indorsing the position taken by the South, and others insisting to the contrary. While the war with Mexico was successful, there was legislation which resulted disastrously to democratic supremacy. The principal feature of this letter was the essential modification of the tariff of 1842. The bill passed the house by a majority of nineteen votes; but in the senate such was the doubt existing as to the expediency of the measure, that it was carried only by the casting vote of the vice-president. This, together with the extension of slave territory, one of the consequences of the war for the annexation of Texas, the Oregon question and other causes, combined to change the political complexion of the house, and that branch of the legislative department was once more restored to the control of the Whig party. The slavery question was yet paramount, and an attempt to pass what is known as the "Wilmot Proviso," a measure intended to limit its further extension, originating with David Wilmot of Pennsylvania, was defeated by a coalition of Democrats and southern Whigs.

In 1848 Taylor and Fillmore were the Whig candidates for president and vice-president, respectively. The campaign, managed in part by William H. Seward, Horace Greeley, and others who had always been pronounced anti-slavery agitators, was notable because it avoided all reference to that subject. Taylor was elected, but party dissensions increased, and party lines were sternly drawn. Upon the death of President Taylor, Vice-President Fillmore began the discharge of the executive duties with what was alleged as a change of

policy, manifested by approving and advocating the "Clay Compromise," and the bills included therein, providing for the return to their owners of fugitive slaves, for the admission of California, and the organization of Utah and New Mexico, in all of which restrictions against the extension of slavery were omitted; also the bill prohibiting the slave trade in the District of Columbia. At the national convention of the Whig party, which assembled at Baltimore in 1852, Fillmore was made the candidate for the presidency by the southern wing of the party, while Gen. Winfield Scott was supported by representatives of the same party, then known as "anti-slavery Whigs." The platform formulated yielded an acknowledgment of the justice and legality of the fugitive slave law, and, after a prolonged contest, General Scott was nominated. The Democrats presented Franklin Pierce, of New Hampshire, as their presidential candidate, and, at the election which followed, he received a majority of the electoral votes. This closes the history of the Whig party in the United States. The anti-slavery branch of the party afterward affiliated with the Republican organization against the extension of slavery, while the pro-slavery wing of the party, except an occasional support of the American party, have since acted with the Democrats.

**WHIG AND TORY.** Parliamentary parties came into existence in England as soon as parliament achieved or aimed at predominance in the state. In 1641, shortly after the meeting of the Long Parliament, they were divided on the question of church reform, passing, as soon as political questions were involved, into Cavaliers and Roundheads. After the expulsion of the Cavaliers in 1642 and 1643 the Houses were divided into a peace party and a war party, and these in 1643 took the shape of Presbyterians and Independents. After the Restoration there was a country party and a court party, and to these the names of Whig and Tory were applied in 1679, in the heat of the struggle which preceded the meeting of the first short parliament of Charles II. The words were nicknames given by the opponents of each party. To call a man a Whig was to compare him with the Presbyterian rebels of the west of Scotland. To call a man a Tory was to compare him with the Papist outlaws of Ireland. In fact, at this time the Whigs were maintainers of parliamentary power over the crown and of toleration for Dissenters, the Tories maintainers of the hereditary infeasible rights of the wearer of the crown and of the refusal of toleration to Dissenters. The relation between the parties was further qualified by the fact that the heir to the crown was a Roman Catholic, whose claim to succeed was defended by the Tories and assailed by the Whigs.

The persistency of the names of the two parties is mainly owing to their unmeaningness. As new questions arose, the names of the old parties were retained, though the objects of contention were no longer the same. The Revolution of 1688-89 made it impossible for the Tories to retain their old attitude of attachment to the hereditary right of the occupant of the throne, with the exception of the extreme wing of the party, which remained Jacobite.

With the accession of George III. Toryism took a new form. The struggle about the Dissenters was now a thing of the past, and the king was accepted as a leader in carrying on the attack against the power of the great Whig families. The attack was easier because the Whig families had split into factions. For some time the dividing line between Whigs and Tories was this: the Tories asserted that the king had a right to choose his ministers and control their policy, subject to the necessity of securing a majority of the House of



Commons, while the Whigs thought that the choice should lie with leading members of parliament, and that the king should have no controlling power. The Whig view appears to resemble that subsequently adopted; but in the middle of the eighteenth century the corruption which prevailed rendered the analogy worthless, and the real conflict was between the corrupt influence of the crown and the influence of a clique of great landowners resting on their possession of electoral power through the rotten boroughs.

All this was changed by the French Revolution. In opposition to the new democracy, the Tories coalesced with a section of the Whig families, the representatives of which entered the ministry in 1794. From this time till 1822 Toryism was synonymous with a desire to retain the existing state of things, however full of abuses it might be. When Canning and Peel entered the ministry, in 1822, a gradual change took place, and a tendency to practical reform manifested itself. The refusal of Wellington to listen to any proposal for altering the constitution of the House of Commons threw the power once more into the hands of the Whigs in 1830. Shortly afterward the name Tory gave place to that of Conservative, though of late years there has been an attempt to revert to it by those Conservatives who wish to assert their power of originating a definite policy, and who do not like to be branded with a purely negative appellation. The name of Whig on the other hand was replaced by that of Liberal, being assigned for some time to the less progressive portion of the party, and thus, by becoming a term of reproach, threatening entirely to disappear.

WHIP-POOR-WILL, a species of goatsucker, a native of North America common in the eastern part of the United States. It receives its popular name from the fancied resemblance of its notes to the words of whip-poor-will. It is about ten inches long, the plumage like that of the European goatsucker, much mottled and indistinctly marked with small transverse bands, the top of the head streaked with black, a narrow white collar on the throat. The bristles at the base of the bill are very stiff, and more than an inch long. The bird is seldom seen during the day, but seeks its food by night, catching moths, beetles, and other insects on the wing. Its flight is near the ground, zigzag and noiseless. Its notes are heard only during the night, and are clear and loud, so that when a few birds are at hand the noise is such that those unaccustomed to it cannot sleep. In the more southern parts of the United States the whip-poor-will is replaced by a larger species, the chuck-will's-widow, on the upper Missouri, and to the west by a smaller one (*C. or A. Nuttallii*).

WHIRLPOOL, a hollow in running water, caused or accompanied by a whirling motion which attracts and engulfs floating objects. The popular conception of a whirlpool was probably based on the ancient accounts of that of Charybdis, strengthened by exaggerated rumors of the Mälström in the Lofoten Islands, and, in Great Britain, at least, largely consolidated by the legends of Corrieveckan.

The formation of whirlpools is a natural result of water flowing rapidly in an irregular channel; it takes place in all rivers and in every tide-race of the sea, the depth, diameter, and velocity depending on accidental causes. All the famous whirlpools are situated in channels essentially similar in configuration and in tidal phenomena: their vortices are produced at certain phases of the tide or with certain directions of the wind; and they are all dangerous to navigation, but the danger is due to the cause which produces the whirlpools—the tidal race—not to the “roaring wells” themselves. Whirlpools in a tidal stream are not

stationary, but travel along with the current, filling up and again forming in irregular succession. Small boats have repeatedly been drawn into these vortices in the northern fjords and capsized; and trading steamers in passing through a tide-way are violently deflected from their course. It is on record that a seventy-four gun ship has been whirled right round in the vortices of the Straits of Messina. The fishermen of the Norwegian fjords and of the northern island groups—Lofoten, Faroe, Shetland, and Orkney—still believe that, if they can throw a heavy or bulky object into a whirlpool, it will close up without harming their boats.

Charybdis, a whirlpool famous in classical literature, is situated in the Straits of Messina. The rise of tide at Messina does not exceed one foot, but the current may attain the velocity of nearly six miles an hour. Where the north-going flood tide meets the south-running counter-current, and where the southerly ebb meets its induced northerly stream, great eddies or *garofola* are formed, one of which is Charybdis. These depend very much on the wind for the intensity of their phenomena.

WHIRLWIND. See METEOROLOGY.

WHISKY, or WHISKEY, a spirit distilled for drinking, which originated, at least so far as regards the name, with the Celtic inhabitants of Ireland and Scotland; and its manufacture and use still continue to be closely associated with these two countries. Distilled spirit first became popularly known as aqua vitæ, and it was originally used only as a powerful medicinal agent. It was not till about the middle of the seventeenth century that it came into use in Scotland as an intoxicating beverage.

It is not easy at the present day to define whisky. Originally it was made from malted barley, the fermented wort from which was distilled in the common pot-still (see DISTILLATION); but with the introduction of the Coffey and other continuous stills, which yield a “silent” or flavorless spirit, it has become possible to prepare alcoholic liquor, which is sold as whisky, from any cereal grain, malted or unmalted, and from potato starch, grape sugar, and numerous other starch and sugar-yielding substances. As a rule, however, whisky is made from grain, and by preference from barley, malted or raw. In the United States, whisky is distilled chiefly from corn and rye, wheat and barley malt being used, though only to a limited extent. When spirit is distilled as whisky, it retains the natural principles which impart an agreeable flavor to the beverage; for the fusel oil, which is contained in alcohol, and is acrid to the taste and stupefying in its effects, is to a great extent extracted. Whisky is greatly improved by age; it is not mellow, nor its flavor agreeable, until it is several years old. In its original state it is almost colorless, but it derives a reddish hue from the wood of the barrels into which it is drawn, the inner surfaces of which are usually charred to facilitate the coloring.

Distilled spirits in the United States are the principal and an increasing source of internal revenue. In the fiscal year ending June 30, 1887, there were in the United States 969 grain distilleries, and the quantity of spirits distilled in that year (including whisky, alcohol, high-wines, and cologne or neutral spirits, and excluding fruit-brandy) was 77,831,599 gallons. The stock of spirits remaining in bonded warehouse June 30, 1887, was 65,145,269 gallons. The total revenue from the manufacture and sale of distilled spirits for the fiscal year ending June 30, 1887, was \$65,829,322.

WHIST, a game at cards. The etymology of the name is disputed; probably it is of imitative origin, from “whist” (hist, hush, silence), the game being so named because of the silence required to play it attentively.



In the sixteenth century a card game called *triumph* or *trump* (corrupted from "triumph") was commonly played in England. A game called *trionfi* is mentioned as early as 1526, and *triumphus Hispanicus* in 1541. *La triomphe* occurs in the list of games played by Gargantua (Rabelais, first half of sixteenth century). In Florio's *World of Wordes* (1598) *trionfo* is defined as "the play called trump or ruff." It is probable that the game referred to by the writers quoted is *la triomphe* of the early editions of the *Académie des Jeux*. It is important to note that this game, called by Cotton "French ruff," is similar to écarté. "English ruff-and-honors," also described by Cotton, is similar to whist. If we admit that ruff and trump are convertible terms, of which there is scarcely a doubt, the game of trump was the precursor of whist. A purely English origin may, therefore, be claimed for trump (not *la triomphe*).

It is believed that the earliest mention of whist is by Taylor, the Water Poet (*Motto*, 1621). He spells the word "whisk." The earliest known use of the present spelling is in *Hudibras, the Second Part* (spurious), 1663. The word is then spelled indifferently whisk or whist for about half a century. Cotton (1674) spells it both ways. Seymour (*Court Gamester*, 1734) has "whist, vulgarly called whisk." The points of the game rose from nine to ten ("nine in all," Cotton, 1725; "ten in all," Seymour, 1734, "rectified according to the present standard of play"). Simultaneously with this alteration, or closely following it, the entire pack of fifty-two cards was used, the deuces being no longer discarded. This improvement introduces the odd trick, an element of great interest in modern whist. According to Barrington, whist was first played on scientific principles by a party of gentlemen who frequented the Crown Coffee House in Bedford Row, London, about 1728. They laid down the following rules:—"Lead from the strong suit; study your partner's hand; and attend to the score." Shortly after the celebrated Edmond HOYLE (*q.v.*) published his *Short Treatise* (1743). Ever since the time of Hoyle, the game has continued to increase in public estimation.

About 1804 the points of the game were cut down from ten to five. Clay's account of this change is that, about the beginning of the nineteenth century, Lord Peterborough having lost a large sum of money, the players proposed to make the game five up, in order to give the loser a chance of recovering his loss. The new game, short whist, was found to be so lively that it soon became general, and eventually superseded the long game. The new game necessarily caused a change in the style of play, as recorded by James Clay in *The Laws of Short Whist, and a Treatise on the Game* (1864). That distinguished player says that, when he first remembered whist, its celebrities were for the most part those who had been educated at long whist. About 1830 some of the best French whist-players, with Deschappelles at their head, modified and improved the old-fashioned system. They were but little influenced by the traditions of long whist, and were not content merely to imitate the English. The French game was the scorn and horror of the old school, who vehemently condemned its rash trump leads. Those who adopted the practice of the new school were, however, found to be winning players. By way of example, the English player of the old school never thought of playing to win the game before it was saved; the French player never thought of saving the game until he saw he could not win it. As between the two systems, Clay preferred the rash attack to the cautious defense, and recommended a middle course, leaning more to the new than to the old doctrine.

Doctor Pole (*Philosophy of Whist*, 1883) remarks

that the long experience of adepts had led to the introduction of many improvements in detail since the time of Hoyle, but that nothing had been done to reduce the various rules of the game to a systematic form until between 1850 and 1860, when a knot of young men proceeded to a thorough investigation of whist, and in 1862 one of the members of that "little whist school" brought out a work under the pseudonym of "Cavendish," which "gave for the first time the rules which constitute the art of whist-playing according to the most modern form of the game." The little school was first brought prominently into notice by an article on whist in the *Quarterly Review* of January, 1871.

A critical examination of the more important proposals made since 1862 may here be appropriately introduced. The older authorities laid down the rule; discard from the weakest suit. It was shrewdly noticed that, when command of trumps was shown by the adversaries, the rule was more honored in the breach than in the observance, the reason being that, when the attack was adverse, the instinct of the player prompted him to guard his weak suits. Hence the rule was modified, and it became the practice to discard from the best protected suit when the command of trumps is with the opponents. There can be no doubt as to the soundness of this modern rule of play, and it has been generally accepted.

Calling for trumps, as all whist-players know, is effected by throwing away an unnecessarily high card. When the lower card is subsequently played, a royal invitation is given to the partner to abandon his own game and to lead trumps, there being great strength in the caller's hand. In practice it was found for various reasons (for which manuals must be consulted) to be highly advantageous for the caller's partner to be able to indicate whether he also had numerical strength in trumps (*i.e.*, a minimum of four). The rule was eventually adopted that the caller's partner with at least four trumps should, if he had an opportunity, call in response, by also throwing away an unnecessarily high card; of course, if he had the opportunity, and refrained, he had less than four trumps. This rule of play was not appreciated at the time; but now it has the adherence of all thoughtful players.

Contemporaneously with calling for trumps, the lead of the penultimate card from suits of five or more cards was strenuously advocated in some quarters, and as strenuously opposed in others. The old players regarded it with the same "horror" as they had formerly displayed with respect to the French school, and even went so far as to stigmatize it as a private understanding and as cheating. The next stock objection raised was that it was an innovation. These feeble arguments were soon disposed of. The method was accessible to every one through the medium of the press, and, as Clay (*Short Whist*, 1864) rightly observes, "It is fair to give your partner any intimation which could be given, if the cards were placed on the table, each exactly in the same manner as the others, by a machine, the players being out of sight and hearing each of the others."

Meanwhile, leads from high cards, having regard to the number held in the suit, had not escaped attention. Thus, from suits headed by ace, queen, knave, it had always been the custom to lead ace, then queen, irrespective of number. The third hand, holding king and small ones, was expected to pass the queen. But, if the lead was from five cards or more, and the third hand held king and two small ones, this play often resulted in blocking the leader's strong suit. It was, therefore, held, after some discussion and tentative play, that with more than four of the suit the leader should proceed with knave after ace, in order to invite his part-



er to put on king, if it remained singly guarded. From this it follows that a similar distinction should be drawn as to the second lead from queen, knave, ten, according to the number of accompanying small cards. If the lead is from four cards only, queen should be led, then knave; if from more than four, queen, then ten. These innovations were introduced about 1874-75. It will be observed that the original idea in choosing a penultimate or antepenultimate card was to protect the suit, and that the original idea in choosing the higher or lower of two high indifferent cards was to give the partner the option of unblocking. Behind this there was seen to lie the collateral advantage of showing number. Hence these rules of play were frequently resorted to merely for the purpose of telling whether four or more than four cards of the suit selected to lead from were present in the hand of the original leader.

So far the indicated method, sound enough in itself, amounted only to the enunciation of modified rules of play. It yet remained for some one to propound a constant method of treating all leads, and to classify the isolated rules so as to render it possible to lay down general principles. This was accomplished in 1883-84 by Nicholas Browse Trist of New Orleans; and hence the method of leading reduced to form by him is known by the name of *American leads*. American leads propose a systematic course of play when opening and continuing the lead from the strong suit. First, with regard to a low card led. When you open a strong suit with a low card, lead your fourth best. When opening a four-card suit with a low card, the lowest, which is the fourth best, is the card selected. When opening a five-card suit with a low card, the penultimate card is selected. Instead of calling it the penultimate, call it the fourth best. So with a six-card suit; but, instead of antepenultimate, say fourth best. And so on with suits of more than six cards; disregard all the small cards, and lead the fourth best. Secondly, with regard to a high card led, followed by a low card. When you open a strong suit with a high card and next lead a low card, lead your original fourth best. The former rule was to proceed with the lowest. Thus, from ace, knave, nine, eight, seven, two, the leader was expected to open with the ace, and then to lead the two.

An American leader would lead ace, then eight. Thirdly, with regard to a high card led, followed by a high card. When you remain with two high indifferent cards, lead the higher if you opened a suit of four, the lower, if you opened a suit of five or more. Examples have already been given of the case of ace, queen, knave, etc., and of queen, knave, ten, etc. On the promulgation of these general principles another pitched battle followed, which raged with great fury. The objections urged against American leads are much the same as those against the penultimate, viz.—(1) that they complicate the game, (2) that they seldom affect the result, (3) that the information afforded may be of more use to the opponents than to the leader's partner. The complication argument has but little foundation in fact. All an American leader asks his partner to observe is that, when he originally leads a low card, he holds exactly three cards higher than the one led; when he originally leads a high card, and next a low one, he still holds exactly two cards higher than the second card led; and when he originally leads a high card and follows it with a high card, he indicates in many cases, to those who know the analysis of leads (as laid down in whist books), whether the strong suit consisted originally of four or of more than four cards. It cannot be denied that moderate players may lack the quick perception which will enable them to take full advantage of the information afforded; but that is no reason why better players should

be deprived of the advantage, and it is no reason why the moderate player should not learn to speak the language of whist intelligibly, for the benefit of partners who do understand it. The answer to the effect-on-the-result argument is that American leads add but little which is new to the game. They only aim at consolidating the received practice, and at extending a law of uniformity to cases not previously provided for. The who-gets-the-best-of-the-information argument is more difficult to meet. Under other whist conditions experience tells us that it is advantageous in the long run to convey information of strength, notwithstanding its publication to the whole table. It is most improbable, therefore, that a player will be at a disadvantage by publishing too much and too precise information as to his strength. But it must be admitted that this is not necessarily a *sequitur*; long experience can only decide on which side the balance of advantage lies. Five years' experience is hardly enough. But it may be remarked that no instances are known of players who, having once adopted these leads, have voluntarily relinquished them.

WHISTON, WILLIAM, English divine and mathematician, was born on December 9, 1667, at Norton in Leicestershire, England, of which village his father was rector. His *Theory of the Earth* (1696), although destitute of sound scientific foundation, obtained the praise of both Newton and Locke, the latter of whom justly classed the author among those who, if not adding much to our knowledge, "at least bring some new things to our thoughts." For several years Whiston continued to write and preach both on mathematical and theological subjects with considerable success; but his study of the *Apostolical Constitutions* had convinced him that Arianism was the creed of the primitive church; and with him to form an opinion and to publish it were things almost simultaneous. His heterodoxy soon became notorious, and in 1710 he was deprived of his professorship and expelled the university. About 1747 he finally left the communion of the Church of England for the Baptist, leaving the church literally as well as figuratively, by quitting it as the clergyman began to read the Athanasian creed. He died in London at the house of his son-in-law, August 22, 1752.

WHITBY, a seaport and watering-place in the North Riding of Yorkshire, England. The chief exports are jet ornaments and iron, but the shipping trade is on the decline; in fact the town is being gradually transformed into a fashionable watering-place. The manufacture of alum, by which in the reign of Elizabeth the foundations of its prosperity were laid, is now discontinued. The introduction of iron ship-building has also affected an industry (the building of wooden ships) for which Whitby was at one time famous; it was here that the ships for Captain Cook's voyages were built. Whale-fishing, established in 1753, began to decline in 1823, and was abandoned in 1837. The only manufacture that maintains its importance is that of jet ornaments, peculiar to the town, and made from time immemorial from a variety of petrified wood found toward the bottom of the Upper Lias. The fishing industry, owing to improved railway communications, has been progressive within late years. In 1886 it employed 231 boats of 1,830 tons. Whitby is an important herring fishing station. The population of the urban sanitary district (area 2,000 acres) was 17,086 in 1901.

WHITE, GILBERT, the natural historian of Selborne, England, was born on July 18, 1720, in the little Hampshire village which his writings have rendered so familiar to all lovers of either books or nature. He was educated at Basingstoke under Warton, father of the poet, and subsequently at Oriel College, Oxford, where



he obtained a fellowship (1744). Entering upon a country curacy in 1753, he returned to Selborne in 1755, where he seems soon to have discontinued his ministrations. He obtained a sinecure living from his college in 1758; but after his father's death in the same year became curate of the neighboring parish of Faringdon, and repeatedly declined valuable livings elsewhere, until 1784, when he returned to the curacy of Selborne, and there ministered until his death on June 26, 1793. He was never married.

WHITE, JOSEPH BLANCO, author, was born at Seville, Spain, on July 11, 1775. He was educated for the Roman Catholic priesthood; but after his ordination doubts as to the principles of Catholicism led him to remove from Spain to England (1810), where he ultimately entered the Established Church, having studied theology at Oxford and made the friendship of Arnold, Newman, and Whately. He became tutor in the family of the last named when he was made archbishop of Dublin (1831). While in this position he embraced Unitarian views; and he found an asylum among the Unitarians of Liverpool, where he died on May 20, 1841.

WHITE, ROBERT, English engraver and draughtsman, was born in London in 1645. Virtue catalogued 275 portrait engravings by White, including the likenesses of many of the most celebrated personages of his day; and nine portraits engraved in mezzotint are assigned to him by J. Chalonier Smith. White died at Bloomsbury, London, in 1704. His son George White, who was born about 1671 and died about 1734, is also known as an engraver and portrait-painter.

WHITEBAIT, the vernacular name of a small Clupeoid fish which appears in large shoals in the estuary of the Thames during the summer months, and is held in great esteem as a delicacy for the table. As to whether or not it is a distinct form, the opinions of naturalists have been divided ever since their attention was directed to the question. Pennant and Shaw believed it to be some kind of Cyprinoid fish, similar to the bleak, while Donovan, in his *Natural History of British Fishes* (1802-8), misled by specimens sent to him as whitebait, declared it to be the young of the shad. In 1820 Yarrell proved conclusively that Donovan's opinion was founded upon an error; unfortunately, he contented himself with comparing whitebait with the shad only, and in the end adopted the opinion of the Thames fishermen, whose interest it was to represent it as a distinct adult form; thus the whitebait is introduced into Yarrell's *History of British Fishes* (1836) as *Clupea alba*.

Whitebait fishing in the Thames lasts from the end of March to September. The majority of the fish caught at the beginning of spring are about two inches long; as the season advances the proportion of larger specimens becomes greater, although very small ones occur abundantly throughout the season, thus apparently confirming the opinion of those who maintain that the herring is in its spawning not bound to any particular month. Whitebait are caught on the flood-tide from boats moored in from three to five fathoms of water.

WHITEFIELD, or STAND, a large manufacturing village of Lancashire, England. It possesses a number of fine villas inhabited by Manchester merchants. There are coal mines in the neighborhood, and cotton-spinning and hand and power loom weaving are carried on. The population of the urban sanitary district (area 2,048 acres) was 11,516 in 1901.

WHITEFIELD, GEORGE, one of the most eloquent of pulpit orators, was born December 16, 1714, at the Bell Inn, Gloucester, England, of which his father was landlord. In 1733 he entered as a servitor at Pembroke College, Oxford. There he came under the influence of the Methodists (see WESLEY), and

entered so enthusiastically into their practices and habits that he was attacked by a severe illness, which compelled him to return to his native town. His sincere and enthusiastic piety attracted the notice of Doctor Benson, bishop of Gloucester, who ordained him deacon June 20, 1736. Having in the following week returned to Oxford and taken his degree, he began an evangelizing tour in Bath, Bristol, and other towns, his eloquence at once attracting immense multitudes. In 1736 he was invited by Wesley to go out as a missionary to Georgia.

On December 28, 1737, he embarked for Georgia, which he reached on May 7, 1738. After three months' residence there he returned to England to receive priest's orders, and to raise contributions for the support of an orphanage. He was, however, coldly received by the clergy generally, and began to preach in the open air. At Bristol his addresses to the colliers soon attracted crowds, which were latterly estimated to exceed 20,000 persons. Whitefield's voice was so powerful that it penetrated to the utmost limits of the crowd. His fervor and dramatic action held them spell-bound, and his homely pathos soon broke down all barriers of resistance. In 1738 an account of Whitefield's voyage from London to Georgia was published without his knowledge. In 1739 he published his *Journal* from his arrival in Savannah to his return to London, and also his *Journal* from his arrival in London to his departure thence on his way to Georgia. He again embarked for America in August, 1739, and remained two years, preaching in all the principal towns. While there he published *Three Letters from Mr. Whitefield*, in which he referred to the "mystery of iniquity" in Tillotson, and asserted that that divine knew no more of Christ than Mohammed did.

During his absence from England Whitefield found that a divergence of doctrine from Calvinism had been introduced by Wesley; and notwithstanding Wesley's exhortations to brotherly kindness and forbearance he withdrew from the Wesleyan communion. Thereupon his friends built for him near Wesley's church a wooden structure, which was named the Tabernacle. After a second visit to Scotland, June to October, 1742, and a tour through England and Wales, 1742-44, he embarked in August, 1744, for America, where he remained till June, 1748. On his return to London he found his congregation at the Tabernacle dispersed; and his circumstances were so depressed that he was obliged to sell his household furniture to pay his orphan-house debts. Having, however, made the acquaintance of the countess of Huntingdon, he soon found his pecuniary affairs on a better footing. The countess appointed him one of her chaplains, built and endowed Calvinistic Methodist chapels in various parts of the country, and erected a college for the training of candidates for the ministry. The remainder of Whitefield's life was spent chiefly in evangelizing tours in Great Britain, Ireland, and America. He died September 30, 1770.

WHITEFISH is a collective name applied in different countries to very different kinds of freshwater fishes, which, however, have this in common, that their body is covered with regularly arranged silvery scales, without spots or ornamental colors. Thus the numerous European species of the Cyprinoid genus *Leuciscus* are frequently comprised under the name of "Whitefish," while in North America this term is in general use for the various species of the Salmonoid genus *Coregonus*, which abound in every lake and river of Canada and the northern parts of the United States.

WHITEHAVEN, a parliamentary borough of England and the principal seaport of Cumberland, is situated at the extremity of the Solway Firth, facing the



**Irish Sea**, 41 miles southwest of Carlisle and 304 northwest of London. Iron ship-building is carried on. The other principal industries are engineering, brass-founding, boiler-making, brick and earthenware manufacturing, and dyeing. There are two large collieries, one extending about one and a half miles under the sea. Fishing is carried on to a small extent, the number of boats engaged being eighteen of 441 tons. The population of the urban sanitary district (area 679 acres) is 23,295.

**WHITEHALL**, a prosperous town and favorite summer resort at the head of Lake Champlain, in Washington county, N. Y., is delightfully located within the shadows of Skines Mountain, on the Saratoga and Champlain Division of the Delaware and Hudson Company's railway line. It is also the northern terminus of the Champlain canal, and is connected with the leading ports on the lake by lines of steamers swift-running and elegantly appointed. In addition to being the largest town in Washington county, Whitehall is quite extensively engaged in manufacturing and in the lumber industries, also in the construction of vessels and row-boats. To these should be added boilers, wood moldings, flour, cheese, trolling-spoons, sash, doors, and blinds, turned wood, silk, etc., in all of which a large trade is annually reported. The town contains two national banks, two weekly papers, six churches, an academy and high school, three hotels, two public halls, and a large number of stores, and is provided with all the conveniences and appointments usual to progressive conditions. The population in 1900 was 4,377.

**WHITELOCKE**, **BULSTRODE**, son of Sir James Whitelocke, a justice of the King's Bench, was born at London, on August 2, 1605. He was one of the commissioners appointed to carry the terms of the Parliament to Oxford in May, 1645, and drew on himself suspicions of too close intercourse with the king. Whitelocke was present at the siege of Oxford in 1646, and was on excellent terms with Fairfax and Cromwell. In 1648 he was named a commissioner of the great seal. He was much troubled at the attack on the House of Commons by Pride's "purge," but he did not resign his post. He refused to have anything to do with the king's trial; but he accepted a commissionership of the new great seal of the commonwealth after the king's execution. Both before the trial and afterward he was on intimate terms with Cromwell.

After Cromwell's return from the Scottish war in 1651 Whitelocke was much consulted by him; but he gave offense by suggesting a restoration of the young king. After the dissolution of the Long Parliament in 1653 he was sent as ambassador to Sweden, as he thought, merely to get him out of the way. Returning in July, 1654, he was chosen member of the first parliament of the Protectorate by the county of Buckingham, and he again became a commissioner of the great seal. In May, 1655, after the dissolution of that parliament, he refused to execute an ordinance made by the Protector and council only for the reform of Chancery, and was consequently dismissed in June, but was soon afterward appointed commissioner of the treasury. He again sat for Buckinghamshire in the second Protectorate parliament in 1657.

After Cromwell's death Whitelocke rallied to his son, and in January, 1659, was again a commissioner of the great seal. After Richard's fall he sat in the council of state, and when the Rump was turned out by the soldiers he accepted an appointment to the army's committee of safety. On November 1st he became keeper of the great seal; but on the return of the Rump he thought it prudent to go into hiding. Monk's arrival

delivered him from his fears, but, when the Convention Parliament was chosen, he, characteristically "foreseeing what would come to pass, did not think fit to labor to be a Parliament man." Of course he accepted the Restoration and was included in the Act of Oblivion. He died at his seat at Chilton in Wiltshire in 1675.

**WHITE SEA**, an arm or great bay or inlet of the Arctic Ocean, which lies between Cape Kanin on the Kaninskaia Peninsula, and Cape Sviatoi on the Kola Peninsula, and penetrates the Russian government of Archangel southward to latitude 64° N. At its entrance between Capes Kanin and Sviatoi it is 100 miles broad; and after penetrating the land 150 miles in a southeasterly direction, it narrows to a width of 35 miles; but after sweeping south for 200 miles it again considerably widens, forming in the northwest the Gulf of Kandalak and in the south and southeast the Gulfs of Onega and Archangel or Dwina. This sea covers an area estimated at 47,000 square miles, and the length of its coast line is over 1,000 miles. The coasts in the north and east are mountainous, in other places they are mostly low, and abound in lakes, which communicate with the sea by rivers. The greatest depth of the White Sea is 1,133 feet. From the middle of August ice forms on the coasts, sometimes to the width of thirty miles, and is not melted till the following July.

**WHITE SULPHUR SPRINGS**, a watering place in West Virginia, on Howard Creek, 225 miles west of Richmond. Population about 1,000. It has hotel accommodations for 1,500 guests. The spring is in the lowest part of a beautiful valley, and is covered by a dome supported by twelve Ionic columns, surmounted by a statue of Hygiea. It is considered efficacious in dyspepsia, liver diseases, gout, rheumatism, and diseases of the skin and kidneys. The Red, Salt and Blue Sulphur Springs, at a distance of twenty-three or twenty-four miles from the above, are also much resorted to.

**WHITETHROAT**, a name commonly given to two species of little birds, one of which, the *Motacilla sylvia* of Linnaeus and *Sylvia rufa* or *S. cinerea* of some recent authors, is regarded as the type, not only of the genus *Sylvia*, but of the so-called Family *Sylviidae* (cf. WARBLER).

The song of this bird, except by association with the season at which it is uttered, can scarcely be called agreeable, some of its notes being very harsh; but the performer may be seen to be always in earnest, erecting the feathers of his crown, puffing out those of his throat, shaking his wings, and making other rapid movements expressive of his feelings. Occasionally he will deliver his song as he flies up in a peculiar fashion, describing small circles in the air, stopping with a jerk, and then returning to the spot whence he arose.

**WHITFIELD**, **JOHN CLARKE**, organist and composer, was born at Gloucester, December 13, 1770. He took the degree of Mus. Doc. at Cambridge in 1799, and in 1810 proceeded to the same grade at Oxford. In 1820 he was elected organist and master of the choristers at Hereford cathedral; and on the death of Doctor Haig he was appointed professor of music at Cambridge. Three years afterward he resigned these appointments in consequence of an attack of paralysis. He died at Hereford, February 22, 1836.

**WHITGIFT**, **JOHN**, archbishop of Canterbury, was born in 1530. In 1549 he matriculated at Queen's College, Cambridge, and in May, 1550, he migrated to Pembroke Hall, where he had the martyr John Bradford for a tutor. On May 31, 1555, he became a fellow of Peterhouse. Having taken holy orders in 1560, he became in



the same year chaplain to Doctor Cox, bishop of Ely, who collated him to the rectory of Teversham, Cambridge-shire. In 1563 he was appointed Lady Margaret professor of divinity at Cambridge, and his lectures gave such satisfaction to the authorities that on July 5, 1566, they considerably augmented his stipend. The following year he was appointed regius professor of divinity, and also became master of Trinity. He had a principal share in compiling the statutes of the university, which passed the great seal on September 25, 1570, and in November following he was chosen vice-chancellor.

In August, 1583, he was nominated archbishop of Canterbury, and thus was largely instrumental in giving its special complexion to the church of the Reformation. Although he wrote a letter to Queen Elizabeth remonstrating against the alienation of church property, Whitgift always retained her special confidence. Toward the close of his episcopate he, in conjunction with the bishop of London and other prelates, drew up the Calvinistic instrument known as the Lambeth Articles. They were, however, not accepted by the church. Whitgift attended Elizabeth on her deathbed, and crowned James I. He was present at the Hampton Court Conference in January, 1604, and died at Lambeth on the 29th of the following February.

**WHITING**, a marine fish (*Gadus merlangus*), abundant on the shores of the German Ocean and all round the coasts of the British Islands. It is distinguished from the other species of the genus *Gadus* or Cod-fish by having from thirty-three to thirty-five rays in the first anal fin, and by lacking the barbel on the chin (which is so well developed in the common cod-fish, whiting-pout, etc.) entirely, or possessing only a minute rudiment of it. The snout is long, and the upper jaw longer than the lower. A black spot at the root of the pectoral fin is also very characteristic of this species, and but rarely absent. The whiting is one of the most valuable food fishes of northern Europe, and is caught throughout the year by hook and line and by the trawl. Its usual size is from one to one and one-half pounds, but it may attain to twice that weight. In the south of Europe it is replaced by an allied species, *Gadus euxini*, which, however, seems to be limited to the cold waters of the Adriatic and Black Seas.

**WHITLOW** is a name applied loosely to any inflammation involving the pulp of the finger, attended by swelling and throbbing pain. In the simplest form, apt to occur in sickly children, the inflammation results in a whitish vesicle of the skin, containing watery or bloody fluid. In all such cases, where the deeper structures are not implicated, no radical local treatment is needed, although the illness is an indication for constitutional treatment. The affection is not usually spoken of as whitlow unless it involves the deeper structures of the last joint of the finger.

The general treatment of all whitlow inflammations consists at the outset in relief of a congested state of the system, where such exists, by a purge and by a restricted diet, in applying poultices or hot compresses to the affected finger, and in carrying the arm in a sling. The presence of matter will not be obvious by the ordinary signs of a gathering; attempts to let out the matter by anything short of a free and deep incision are likely to fail and to cause the loss of more or less of the bone.

**WHITSTABLE**, a watering-place and seaport of Kent, England, is situated on the south side of the Thames estuary and on the South Eastern and the London, Chatham and Dover railway lines, six miles north-northwest of Canterbury and sixty-two south-southeast of London. It consists chiefly of one main street, about a mile in length, and two narrower streets par-

allel with it, built on an embankment. Whitstable has been famous for its oyster beds from time immemorial. The oysters raised there greatly excel all others in delicacy of flavor, and to economize space spat from other beds is brought to Whitstable to mature. The population of the township and parish (3,601 acres) was 6,882 in 1901.

**WHITSUNDAY**, or **PENTECOST**, the fiftieth day after Easter Sunday, one of the principal feasts of the Christian Church, is enumerated among these along with Easter Sunday, Good Friday, and the Sundays throughout the year by Origen. The origin of the Anglo-Saxon name of White Sunday, which also occurs in Icelandic, is somewhat obscure, for in the Roman Church the Dominica in Albis (Low Sunday), so called from the white robes then worn by candidates for baptism, has always been the Sunday immediately following Easter.

**WHITTINGTON**, a town of Derbyshire, England. The principal works are large iron factories. The manufacture of stone bottles and coarse earthenware is also carried on. The population of the urban sanitary district (area 1,581 acres) was 8,271 in 1901.

**WHITTINGTON**, **SIR RICHARD**, was the son of Sir William de Whittington of Pauntley, Gloucestershire, who died an outlaw in 1360. His mother was Joan, daughter of William Mansell, who was high-sheriff of Gloucestershire in 1308. Richard Whittington makes his first appearance in 1379, when he contributed five marks to a city loan. In 1392 he was elected alderman and sheriff of London, being at that time a member of the Mercers' Company. He was appointed or elected mayor in 1397, 1398, 1406, and 1419; and in 1416 he was chosen member of parliament for London. In April, 1402, he supplied cloth of gold for the marriage of the king's daughter Blanche with Louis, son of the emperor Rupert, and four years later (July, 1406), for that of Philippa and Erik VII. of Denmark. In March, 1413, the king repaid him a loan of \$5,000, and in September, 1415, he was granted a lien on the customs of Boston, Kingston-on-Hull, and London, in discharge of 700 marks lent to Henry V. (by whom he seems to have been knighted). He died in March, 1423.

All that is known about Whittington has been carefully collected in the Rev. Samuel Lysons' *Model Merchant of the Middle Ages* (London, 1860), from which the above account is taken. Lysons argues very strongly in favor of the famous story of "Whittington and his Cat," and rejects the rationalization which explains the legend by supposing Whittington's fortunes to have been made in the voyages of a mediæval cat or merchant vessel. Clouston (*Popular Tales and Fictions*, London, 1807, ii. 65-78) traces the main features of the story in the folk-lore of Denmark, Russia, Norway, Brittany, and even Persia. It was current in Italy during the fifteenth century, but its earliest appearance seems to be in Abdullah's *History of Persia*, written toward the close of the thirteenth century. This writer ascribes the occurrences he tells of to the first half of the eleventh century. Even this, in Clouston's opinion, is not the original form of the story, which, from one or two of its details, he suspects to be of Buddhist origin.

**WHITWORTH**, a manufacturing village of Lancashire, England. It possesses the usual characteristics of the cotton-manufacturing districts. Coal mining is also carried on in the neighborhood. The urban sanitary district, which includes the villages of Hallfold, Facit, and Leavingreave, has an area of 8,000 acres, with a population of 11,892.

**WHOOPING-COUGH**. See **HOOPING-COUGH**.

**WHORTLEBERRY**, a vernacular name corrupted



from the Latin *myrtillus*, under which appellation, according to Prior, the berries of the common myrtle were employed in the Middle Ages for culinary purposes. In more modern times the term has been applied to various species of *Vaccinium*, particularly to *V. Myrtillus*, also known as the bilberry. The berries of this plant have a considerable similarity to those of the myrtle. Several species of *Vaccinium* occur on moorlands throughout the northern hemisphere. They are low shrubs allied to heaths, usually with evergreen leaves and with small bell-shaped or urn-shaped flowers, which have an inferior ovary surmounted by five calyx lobes. The fruit is a globular or ovoid, many-seeded berry.

#### WHYDAH.

WICHITA, one of the largest, most important, and enterprising cities of Kansas, and the capital of Sedgwick county, is situated on the left bank of the Arkansas river at the mouth of the Little Arkansas. In its marvelous growth and development, more particularly during recent years, Wichita has kept pace with the most progressive cities of the West, and established a precedent for enterprise and public spirit, that commends itself to universal favor and universal emulation. Within the past ten years it has emerged from a position of comparative obscurity to one of conspicuous prominence as a railroad, commercial, financial, and manufacturing center, with equal progress made in the departments of morals, education, and internal improvements. Located on the Chicago, Kansas City and Galveston division of the Atchison, Topeka and Santa Fe, on the Carthage and Wichita divisions of the St. Louis and San Francisco, and on the main line of the Ft. Scott, Wichita and Western; Wichita and Colorado; Chicago Kansas and Nebraska, and Wichita and Western railway systems, the city enjoys the possession of transportation facilities that places it in easy communication with the leading business centers of the United States and Canada, from the seaboard to the Gulf. It covers an area of many square miles, the limits having been repeatedly extended, and the improvements made are of a character both rich and substantial, and enlisting the admiration of all beholders. Among the prominent edifices are the Sedgwick county court-house, completed during 1890 at a cost of \$200,000, the city hall erected at an expense of \$100,000, Garfield University, Wichita University, Lewis Academy, the Catholic colleges, the medical college, the high school, the real estate exchange and board of trade, Young Men's Christian Association building, the opera houses, etc., all of which are commodious and elegantly appointed structures. The financial interests of Wichita are represented by five State and three national banks, with a total cash capital and surplus of \$2,000,000, and the commercial business as shown by the bank clearings for 1889, the same being \$35,623,951, was the largest in the State. The city, in addition to the educational institutions above cited, contains eleven graded schools, employing ninety-two teachers at an aggregate monthly compensation of \$5,874, and provides a course of instruction, including music and drawing, to a school population stated in round numbers at 8,500; also thirty-one churches, two daily and ten weekly papers, half a dozen hotels, two opera houses, two or more theaters, a number of public halls, with hundreds of stores and miles of streets in the residence district, upon which neat, tasty, and elegant residences have been erected. The manufactures embrace car-works, iron, stone, cornice, pressed brick, wire cloth, vinegar, paint, bottling, novelty, tent and awning, and cooperage works, machine shops, planing, spice, and roller flour mills, book-binding, boot and shoe, buggy and carriage, and roofing manufactories, cracker, extract, soap,

shirt and underwear, yeast, candy, pump, paper-box, overall and shirt, spring bed, washing machine, broom, sash and door, stair, trunk, ice, harness and saddle, and cigar factories. The packing and provision business and the purchase and shipment of live-stock are also important interests at Wichita, the stock-yards on the outskirts of the city being among the largest and best equipped west of Chicago.

The affairs of the city are administered by a mayor and board of aldermen, and the various departments of police, fire, sewage, etc., are presided over by competent officials. The principal streets are paved and drained, there being sixty-four miles of sewers; the city is lighted by gas and electricity and supplied with thirty miles of electric and horse railways. For the purposes of taxation, both real and personal property is assessed at about 30 per cent. of the actual value, upon which basis the valuation of the property in Wichita for 1889 was \$11,335,337, the rate for the year being 2.72½ per \$100, claimed to be the lowest of any city of its size in the country. The growth of Wichita is shown by the following statement of increase in population since 1870: In 1870, 50; 1875, 2,432; 1880, 5,482; 1885, 16,019; 1889, 19,297, and in 1900, 24,671.

WICK, a royal and parliamentary burgh and seaport of Scotland, the county town of Caithness, is situated on the German Ocean at the head of Wick Bay and at the eastern terminus of the Sutherland and Caithness section of the Highland railway. It consists of the old burgh of Wick on the north bank of the river, Louisburgh, a northern continuation of Wick, and Pultneytown, the chief seat of commerce and trade, on the south side of the river. The chief exports are fish, cattle, and agricultural produce, and the imports include coal, wood, and provisions. Steamers from Granton and Aberdeen to Thurso, the Orkneys, and the Shetlands, call at Wick going and returning. It is, however, chiefly to its fisheries that the town owes its prosperity. For many years it was the chief seat of the herring-fishing on the east coast of Scotland; but its insufficient harbor accommodation has greatly hampered its progress, and both Peterhead and Fraserburgh more than rival it as fishing ports. The population of its extended area is 2,954.

WICKLIFFE. See WYCLIFFE.

WICKLOW, a maritime county of Ireland, in the province of Leinster, is bounded on the east by St. George's channel, north by the county of Dublin, south by Wexford, and west by Carlow and detached portions of Kildare. The area is 500,178 acres or about 781 square miles. The coast is precipitous and picturesque, but very dangerous of approach owing to sand-banks. There are no inlets that can be properly termed bays. The harbor at Wicklow has lately been improved; but that of Arklow is suitable only for small vessels. To the north of the town of Wicklow there is a remarkable shingle beach, partly piled up by the waves and currents. The central portion of the county is occupied by a granite mountain range, forming one of the four principal mountain groups of Ireland. It is in its deep glens that much of the peculiar charm of Wicklow scenery is to be found, the frequently rugged natural features contrasting finely with the rich and luxuriant foliage of the extensive woods which line their banks. Among the more famous of these glens are the Dargle, Glencree, Glen of the Downs, Devil's Glen, Glenmalur, Glen of Ismail, and the beautiful vale of Ovoca. The principal rivers are the Liffey, on the northwestern border; the Vartry, which passes through Devil's Glen to the sea north of Wicklow Head; the Avonmore and the Avonbeg, which unite at the "meeting of the



waters " to form the Ovoca, which is afterward joined by the Aughrim and falls into the sea at Arklow; and the Slaney, in the west of the county, passing southward into Carlow. There are a number of small but romantic lakes in the valleys, the principal being Loughs Dan, Bray, and Tay or Luggelaw, and the loughs of Glendalough.

Lead is mined at Lugganure (near Rathdrum), the principal lead mine in Ireland. In 1796 gold was discovered near Croghan Kinshela, but not in quantities to render working remunerative. Auriferous silver occurs in the slaty strata. There are important copper mines at Ovoca, where sulphur and iron are also dug. Slates for roofing are quarried at Dunganstown and elsewhere. Limestone, limestone gravel, and marl are obtained near the sea and in the river valleys.

According to the latest landowners' return, Wicklow was divided among 1,041 proprietors, possessing 497,656 acres. There were also about 2,500 acres of waste land. The climate near the sea is remarkably mild, and permits the myrtle and arbutus to grow. The land in the lower grounds is fertile; and, although the greater part of the higher districts is covered with heath and turf, it affords good pasturage for sheep. There is a considerable extent of natural timber, as well as artificial plantations. Except in the Ovoca district, where the mining industry is of some importance, the occupations are chiefly agricultural. The manufacture of flannel, which formerly gave employment to a considerable number of people, is now in a very depressed condition. Herring and round fish are caught off the coast, but these fisheries are much neglected. There is, however, a rather prosperous oyster fishery at Arklow. Of late years the harbor at Wicklow has been improved, the bed of the river deepened, and a steam-packet pier erected.

According to De Burgo's estimate, the population of Wicklow in 1760 amounted to 43,872; the parliamentary census of 1812 placed it at 83,109; by 1821 it had increased to 110,767, and by 1841 to 126,143, but by 1861 it had diminished to 86,451, by 1871 to 78,697, and by 1901 to 60,679 (males 30,500, females 30,179). Roman Catholics in 1881 numbered 79.9 per cent. of the population, Protestant Episcopalians 18.3 (an unusually large proportion for the south of Ireland), Presbyterians 0.4, Methodists 1.0, and other denominations 0.4. The number of persons who could read and write numbered 57.4 of the population, able to read only 12.8 per cent., illiterate 29.8. There were none who could speak Irish only, and the number who could speak Irish and English was 243. Wicklow, which formerly returned two members to parliament, was in 1885 formed into two parliamentary divisions, an eastern and a western, each returning one member. The principal towns are part of Bray (4,387), a fashionable watering-place, the other part (2,148) being in Dublin; Wicklow (3,391), the county town; and Arklow (4,777), a fishing-station of some importance.

WIDDIN, or WIDIN, a fortified town of Bulgaria, within 20 miles of the Servian frontier and about 130 miles southeast of Belgrade, in 44° N. latitude and 22° 50' E. longitude. It occupies a strong position on the right bank of the Danube over against the Roumanian town of Kalafat, with which it is connected by a bridge of boats over a mile long. Its population in 1900 amounted to 16,435. The citadel, always a formidable stronghold, has recently been strengthened and enlarged with a double line of ramparts reaching to the water's edge, while on the land side the approaches are naturally protected by the extensive marshy tracts formed here by a sharp bend of the Danube from the east to the south. The old town within these lines was formerly inhabited exclusively by Mohammedans, and still presents an

Oriental aspect, with its mosques, minarets, and over 1,700 stalls lining the bazar or main thoroughfare of Plevna Ulica. There are a few local industries, such as the making of gold and silver filigree work, saddlery, beer, flour, and cutlery, besides a brisk river trade, mainly in the hands of the Jews and Bulgarians. Its name figures conspicuously in the military annals of mediæval and recent times; and it is specially memorable for the overthrow of the Turks by the imperial forces in 1689, and for the crushing defeat of the hospodar, Michael Sustos, by Pasvan Oglu in 1801. It was again the scene of stirring events during the Russo-Turkish wars of 1854-55 and 1877-78, and successfully resisted the assaults of the Servians in the Servo-Bulgarian war of 1886-87.

WIDNES, a manufacturing town of Lancashire, England, is situated on the Mersey, 13 miles southeast of Liverpool and 188 from London. Capacious private docks were constructed in 1866 and extended in 1884. The Mersey is crossed by a wrought-iron bridge 1,000 feet long and 95 in height, completed in 1868, and having two lines of railway and a footpath. Widnes is one of the principal seats of the alkali and soap manufacture, and has also gear-works for locomotives and wagons, copper-works, iron foundries, oil and paint works, and sail-cloth manufactories. In 1871 the population of the urban sanitary district (area 3,339 acres) was 14,359; in 1901 it was estimated to exceed 38,000.

WIELAND, CHRISTOPHER MARTIN, German man of letters, was born on September 5, 1733, at Oberholzheim, a Swabian village near Biberach. In his fourteenth year he was sent to the school of Klosterbergen, near Magdeburg, where he attracted a good deal of attention, not only by his knowledge of the classics and of French and English literature, but by his power of lucid and graceful expression. In 1750 he went to the university of Tübingen, nominally for the purpose of studying law; but in reality he devoted his attention wholly to literature. At Tübingen he wrote his poem on the *Nature of Things*, and in 1752 it was published anonymously. Here also he wrote *Anti-Ovid, Lobgesang auf den Frühling, Moralische Briefe und Moralische Erzählungen*. In 1760 he settled at Biberach as director of the chancery. In *Don Sylvio von Rosalba* (1764), a romance intended to be taken as an imitation of *Don Quixote*, he gave himself the pleasure of laughing at principles and sentiments which he had formerly held to be sacred. This work was followed by *Komische Erzählungen*, and at Biberach he devoted much time to the study of Shakespeare, and in 1762-66 he published, in eight volumes, translations of twenty-two of Shakespeare's plays.

In 1772 Wieland settled for life at Weimar, his position at first being that of a tutor to the two sons of the duchess Anna Amalia. Here he founded the monthly periodical, *Der Deutsche Mercur*, which he edited until 1796. For this periodical he wrote constantly, and, considering the immense number of his productions, it is surprising that he was able to maintain, on the whole, so high a level of excellence. By far the best of his works is the poem *Oberon*, the only work by him which has still a wide circle of readers in Germany. It was published in 1780. In 1797 Wieland bought Osmannstädt, an estate near Weimar, and there he lived for some years with his large family. At Osmannstädt he wrote his last important romance, *Aristipp und einige seiner Zeitgenossen* (1800-2). In 1801 his wife died, and two years afterward he sold his estate and returned to Weimar, where he spent his last years in translating and annotating the *Letters of Cicero*. He died January 20, 1813.



**WIENER NEUSTADT.** See **NEUSTADT.**

**WIESBADEN**, capital of the former duchy of Nassau and now the chief town of a district in the province of Hesse-Nassau in Prussia, disputes with Baden-Baden the title to be considered the most frequented and most fashionable watering-place in Germany. It is situated in a small and fertile valley on the southwest slopes of Mount Taunus, five miles to the north of Mainz and three miles from the Rhine. The town is neat and well built, with broad and regular streets. Its prosperity is entirely owing to its hot springs; and the general character and appearance of the place, with its numerous hotels, lodging-houses, villas, bath-houses, promenades, and places of entertainment, are dictated by the requirements of the visitors, who number annually about 60,000. The town lies 320 feet above the sea-level. Its climate is mild and warm, so that even in winter it is frequented by from 5,000 to 6,000 visitors. The population in 1901 was 86,086.

Wiesbaden is one of the oldest watering-places in Germany, and may be regarded as the capital of the Taunus spas. The springs, mentioned by Pliny as *Pontes Mattiaci*, were known to the Romans, who appear to have fortified the place. Under the Carolingian monarchs it was the site of a palace. Otho I. made it a town. The name Wisibada appears in 830. Though the springs never passed out of knowledge, they did not attain their greatest repute until the close of the eighteenth century. From 1771 till 1873 Wiesbaden was a notorious gambling resort; but in the latter year public gambling was suppressed by the Prussian government.

**WIFE.** See **HUSBAND AND WIFE, AND WOMEN.**

**WIG.** Artificial hair appears to have been worn from very ancient times, as is testified by well-made wigs recovered from Egyptian mummy figures. The full and flowing locks which adorn the sculptured reliefs of human figures found at Nineveh also suggest that wigs were not unknown among the ancient Assyrians. In the sixteenth century the fashion of wearing false hair became prevalent among ladies in Europe. At one period Elizabeth of England was possessed of no fewer than eighty attires of false hair. Mary of Scotland throughout her life was also in the habit of varying the attires of hair she wore; and much of the confusion which has arisen in connection with her portraits is traceable to this circumstance. The periwig of the sixteenth century was, however, merely false hair worn like and sometimes with the real hair, as an adornment or to supply the defects of nature. It was not till the seventeenth century that the peruke was worn as a distinctive feature of costume; as such it was first employed by Louis XIII. when his hair failed. His successor, Louis XIV., did not adopt it till 1673. In the meantime it had been freely donned by courtiers and gallants of the era. The wearing of the peruke became general in the days of Charles II. The wig obtained its maximum development during the reign of Queen Anne, who was patroness of the full-bottomed wig,—a huge head-dress which covered the back and shoulders and floated down over the chest. Early in the reign of George III. the general fashion of wearing wigs began to wane and gradually died out; but among professional men the practice continued to hold its place, and it was by slow degrees that military officers and clergymen gave up the habit. The wig of the seventeenth century now holds its place only on the judicial bench, and with the speaker of the English House of Commons, barristers and advocates; but even on the bench its use is being threatened. Wigs of course continue to be worn by many to make up for natural defi-

ciencies; and on the stage the wig is, as in all times, an indispensable adjunct. Many of the modern stage wigs are made of jute, a fiber which lends itself to marvelously perfect imitations of human hair.

**WIGAN**, a municipal and parliamentary borough and market town of Lancashire, England, is situated on the river Douglas and on the main line of the London and Northwestern railway, 18 miles west-northwest of Manchester, 18 northeast of Liverpool, and 195 northwest of London. The town owes much of its prosperity to its coal mines, which afford employment to a large proportion of the inhabitants and supply fuel for the factory furnaces. Mills for making hats were established at Wigan in 1482; and subsequently bell-founding and pottery-making were of some importance. The chief industry is now the manufacture of cotton fabrics; the town also possesses iron forges, iron and brass foundries, oil and grease works, railway wagon factories, and bolt, screw, and nail works. The population of the municipal and parliamentary borough in 1901 was estimated at 60,774.

**WIGEON** (French *Vigéon*, from the Latin *Vipio*), also called locally "Whewer" and "Whew" (names imitative of the whistling call-note of the male), the *Anas penelope* of Linnæus and *Mareca penelope* of many modern ornithologists, one of the most abundant species of ducks throughout the greater part of Europe and northern Asia, reaching northern Africa and India in winter. A good many pairs breed in the north of Scotland; but the nurseries of the vast numbers which resort in autumn to the waters of temperate Europe are in Lapland or farther to the eastward. Comparatively few breed in Iceland.

Intermediate in size between the Teal and the Mallard, and less showy in plumage than either, the drake Wigeon is a beautiful bird, with the greater part of his bill blue, his forehead cream color, his head and neck chestnut, passing into pinkish gray below, and above into lavender gray, which last, produced by the transverse undulations of fine black and white lines, extends over the back and upper surface of the wings, except some of the coverts, which are conspicuously white, and shows itself again on the flanks. The wings are further ornamented by a glossy green speculum between two black bars; the tail is pointed and dark; the rest of the lower parts white. The female has the inconspicuous coloration characteristic of her sex among most of the Duck tribe.

The Wigeon occurs occasionally on the eastern coast of North America, and not uncommonly, it would seem, on the Pribiloff Islands in the Pacific. But the New World has two allied species of its own. One of them, *M. Americana*, inhabiting the northern part of that continent, and in winter reaching Central America and the West Indian islands as far as Trinidad, wholly resembles its Old World congener in habits, and much in appearance.

**WIGHT, ISLE OF**, a small island in the English Channel, forms a portion of the county of Hampshire, and is separated from the mainland by a narrow strait, the Solent and Spithead. The island is, roughly speaking, diamond-shaped, the shorter diameter, from north to south, measuring thirteen miles, and the longer, from east to west, twenty-three miles. The area is 92,931 acres, or about 145 square miles. The most prominent feature in its physical geography is a range of high chalk downs running from east to west across the center of the island, and terminating in the Culver and Freshwater cliffs respectively. This range is broken through in the center by the valley of the Medina, which flows due north and is the only river of consequence in the island; it is navigable up to Newport. A second



smaller range of chalk downs occurs in the south near Ventnor. Along the south coast, extending from St. Catherine Point to Ventnor, there is the remarkable district known as the Undercliff, celebrated for its wild and romantic beauty and for its mild climate. It is sheltered from the north by a line of high cliffs. North of the central chalk range the country is for the most part flat and well wooded. Parkhurst Forest is 3,000 acres in extent. The climate is mild and relaxing, and enjoys the reputation of being peculiarly salubrious. In winter and spring, however, the east winds are very trying, and in summer the heat is at times very great. Partly owing to the mildness of the climate, and partly to the beauty of the scenery, the island has long been a favorite resort of tourists, and within recent years several fashionable watering-places have sprung up. Of these the principal are Cowes, at the mouth of the Medina, the headquarters of the Royal Yacht Squadron, Ryde (11,461 inhabitants), Bembridge, Sandown, Ventnor (5,739), Shanklin (1,780), Freshwater (2,809), and Yarmouth (787). Newport (9,357), on the Medina, is the capital of the island, but is little frequented by visitors. Hitherto many parts of the island have been more or less inaccessible owing to the deficiency of railways; but it is being rapidly opened up, and a railway is now in course of construction between Newport, Carisbrooke, Yarmouth, and Freshwater. There are few industries in the island. The population is chiefly agricultural, a large proportion of the land being devoted to sheep grazing. Fishing is also carried on to a considerable extent on the south coast. Episcopally the island has for many centuries belonged to the see of Winchester. In 1901 the population was 93,633, as against 66,219 in 1871.

WIGTOWN, or WIGTON, a maritime county in the southwest corner of Scotland, forming the western division of the old district of Galloway, is bounded north by the Irish Channel and Ayrshire, east by Kirkcudbright and Wigtown Bay, south by the Irish Sea, and west by the Irish Channel. It is of very irregular form. Its greatest breadth, east and west, is about thirty-three miles, and its greatest length, north and south, about twenty-six miles. The area is 310,742 acres, or 487 square miles. Pop. (1901), 32,683.

The coast-line has a total length of about 120 miles. On the eastern boundary the estuary of the Cree expands into Wigtown Bay. Between Wigtown and Luce Bays is the peninsula of the Machers, of which Burrow Head is the southern extremity. Luce Bay has a length of about fifteen miles and an average breadth of twelve. By its indentation on the south and that of Loch Ryan (about nine miles long and nearly three broad), on the north the two-pronged peninsula of the Rinns is formed, of which the Mull of Galloway, the most southerly point in Scotland, is the southern extremity, and Kirkcolm Point the northern. The coast is more or less precipitous, with many small inlets, few of which, on account of dangerous hidden rocks, afford suitable landing-places for vessels. Loch Ryan forms, however, a splendid natural harbor, of which Stranraer is the port. Port Patrick on the Irish Channel is the nearest port in Great Britain to Ireland, and seven miles to the south is Port Logan. With the exception of Port William on its eastern shore, Luce Bay is destitute of harbors.

Although the rainfall exceeds the average in Scotland, the climate is not specially unfavorable for the ripening of crops, and frosts are not generally of long continuance. A considerable portion of Wigtownshire consists of stony moors, which have insufficient soil to render reclamation possible. According to the *Agricultural Returns* for 1887, the arable area was 147,063 acres, or about 46 per cent. of the whole, considerably

above the average for even the lowland counties of Scotland. The area under grain crops was 37,392 acres, of which 35,511 were under oats. Although agriculture is the main industry, there is a variety of small manufactures in the towns, including a woolen factory at Kirkcowan, engineering and locomotive works at Stranraer, hand-loom weaving in various places, distilling, tanning, and currying. The population is 40,000.

In point of density Wigtown stands twenty-first among the counties of Scotland, the number of persons to the square mile being sixty-seven. The proportion of females to every 100 males is 112.82, the largest proportion of any county with the exceptions of Orkney and Shetland and Forfar. The county has three royal burghs—Wigton (1,789), Stranraer (3,455), and Whitehorn (1,643).

WILBERFORCE, SAMUEL, bishop of Oxford and afterward of Winchester, was the third son of William WILBERFORCE (see below), and was born near London, on September 7, 1805. Until he entered Oriel College, Oxford, in 1823, he was educated privately. In the "United Debating Society," which afterward developed into the "Union," Wilberforce distinguished himself as a zealous advocate of liberalism. He graduated in 1826; and the summer and autumn of 1827 were spent in a Continental tour. After his marriage on June 11, 1828, to Emily Sargent, he was, in December, ordained and appointed curate-in-charge at Checkenden, near Henley-on-Thames. In 1830 he was presented by Bishop Sumner of Winchester to the rectory of Brightstone in the Isle of Wight. Although a High Churchman, Wilberforce held aloof from the Oxford movement, and in 1838 his divergence from the "Tract" writers became so marked that J. H. Newman declined further contributions from him to the *British Critic*, not deeming it advisable that they should longer "coöperate very closely." In 1838 Wilberforce published, with his elder brother Robert, the *Life* of his father, and two years later his father's *Correspondence*. In 1841 he was chosen Bampton lecturer. In 1844 appeared his *History of the American Church*. In March of the following year he accepted the deanery of Westminster, and in October the bishopric of Oxford.

The publication of a papal bull in 1850 establishing a Roman hierarchy in England brought the High Church party, of whom Wilberforce was the most prominent member, into temporary disrepute. The secession to the Church of Rome of his brother-in-law, Archdeacon (now Cardinal) Manning, and afterward of his two brothers, brought him under further suspicion, and his revival of the powers of convocation lessened his influence at court; but his unflinching tact and wide sympathies, his marvelous energy in church organization, the magnetism of his personality, and his eloquence, both on the platform and in the pulpit, gradually won for him recognition as without a rival on the episcopal bench. After twenty-four years' labor in the diocese of Oxford, he was named by Mr. Gladstone for the bishopric of Winchester. His unremitting labors had, however, seriously told on his constitution, and the change to a new diocese, entailing a repetition of the work of organization which he had completed in the old one, proved too much for his health. The result was a severe affection of the heart, which on more than one occasion threatened to prove fatal. He was killed on July 19, 1873, by a fall from his horse.

WILBERFORCE, WILLIAM, whose name is chiefly associated with the abolition of the slave trade, was born at Hull, England, on August 24, 1759. In 1780 he was elected to the House of Commons for his native town, his success being due to his personal popularity



and his lavish expenditure. In the autumn of 1783 he set out with Pitt on a tour in France; and after his return his eloquence proved of great assistance to Pitt in his struggle against the majority of the House of Commons. In 1784 Wilberforce was elected for both Hull and Yorkshire, and took his seat for the latter constituency. A journey to Nice in the autumn of the same year, with Dr. Isaac Milner, led to his conversion to Evangelical Christianity and the adoption of more serious views of life. The change had a marked effect on his public conduct. In the beginning of 1787 he busied himself with the establishment of a society for the reformation of manners. About the same time he made the acquaintance of Thomas Clarkson, and began the agitation against the slave trade. Pitt entered heartily into their plans, and recommended Wilberforce to undertake the guidance of the project, as a subject suited to his character and talents. While Clarkson conducted the agitation throughout the country, Wilberforce took every opportunity in the House of Commons of exposing the evils and horrors of the trade. Notwithstanding his unremitting labors in educating public opinion, and annual motions in the House of Commons, it was not till 1807, the year following Pitt's death, that the first great step toward the abolition of slavery was accomplished. When the anti-slavery society was formed in 1823, Wilberforce and Clarkson became vice-presidents; but before their aim was accomplished Wilberforce had retired from public life, and the Emancipation Bill was not passed till August, 1833, a month after his death.

**WILDBAD**, a watering-place in the northwest of Würtemberg, is picturesquely situated in the romantic pineclad gorge of the Enz, twenty-eight miles west of Stuttgart and fourteen east of Baden-Baden. Its thermal alkaline springs have a temperature of 90°-100° Fahr., and are used for bathing in cases of rheumatism, gout, neuralgia, and similar ailments. The population of the town is 3,514.

**WILDERNESS CAMPAIGN**, THE. Ever since the battle of Gettysburg, in July, 1863, the two armies—that of Northern Virginia and that of the Potomac—had confronted each other, but no operations of importance took place until nearly a year later, at which time began that celebrated series of battles which, commencing with the battles of the Wilderness and Spottsylvania, continued for a month, ending with the second Cold Harbor, and have passed into history as the Wilderness campaign. The bloody ferocity of these battles and the singular obstinacy with which every foot of ground fought over was contested go to make this campaign one of the most memorable in the annals of warfare. Here for the first time the two great captains of the North and South met in pitched battle, and here it was that the trembling balance of fate took the plunge that decided finally the fate of the Confederacy and confirmed and followed up the work begun at Gettysburg. On March 29, 1864, General Grant had been made commander-in-chief of the Union armies, and, having placed General Sherman in command in the further South, he had in person taken the field with the army of the Potomac, although Gen. George G. Meade yet retained the nominal command of the latter organization. Grant's plan of campaign was different to any hitherto put into execution, inasmuch as it was proposed by him to move all of the Union armies as members of a common whole, thus securing unity of action in the direction of one ultimate goal. This goal was the Confederate capital, toward which the army of the Potomac was to descend from the North, while the army of the further South, after destroying all possibility of attack in its rear, was to ad-

vance toward the same city from the South. On the morning of May 4, 1864, the army of the Potomac began the initial movement of this programme, while Butler at the same time advanced up the south side of the James river from Fort Monroe toward Richmond, and Sherman started on his march from Chattanooga to Atlanta. Leaving these two latter divisions of the army to their own proper place of treatment, we will give a brief sketch of the Wilderness campaign proper. Grant began his movement by throwing his right wing across the Rapidan river, on the north bank of which his army had lain, while Lee's army was on the opposite side, in a strong position at Mine Run. This movement on the part of Grant met with no opposition from Lee, and the former general drew the conclusion that he had surprised the latter by his movement; but this was not true. General Lee's intention was to draw the Federal army into the same difficult field in which Hooker had a year before met with so signal a defeat. Lee was perfectly familiar with this section of the country, and he hoped to so improve this knowledge as to be able to deal Grant as heavy a blow as he had given Hooker. Grant's forces amounted to 120,000 men, while those of Lee are estimated, by different authorities, at from 64,000 to 80,000 (the latter estimate being General Grant's figures). After the Federal right had crossed the river that wing pushed forward into the heart of the Wilderness—a desolate region filled with tangled underbrush, and scrub oak and pine, whose impenetrable thickets made it almost impossible for an army to enter—while the left wing was hurried forward to Chancellorsville (the scene of Hooker's defeat), where it rested for the night. Grant then intended, if possible, to flank Lee, and, by gaining Gordonsville, to get into his rear. But Lee was fully aware of the advantages of the Wilderness for defensive operations, and resolved, if possible, to bring on a general engagement in the midst of this thicket. Two lines of advance running nearly due east and west, and parallel to each other, were open to Lee, and along these roads on the morning of the 5th he promptly advanced, Ewell's division taking the turnpike (or northwesterly) road, while Hill's division advanced along the Plank Road (the southerly thoroughfare). Longstreet's division was, during the first day's battle, left at Gordonsville to cover Lee's rear, and did not come up in time to take part in the first of the fighting; Burnside's command in the Northern army was also too late in arriving to take part in the first day's fighting, he having been left on the Rappahannock to cover the rear of the Federal army. When the Union forces first struck the Confederates, they supposed it to be merely a rear guard which they had encountered, and that the army of Lee was in retreat. But they were soon convinced that they had made a mistake, and in a few moments the fighting was sharp and results bloody. The attack was begun by the advance of Ayres and Bartlett's brigades, which were sent to the right and left of the turnpike road to disperse whatever force might be found there. The Confederates were driven back; but the situation was soon changed by the quick advance of Stewart's brigade of Confederates, and shortly afterward by the arrival of Rhodes' division, and their attack on the Federal troops.

The effort to support Ayres and Bartlett proved abortive, as the thickets were so dense that before aid could arrive they had been driven back in confusion. On the whole, the fighting at this point was very disastrous for the Federals; McCandless' brigade alone losing two full regiments in its effort to escape from its entangled position on the right of the Federal advance column. So far the Union army had lost 3,000 men.



besides several guns, while the Confederates retained possession of the contested ground. A little after 1 o'clock the sixth corps, which had been sent to the aid of the fifth, was struck by Ewell. The Confederates were at first repulsed, but a terrific charge by Rhodes' men drove the Federals back; the Confederates being afterward in turn forced back. When the fight for the day was over the Union troops were in possession of the disputed ground. Meantime, General Grant had the conviction carried home to him that General Lee meant to fight him in this tangle of thickets, and he now began to make his preparations for such a contingency. He ordered Hancock to the assistance of Getty, who was holding the junction of the Brock road, which runs at right angles with the turnpike. Soon after Hancock arrived here he was ordered to attack and drive back Hill, but this he failed to do, the men fighting at close quarters, and at night each army drinking from the same "branch" or brooklet, so close were their positions to each other. This ended the first day's fighting in the Wilderness. Early the next day the fighting was resumed, Lee commencing the attack, at about 4.30 A.M. In the meantime, Burnside and Longstreet had come up to their respective armies, and the lines of battle of both were now fully formed. Grant's line extended over a frontage of five and a half miles—from Todd's tavern to Germania Ford, Sedgwick occupying the right, to the left of Sedgwick in regular succession being Warren, Burnside, and Hancock. Lee's army was disposed of as it was the preceding day, with the exception that it was now in three sections, Ewell being on the left, Hill in the center, and Longstreet on the right. Lee began his assault by attacking Sedgwick, but the Confederates were easily repulsed, and Warren and Hancock made an attack on Hill. For a time the troops of Hill gave away under the fierce blows falling on them, but at the critical moment Anderson's brigade of Hill's division was thrown forward, and Longstreet's troops suddenly coming to the support of Hill's shattered lines, the tide of battle was turned and Hancock was driven back. At the most critical juncture in the fight General Longstreet was seriously wounded by his own men, and the loss of time occasioned by the chance of officers necessary after this unfortunate occurrence was fatal to the Confederate success. Before General Lee himself could reach the scene and restore order, the Federals had regained all they had lost by the attack which Longstreet had made. At 4 o'clock, Lee, in person, led Hill's and Longstreet's men to an assault against the enemy, and, for a time, the Union left was in extreme danger. But a prompt and desperate charge made by Colonel Hoffmann, according to Hancock, was the turning point of the engagement, and saved the left wing from entire destruction. To add to the horror of the situation the woods were afire from the burning powder of the guns, and many dead and wounded were consumed by the flames. Nightfall did not cause the fighting to cease, for, just at sunset, General Lee sent forward a heavy column, led by General Gordon, against the right wing of the Federal army, and threw it into the greatest confusion. Federal reinforcements were hurried up, however, and the total darkness of the night put an end to the fighting of the second day, in which, it was estimated, the Federals had lost at least 15,000 men, the Confederates about 10,000. The total losses for the two days were about 20,000 and 13,000 respectively.

On the morning of May 7th it was apparent that General Lee had determined to assume the defensive and let Grant attack him. This Grant at once began by attempting a flank movement, his objective point

being Spottsylvania Court House, thirteen miles away. The column of the Federal advance along the Brock road was led by Warren's division, and after considerable delay, occasioned by its own cavalry, which obstructed the road, the Federal advance reached a point two or three miles from the court house. No serious fighting had taken place, and the Federal commanders were elated with the idea that Lee had probably been unaware of the attempt made to turn his flank; but they were again to be undeceived in a terrible manner. No sooner had the head of the Federal column arrived at the point indicated above than they were met by a terrific fire, and forced back, each successive command as it came up sharing the same fate. The attempt to turn Lee's flank had failed, and Grant ordered his army to strengthen its position by intrenchments. All of this and the following day was spent in maneuvers on both sides for positions, Lee always barring any southward movement on the part of Grant by throwing his men across the line of march. At last, on the 10th, Grant attacked. The first fighting began with one of Hancock's divisions which had crossed the Po river, and which was driven back with heavy loss. Two other attacks had been made that day on Lee, one at 11 o'clock and the other in the afternoon, about 3. At last at 5 o'clock the main attack was made by Warren's and Hancock's men, the point of attack being "Laurel Hill." Flesh and blood could not stand the terrible reception the Union troops met. In less than an hour over 7,000 Federals had been slain, while the Confederates had lost but 600 or 700. Another assault was made, but to no purpose. Night closed on the scene, and the first day's fighting at Spottsylvania had been a decided Confederate success. General Grant was not disheartened by the result, for he intimated that evening his famous dispatch, "I propose to fight it out on this line if it takes all summer." The next day was spent in preparations for another battle. Grant had received information which determined him to attempt the surprise of Lee's right center. Lee had weakened this point in order to meet a suspected attempt to turn his flank. In the early morning of the 12th, under cover of the fog that hung over the woods, Barlow's and Birney's brigades made a sudden assault on the Confederate works, surprising its defenders at breakfast, and capturing 3,000 prisoners. Lee's army was thus cut in two, and desperate efforts had to be made to retrieve the disaster. Words are inadequate to describe the horrors of the "bloody angle," as the salient has been named. The carnage was awful. All day long in hand-to-hand encounter the two armies strove together, but when the sun went down the Confederate troops had not regained their works. Darkness put an end to the fighting, and thus ended the battle of Spottsylvania—one of the bloodiest ever fought in all time. Up to this time the Union army had lost not far from 35,000 men in this campaign. The Confederate loss is not exactly known, but it was very much less. It was, however, more costly to them, who could ill afford to have their lines depleted. Next day Lee withdrew into an inner line of intrenchments, where his position was so strong that Grant would not attack him. Thus they remained facing each other until the 20th, when Grant withdrew his troops and began his second attempt to turn Lee's flank.

In the meantime Sheridan had made his dash on Richmond, and had met the Confederate cavalry, under Stuart, at Yellow Tavern, where Stuart was killed; Sheridan exploited around the defenses of the city, but was forced to retire, finding the outworks too strong. Grant's object was at once known to Lee, and then began that race for position which has become so cele-



brated in the war literature of the country. Lee was successful, and when Grant arrived at Hanover Junction on May 23d, he found Lee's army between him and Richmond in a strong position, already intrenched. The position of Lee's army was impregnable. Grant knew it would be madness to attempt to turn his position, so after a little desultory skirmishing the same tactics as before were resorted to, Grant withdrawing his forces on the 26th and again attempting to flank Lee. Lee followed Grant's movements closely, at every turn interposing his army between the Federals and the Confederate capital. Several stands were made by both armies, but on no occasion was a pitched battle fought until the old battle fields of McClellan's campaign of two years before were reached. Here the Wilderness campaign proper ends, as the battle of Cold Harbor has been placed by war historians in another category. Soon after this battle the Federal army having described a semicircular path around the city of Richmond during its military operations, was transferred to the south bank of the James river, and the siege of Petersburg—the final act of the great drama, was begun.

No characteristics of the Wilderness stand out with greater prominence than do the heroism and determination exhibited by both armies. Never before had Lee's ability as a tactician and strategist had greater demands made upon it, and never before had those demands met with a fuller response. An impartial judge would find it hard to award the palm for superiority to either army. On the one hand, the Federal army was at a disadvantage on account of the intricate nature of the country, and on the other the Confederate forces were largely outnumbered. But despite all advantages or disadvantages, no men in any circumstances could have done better than did both armies, and the claims of both Lee and Grant to greatness, even had they no other foundation, would find a solid basis in the conduct by each of this one campaign. The severity of the campaign may be judged from the fact that, although twenty-five years have passed away, marks of the conflict are yet fresh all over the country in which it was fought. Many years will elapse before the scars of war will heal; and the wondering plow-boy, born and grown to manhood since the crack of the musketry died away among these gloomy thickets, will for years to come unearth the grinning skull, and wonder to whom it once belonged—whether the man it once was part of wore the blue or the gray. On the battlefields several soldiers' cemeteries have been established, but thousands are unburied, and lay undisturbed, as they have done for the last quarter of a century, amidst the thicket that once gave back the din of conflict and flamed red and bright with the fire of battle.

WILFRID, archbishop of York from 665 till 709, was born in Northumbria in 634. He was already regarded as the leading exponent of the Roman discipline in England, when his speech at the council of Whitby determined the overthrow of the Celtic party (664). About a year later he was consecrated to the see of York (not in England, where perhaps he could not find the fitting number of orthodox prelates, but at Compiègne). On his return journey he narrowly escaped the pagan wreckers of Sussex, and only reached his own country to find he had been supplanted in his see. The rest of his life is a record of wandering and misfortune. For three years (665–668) he ruled his monastery at Ripon in peace, occasionally, however, exercising his episcopal functions in Mercia and Kent. On Archbishop Theodore's arrival (668) he was restored to his see, but only to be driven out through the anger of King Egfrid's queen (677). He died at Oundle (Northamptonshire) as he was going on a visit

to Ceolred, king of Mercia (709). He was buried at Ripon, whence, according to Eadmer, his bones were afterward removed to Canterbury.

WILHELMSHAVEN, or WILHELMSHAFEN, the chief naval station and war harbor of Germany on the North Sea, is situated on the east side of the Jahde, a large basin united with the sea by a channel three miles long. The ground on which it stands was purchased by Prussia from the duke of Oldenburg in 1853, and though reckoned a part of the province of Hanover is completely surrounded on the landward side by Oldenburg territory. Most of the inhabitants, who number 15,972, are connected with the dockyard and fleet.

The original harbor, constructed in 1855–69, consists of an inner and outer basin. To the southeast of the inner harbor, which is used by war-vessels not in active service, a large new harbor has recently been constructed for war-vessels in commission and for commercial purposes. The entrance to both the old and the new harbor is sheltered by long and massive moles. A torpedo harbor has also been formed. The inner harbor and the adjacent docks, building-slips, machine-shops, etc., form the government dockyard, which is inclosed by a lofty wall with fourteen iron gates. The whole establishment is defended by strong fortifications.

WILKES, JOHN, the champion of the right of free representation by British constituencies, was born at Clerkenwell, London, October 17, 1727. In July, 1757, Wilkes was elected for Aylesbury, and for this constituency he was again returned at the general election in March, 1761. Pitt was his leader in politics, but to Pitt he applied in vain for a seat at the board of trade; nor was he successful in his other applications for office. Stung by these disappointments, Wilkes threw himself into bitter opposition to Bute, and to make his antagonism more effective, established a paper called *The North Briton*, in which he from the first attacked the Scotch prime minister with exceeding bitterness, and grew bolder as it proceeded in its course. One of its articles ridiculed Lord Talbot, the steward of the royal household, and a duel was the result. When Bute resigned, the issue of the journal was suspended, but when the royal speech framed by George Grenville's ministry showed that the change was one of men only, not of measures, a supplementary number, No. 45, was published, April 23, 1763, containing a caustic criticism of the king's message to his parliament. Lord Halifax, the leading secretary of state, issued a general warrant "to search for authors, printers, and publishers," and to bring them before him for examination. Wilkes was arrested and thrown into the Tower. A week later, however, he was released by order of the Court of Common Pleas, on the ground that his privilege as a member of parliament afforded him immunity from arrest. General warrants were afterward declared illegal, and Halifax himself, after a series of discreditable shifts, was cast in heavy sums on actions brought against him by the persons whom he had injured, the total expenses incurred by the ministry in these lawless proceedings amounting to at least \$500,000. So far Wilkes had triumphed over his enemies, but he gave them cause for rejoicing by an indiscreet reprint of the obnoxious No. 45. Immediately on the meeting of the House of Commons (November 15, 1763) proceedings were taken against him. Lord North moved that No. 45 was "a false, scandalous, and seditious libel," and, as the motion was of course carried, the paper was publicly burnt in Cheapside on December 4th. He was expelled from the House of Commons on January 19, 1764, and on February 21st he was found guilty in the King's Bench of reprinting No. 45. Wilkes was on these dates absent from England. Some strong



expressions applied to him by Samuel Martin, an ex-secretary of the treasury, had provoked a duel (November 16, 1763), in which Wilkes was severely wounded. He withdrew to Paris, and as he did not return to England to receive his sentence in the law courts, was pronounced an outlaw.

For several years Wilkes remained abroad. In March, 1768, he returned to London and sued the king for pardon, but in vain. His next step was to offer himself as a candidate for the representation of the city of London, when he was the lowest at the poll. Undaunted by this defeat, he solicited the freeholders of Middlesex to return him as their champion, and they placed him at the head of all competitors. He appeared before the King's Bench, and on a technical point procured a reversal of his outlawry; but the original verdict was maintained, and he was sentenced to imprisonment for twenty-two months as well as to a fine of \$5,000, and he was further ordered to produce securities for good behavior for seven years after his liberation. His conduct was brought before the House of Commons, with the result that he was expelled from the House on February 3, 1769, and with this proceeding there began a series of contests between the ministry and the electors of Middlesex without parallel in English history. They promptly reelected him (February 16th), only to find him pronounced incapable of sitting and his election void. Again they returned him (March 16th) and again he was rejected. A fourth election then followed, when Col. Henry Lawes Luttrell, with all the influence of the court and the Fox family in his favor, obtained but 296 votes to 1,143 given for Wilkes, whereupon the House declared that Luttrell had been duly elected. Through these audacious proceedings a storm of fury broke out throughout the country. In the cause of "Wilkes and liberty" high and low enlisted themselves. His prison cell was thronged daily by the chief of the Whigs, and large sums of money were subscribed for his support. At the height of the combat in January, 1769, Wilkes was elected an alderman for the city of London; in 1771 he served as sheriff for London and Middlesex, and as alderman he took an active part in the struggle between the corporation and the House of Commons, by which freedom of publication of the parliamentary debates was obtained. His admirers endeavored in 1772 to procure his election as lord mayor of London, but he was set aside by the aldermen, some of whom were allied with the ministry of Lord North, while others, as Oliver and Townshend, leaned to the Liberalism of Lord Shelburne. In 1774, however, he obtained that dignity, and he retained his seat for Middlesex from the dissolution in 1774 until 1790. He moved in 1776 for leave to bring in a bill "for a just and equal representation of the people of England in parliament;" but attempts at parliamentary reform were premature by at least half a century. After several failures better fortune attended his efforts in another direction, for in 1782 all the declarations and orders against him for his elections in Middlesex were ordered to be expunged from the journals of the House. In 1779 Wilkes was elected chamberlain of the city by a large majority, and the office became his freehold for life. He died December 20, 1797.

WILKESBARRE, the county seat of Luzerne county, Penn., is situated on the right bank of the north branch of the Susquehanna river in the Wyoming valley, ninety-eight miles north-northwest from Philadelphia. The business portion lies in the bottom lands, while the residence portions have extended into the adjacent hilly country. It is entered by four railways—the Central of New Jersey, that of the Delaware and Hudson Canal Company, the Lehigh Valley,

and the Pennsylvania. The city is irregularly laid out. The population in 1890 was 37,718, and in 1900 was 51,721. Wilkesbarre is in an anthracite mining district, and its industries, while relating in general to this product, include also important manufactures of lace, wire, and cutlery, and numerous machine shops.

WILKIE, SIR DAVID, Scottish subject-painter, was born November 18, 1785. He very early developed an extraordinary love for art. In 1799, after he had attended school at Pittlesie, Kettle, and Cupar, his father reluctantly yielded to his desire to become a painter; and, through the influence of the earl of Leven, Wilkie was admitted to the Trustees' Academy in Edinburgh, and began the study of art under John Graham, the able teacher of the school. In 1804 Wilkie returned to Cults, established himself in the manse, and commenced his first important subject-picture, *Pittlesie Fair*, which includes about 140 figures, and in which he introduced portraits of his neighbors and of several members of his family circle.

In the spring of 1805 he left Scotland for London, carrying with him his *Bounty-Money*, or the *Village Recruit*, which he soon disposed of and began to study in the schools of the Royal Academy. *The Village Politicians* attracted great attention when exhibited in the Royal Academy of 1806, and was followed in the succeeding year by the *Blind Fiddler*. He wisely returned to genre-painting, producing the *Card-Players* and the admirable picture of the *Rent Day*, which was composed during recovery from a fever contracted in 1807, while on a visit to his native village. His next great work was the *Ale-House Door*, afterward entitled the *Village Festival* (now in the National Gallery), which was purchased by J. J. Angerstein for 800 guineas. It was followed in 1813 by the well-known *Blind Man's Buff*, a commission from the prince regent, to which a companion picture, the *Penny Wedding*, was added in 1818. Meanwhile Wilkie's eminent success in art had been rewarded by professional honors. In November, 1809, he was elected an associate of the Royal Academy, when he had hardly attained the age prescribed by its laws, and in February, 1811, he became a full academician.

In 1822 Wilkie visited Edinburgh, in order to select from the royal progress of George IV. a fitting subject for a picture. The Reception of the King at the Entrance of Holyrood Palace was the incident ultimately chosen. In the beginning of 1830 Sir Thomas Lawrence died, and Wilkie was appointed to succeed him as painter in ordinary to the king, and in 1836 he received the honor of knighthood. The main figure-pictures which occupied him until the end were *Columbus in the Convent at La Rabida*, 1835; *Napoleon and Pius VII. at Fontainebleau*, 1836; *Sir David Baird Discovering the Body of Tippoo Sahib*, 1838; *The Empress Josephine and the Fortune-Teller*, 1838; and *Queen Victoria Presiding at her First Council*, 1838. He died at sea off Gibraltar on the morning of June 1, 1841.

WILL, or TESTAMENT, is an instrument by which a person regulates the rights of others over his property or family after his death. For the devolution of property not disposed of by will, see INHERITANCE, INTES-TACY. In strictness "will" is a general term, while "testament" applies only to dispositions of personality; but this distinction is seldom observed. Legal systems which are based upon Roman law, such as those of Scotland and France, allow the whole property to be alienated only where the deceased leaves no widow or near relatives. In France this restriction has met with condemnation from eminent legal and economical authorities.

The will, if not purely Roman in origin, at least owes



to Roman law its complete development—a development which in most European countries was greatly aided at a later period by ecclesiastics versed in Roman law. In India, according to the better opinion, it was unknown before the English conquest; in the Mosaic law and in ancient Athens the will, if it existed at all, was of a very rudimentary character. The same is the case with the *Leges Barbarorum*, where they are unaffected by Roman law. The will is, on the other hand, recognized by Rabbinical and Mohammedan law. The early Roman will, as Sir H. Maine shows, differed from the modern will in most important respects. It was at first effectual during the lifetime of the person who made it; it was made in public; and it was irrevocable. Its original object, like that of adoption, was to secure the perpetuation of the family.

Liberty of alienation by will is found at an early period in England. To judge from the words of a law of Canute, intestacy appears to have been the exception at that time. How far the liberty extended is uncertain; it is the opinion of some authorities that complete disposition of land and goods was allowed, of others that limited rights of wife and children were recognized.

A will may be void, in whole or in part, for many reasons, which may be divided into two great classes, those arising from external circumstances and those arising from the will itself. The main examples of the former class are revocation by burning, tearing, etc., by a later will, or by marriage of the testator, incapacity of the testator from insanity, infancy, or legal disability (such as being a convict), undue influence, and fraud, any one of which is ground for the court to refuse or revoke probate of a will good on the face of it, or declare a will of lands void. Undue influence is a ground upon which frequent attempts are made to set aside wills.

By the constitutions of many States laws giving effect to informal or invalid wills are forbidden. The age of testamentary capacity varies very much. Eighteen is a common one. Full liberty of disposition is not universal. Homesteads generally, and dower estates frequently, are not devisable. In some States only a disposable portion of the property can be left, so that children cannot be disinherited without good cause, and in some, children omitted in a will may still take their share. It is frequently provided that a certain amount must be left to the widow. Louisiana follows French law, by which the testator can under no circumstances alienate by will more than half his property if he leave issue or ascendants. In some States a married woman may not leave more than half her property away from her husband. Some require the husband's consent and subscription to make the will of a married woman valid. Nuncupative and holograph wills are in use. The former are confined to personalty, and must generally be reduced to writing within a short time after the words are spoken. In Louisiana there is a special form of will, borrowed from Roman law, called the mystic or sealed will, in which the testator declares a sealed packet to be his will before witnesses. The number of witnesses necessary for the validity of a will of any kind is usually two, sometimes three. Wills of soldiers and sailors are privileged, as in England. Probate is granted sometimes by the ordinary chancery or common law courts, more frequently by courts of special jurisdiction, such as the Prerogative Court in New Jersey, the Surrogate's Court in New York.

WILLENHALL, a township of Staffordshire, England, is situated in the neighborhood of extensive coal and iron mines, and possesses brass and iron foundries, and manufactories of various kinds of ironware. The population of the urban sanitary district (area 1,368 acres) was 18,067 in 1901.

WILLESDEN, a suburb and parish of London, England. The population of the urban sanitary district (area 4,383 acres) was 114,815 in 1901.

WILLIAM I., king of England, surnamed the CONQUEROR, was born in 1027 or 1028. He was the bastard son of Robert, duke of Normandy, and Herleva, daughter of Fulbert, a tanner of Falaise. When he was about seven years old his father, intending to go on pilgrimage and having no legitimate sons, proposed him as his heir. The great men of the duchy did homage to the child, and a year later (1035) his father's death left him to make good his claim. Anarchy was the natural result of a minority. William's life was on more than one occasion in danger, and several of his guardians perished in his service. At the earliest possible age he received knighthood from the hands of Henry I. of France, and speedily began to show signs of his capacity for government.

In 1051 William visited England. Two years later he married Matilda, daughter of Baldwin, earl of Flanders, and a descendant of Alfred. The marriage had been forbidden by a council at Rheims as uncanonical, and was opposed by Lanfranc, prior of Bec. This produced a quarrel between Lanfranc and William, who ravaged the lands of the abbey and ordered the banishment of its prior. Lanfranc, however, soon came to terms with the duke, and engaged to obtain a dispensation from Rome, which, however, was not granted till 1059. Strengthened by this alliance with Flanders, William showed himself more than a match for all his enemies.

It was apparently in the year 1064 that Harold, then earl of Wessex, visited Normandy. For the relations between him and William, which grew out of this visit, see ENGLAND. When Harold was elected and crowned king of England (1066), William's first step was to send an embassy to him demanding the fulfillment of his promise. The purport of the demand is as uncertain as that of the pledge; but, whatever it was, Harold rejected it. The duke thereupon summoned a council of his supporters, who advised him to call together an assembly representing the whole duchy. This assembly, a typical feudal parliament, met at Lillebonne. While acting together it appears to have opposed the scheme for the conquest of England which William laid before it, but its members were won over singly. He then made a compact with Tostig, the banished brother of Harold; he came to terms with the emperor Henry; he conciliated Philip, king of France, by offering to hold England as his vassal; and—most important of all—he obtained the sanction of Rome. Pope Alexander II. not only issued a bull declaring William to be the rightful heir to the throne, but sent him a ring and a banner as symbols that the blessing of heaven was on his claim. Embarking at St. Valéry, William landed on September 28th at Pevensey. The battle of Senlac or Hastings (October 14, 1066) was a decisive victory for the duke of Normandy; but it took five years more to complete the conquest of England.

Early in 1067 William made a progress through the eastern and central parts of his new dominions. All that had as yet submitted to him was comprised in the old kingdoms of Wessex and East Anglia, and a small portion of Mercia. He at once secured his hold over these districts by the erection of fortresses in London, Norwich, and elsewhere. He received homage from the great men; he confiscated the lands of those who had resisted him; and, while keeping a large number of manors for himself, he granted others to his followers. Even those who had not resisted were regarded as having legally forfeited their title and had to submit to a grant on less advantageous terms. In March, 1067, Will-



iam returned to Normandy, taking with him as hostages the earls Eadwine, Morkere, and Waltheof. The revolts which broke out in the north and southwest compelled him to return to England in December. He at once entered on a vigorous campaign and succeeded in speedily reducing the rebels. In one district only, the fens of Cambridgeshire, where Hereward still held out, the spirit of resistance survived. In April, 1071, William arrived at Cambridge and commenced a regular blockade. Advancing cautiously by means of a causeway through the fens, he entered Ely in October, and therewith the last flicker of independence died out. The conquest of England was completed.

Thenceforward such trouble as William met with came, not from the English, but from his Norman vassals or his own family. In 1073 the citizens of Le Mans took advantage of his absence to set up a "commune," and invited Fulk of Anjou to protect them. William was soon in the field, this time assisted by English troops. He harried the country, recovered Le Mans, and made an advantageous peace with the count. A year later a formidable revolt broke out in England. William returned at once to England and put down the insurrection. This was the last instance of opposition to William in England; but the remaining ten years of his life were occupied with almost continuous troubles on the Continent. In 1076 he was engaged in a war with Brittany. Next year he quarreled with his son Robert. A rebellious vassal, Hubert of Beaumont, seems to have held him at bay for nearly three years. Rival claims to Vexin, a district on the eastern frontier of Normandy, involved him in another war with France. He was growing old and weary, and, as he lay sick at Rouen in the summer of 1087, the French army harried his territories with impunity. When he had recovered sufficiently to take the field, he invaded Vexin and burned the town of Mantes. But his horse, plunging in the burning cinders, inflicted on him an internal injury which proved his death-wound. He was carried to St. Gervais, where on September 9, 1087, he died. His body was conveyed to Caen and buried in the great minster which he had built.

**WILLIAM II.**, king of England, surnamed **RUFUS**, third son of William I. and Matilda, was born in 1056. Little is known of his youth, except that in the quarrel between the Conqueror and Robert he remained loyal to his father. When the Conqueror was on his death-bed he sent William to England with a letter to Lanfranc, requesting the archbishop to secure his election to the throne. Accordingly on September 26, 1087, William was elected and crowned at Westminster. His brother Robert, to whom the Conqueror had bequeathed the duchy, was not likely to give up his claim to the larger part of his father's dominions without a struggle. A general revolt in his favor broke out in the summer of 1088. With the aid of his English troops William took castle after castle, repelled an attempted landing of the Norman fleet, and forced Odo to surrender his stronghold of Rochester. The rebellion being thus suppressed, he held a great council, at which, although the rebels in general were leniently treated, many confiscations and sentences of banishment were pronounced. Two years later William sent an army to Normandy (Easter 1090), which, under the misgovernment of Robert, had lapsed into a state of anarchy. The re-conquest of the duchy by England was begun by the capture of St. Valéry; but there was not much fighting, place after place yielding to William's lieutenants or to English gold.

A peace was made between the brothers through papal mediation, William supplying Robert with funds, for the repayment of which the latter pledged his duchy.

When, in September, 1096, Robert set off for the crusade, William took possession of Normandy, where he soon put an end to the anarchy which had resulted from Robert's misrule, and he held the country till his death. Shortly before the acquisition of Normandy William had subdued a second rebellion in England. The last three years of the eleventh century were much occupied by tedious wars with France, and efforts to recover Maine. Strengthened by an alliance with the duke of Aquitaine, he invaded the French territory and advanced as far as Pontoise. But, tiring of the fruitless war, he made a truce with Philip, and returned to England early in 1099. He had only been there a few months when he heard that Helias de la Flèche was attacking his castles in Maine, and had won back Le Mans. He crossed the Channel with great speed, and a last campaign replaced him in possession of the coveted border-land. But he took no pains to secure his hold, and the Norman power in Maine fell to pieces immediately on his death.

The unscrupulous tyranny which Rufus displayed in his quarrel with Anselm, Archbishop of Canterbury, whose possessions he held after forcing him to abandon the kingdom, was equally characteristic of his temporal government. The feudal customs of aids, reliefs, escheats, etc., were developed into a great system of extortion. The townsfolk and the cultivators of the soil were weighed down by heavy taxes. The forest laws were carried out with ruthless severity. On the other hand, order was maintained, and the tyranny was to a certain extent veiled or limited by the frequent use which William made of his great councils, in the trials of great men like Odo, in the declaration of war, in the settlement of disputes, such as that with Anselm. It is clear that the national assembly was neither extinct nor inefficient during this reign. It was in this period, too, that the office of justiciar became permanent in the person of William's chief minister, Ralph Flambard, although in his hands its powers were used merely in support of despotism.

In his private character William was as vicious as in his public capacity he was tyrannical. He was harsh and violent, extravagant and lustful, regardless of God and pitiless to man. He had a strong vein of mockery and sarcasm, and no little of the grim Norman humor. Almost the only redeeming feature of his character is his chivalrous observation of his plighted word; but for ordinary promises or obligations he had no respect. He died under mysterious circumstances (alleged to have been accidentally shot by a courtier) in the New Forest, Hampshire, on August 2, 1100. William II. was not married; he was succeeded by his brother Henry.

**WILLIAM III.**, king of England and prince of Orange, was the son of William II., stadtholder of the United Netherlands, and Mary, daughter of Charles I. of England. He was born on November 14, 1650. His father died eight days before his birth, whereupon the states-general abolished the office of stadtholder. As he grew up, William became the head of the party, at once democratic and monarchical, which was attached to the house of Orange. But all power was concentrated in the hands of John De Witt and other leaders of the rival or aristocratic republican party. Hence William learned caution, reserve, insight into character, and the art of biding his time.

When, however, France and England declared war upon the Netherlands in the spring of 1672, the rapid success of the French arms, and the rejection by Louis of the terms offered by the Dutch Government, produced a revolution in favor of William. A popular rising obliged De Witt to repeal the perpetual edict (which ratified the suppression of the stadtholdership in 1667),



and on July 8, 1672, the Prince of Orange was declared by the states-general, stadtholder, captain-general, and admiral for life. The revolution was followed by a riot in which John and Cornelius De Witt lost their lives. There appears no evidence connecting William with the attack on the De Witts; but he made no attempt to punish it; on the contrary, he rewarded the leaders. Then, rejecting the outrageous terms offered by the allies, he placed his private fortune and the revenues of his offices at the disposal of the state, and declared himself ready to die in the last ditch. In order to check the French advance the sluices were opened and vast tracts of country placed under water. The Dutch fleet prevented an English landing. An alliance was made with the elector of Brandenburg, whose forces effected a useful diversion on the eastern frontier. Next year (1673) William lost Maestricht, but he more than balanced this disaster by treaties with Spain and the empire. The war now began to turn in his favor. Early in 1674 the French troops evacuated Holland, and in February of the same year peace was made with England in the treaty of Westminster.

For the next two years the war dragged on without very important results. William, although he had saved Holland, could not prevent France from winning places at the expense of the empire and Spain. In April, 1677, he was decisively beaten by the duke of Orleans near St. Omer. A great part of the Spanish Netherlands as well as Franche Comté was now in the hands of France. These advances caused much alarm in England; and the prince of Orange linked himself closer to that country by marrying Mary, elder daughter of James, duke of York, in November, 1677. Early next year William signed a treaty of alliance with England, the object of which was to compel Louis to come to terms. The duplicity of Charles and the attitude of the country party in England, anxious for war with France but unwilling to put an army into the king's hands, prevented this arrangement from taking effect. A fresh treaty was, however, made between the two powers (July), and the pressure thus brought to bear upon Louis led to the peace of Nimeguen (August, 1678).

Meanwhile, as heir presumptive to the English throne, he paid close attention to what was passing in England. He sought to win Charles by sheltering the duke of Monmouth during the exile to which his father had unwillingly condemned him. The same motives led him to dismiss the duke when James II. succeeded his brother, and to discourage the attempt which Monmouth made to win the crown. He also endeavored to stop Argyll and his friends when they were setting out for England; and he tried to dissuade Monmouth from his rash expedition, and to induce him to take service against the Turks in Hungary, and, when this failed, he sought, with as little success, to prevent his crossing to England. Throughout the whole crisis he showed a scrupulous regard for the interests of his father-in-law, which fortunately coincided with his own; but at the same time he astutely avoided any step which would have alienated from him the constitutional party. When, however, James II. began to show himself in his true colors, William became the head of the opposition in England.

On September 30th he issued a declaration in which he recapitulated James' unconstitutional acts, and stated that he was coming to England in order to secure the assembling of a free parliament, by whose decision he was resolved to abide. On November 2d he sailed from Holland, and three days later landed at Torbay. At first only few persons joined him, but presently the gentry began to come in. James, who had massed his troops at Salisbury, was compelled by William's ad-

vance and by the desertion of Churchill and others to fall back upon London. Here he attempted to treat with the invader. William, anxious to avoid all appearance of conquest, consented to negotiate, and it was agreed that a parliament should be summoned, both armies meanwhile holding aloof. James, however, attempted to leave the country, but was stopped and returned to Whitehall. For a moment he seemed to contemplate resistance, but William now insisted on his retiring from London. His final flight relieved the prince of a great difficulty. On December 19th William arrived in London, and at once called a meeting of peers and others who had sat in the parliaments of Charles II.'s reign. By their advice he summoned a convention, which met on January 22, 1689, and settled the crown on William and Mary, who, after accepting the Declaration of Rights, were on February 13th proclaimed king and queen.

The revolution had so far succeeded beyond expectation; but William's difficulties had only begun. For nearly a year and a half after William's acceptance of the crown he was occupied in forming the coalition against Louis XIV. known as the Grand Alliance. As stadtholder of the United Netherlands, William had already entered into an alliance with the emperor. In December he joined the league as king of England, and in 1690 the coalition was completed by the adhesion of Spain, Brandenburg, and Savoy. William had thus gained his first great object: he had united Europe against the Bourbon. Meanwhile, however, his arms had made little progress in Scotland and Ireland. James had landed in Ireland in March, 1689, and nearly the whole island was in his hands. The relief of Londonderry (July) and the battle of Newtown Butler (August) saved the north for William, but elsewhere Schomberg could make no way. In Scotland the convention had offered the crown to William and Mary, but in the battle of Killiecrankie (July) the clans under Dundee had routed William's army. The convention, which shortly after his accession had been turned into a parliament, met for its second session in the autumn of 1689, and the two parties quarreled so violently over the Corporation and Indemnity Bills that William threatened to leave the country. He was induced by Nottingham and Shrewsbury to give up this intention, but in January, 1690, he dissolved the parliament. William put an end to the quarrel about the indemnity by issuing an Act of Grace, which gave an almost complete amnesty; and, after placing the government in the hands of the queen and a council of nine persons, he left for Ireland. The defeat of the English and Dutch fleets off Beachy Head and the repulse of the allied forces at Fleurus (June and July, 1690) were severe blows to William's hopes; but the former led to no important results and the latter was more than balanced by the victory which William won at the battle of the Boyne (July 1, 1690). James fled from the country, and William entered Dublin in triumph. In September he returned to England, leaving Marlborough to conquer the south of Ireland in a short but brilliant campaign. Meanwhile the resistance in Scotland had collapsed, and Mackay reduced the Highlands to tranquillity. In 1691 William was able to go abroad and to take the command in Flanders, where, however, his efforts were unsuccessful.

But the fortune of war went against William on the Continent. He could not save Namur from the French, and he was severely defeated in an attempt to surprise the duke of Luxembourg at Steenkerke (August 4, 1692). Next year he was again beaten by the same commander at Neerwinden (July 19th). The battle of La Hogue had not given England the command of the seas, and



French privateers inflicted great damage on English trade. In June, 1693, the Smyrna fleet was almost entirely destroyed off Cape St. Vincent.

In spite of these reverses, William struggled on with indomitable courage, and he was well supported by the country. Parliament, under the skillful guidance of Montague, adopted various important financial measures to meet the expenses of the war. The land tax was reassessed, the national debt created, the Bank of England established, and the coinage renewed (1693-95). In 1694 William confirmed the parliamentary system by giving his consent, though an unwilling consent, to the Triennial Act, and he recognized the principles of ministerial government by modifying the ministry, until in 1696 it was in thorough harmony with the parliamentary majority. In 1695 William won his first important success on the Continent by recovering Namur, and, though no advance was made by the allies next year, the exhaustion of France was becoming more and more evident. At length, in March, 1697, a congress met at Ryswick, and in September peace was made. Louis was obliged to give up all (with the exception of Strasbourg) that he had added to his dominions since 1678, and he recognized William as king of England. With the conclusion of the war the dread of a standing army revived in England, and, much to William's disgust, a vote of parliament reduced the military force to 10,000 men, although the question of the Spanish succession was pending. The new parliament which met early in 1699 reduced the army still further, and resolved that it should consist solely of English troops, thus compelling William to dismiss his favorite Dutch guards. They went on to institute an inquiry into the manner in which the forfeited estates in Ireland had been disposed of, and in their second session (November, 1699) they passed a bill for the "resumption" of these estates. William died on March 8, 1702, from the consequences of a fall from his horse on February 20th.

WILLIAM IV., king of England, was the third son of George III. He was born at Windsor, August 21, 1765. When he was fourteen years old he was sent to sea as a midshipman under Admiral Digby. In 1789 he was made duke of Clarence. He took his seat in the House of Lords, where he defended the extravagancies of the prince of Wales, spoke on the Divorce Bill, vehemently opposed the emancipation of slaves, and defended slavery on the ground of his experience in the West Indies. Meanwhile he formed a connection with Mrs. Jordan, the actress, with whom he lived on terms of mutual affection and fidelity for nearly twenty years, and the union was only broken off eventually for political reasons. During all this period the prince had lived in comparative obscurity. The death of Princess Charlotte in 1817 brought him forward as in the line of succession to the crown. In 1818 he married Adelaide of Saxe-Meiningen, a lady half his age, without special attractions, but of a strong, self-willed nature, which enabled her subsequently to obtain great influence over her husband. On the death of the duke of York in 1827 the duke of Clarence became heir to the throne, and in the same year he was appointed lord high admiral.

On June 28, 1830, the death of George IV. placed him on the throne. During the first two years of his reign England underwent an agitation more violent than any from which it had suffered since 1688. William IV. was well-meaning and conscientious; but, when the struggle in parliament began, his disinclination to take up a decided attitude soon exposed the government to difficulties. The first Reform Bill was introduced on March 1, 1831; the second reading was carried on March 21st by a majority of one. Shortly

afterward the government were beaten in committee, and offered to resign. The king declined to accept their resignation, but at the same time was unwilling to dissolve, although it was obvious that in the existing parliament a ministry pledged to reform could not retain office. From this dilemma William was rescued by the conduct of the opposition, which, anxious to bring on a change of ministry, moved an address against dissolution. Regarding this as an attack on his prerogative, William at once dissolved parliament (April, 1831). The elections gave the ministry an overwhelming majority. The second Reform Bill was brought in in June, and passed its third reading (September 21st) by a majority of 109. A fortnight later (October 8th) the Lords threw out the Bill by a majority of forty-one. For an account of the subsequent stages of the struggle, see GREY.

During the rest of his reign William IV. had not much opportunity of active political interference.

In May, 1837, the king began to show signs of debility, and died from an affection of the heart on June 20th, leaving behind him the memory of a genial, frank, warm-hearted man, but a blundering, though well-intentioned prince. He was succeeded by his niece, Victoria.

WILLIAM, surnamed the LION, king of Scotland from 1165 to 1214. (See SCOTLAND).

WILLIAM IV., landgrave of Hesse, well known as an astronomer, son of Philip the Magnanimous, was born at Cassel on June 14, 1532. During his father's captivity after the battle of Mühlberg (1547) he carried on the government in his name for five years, and succeeded him on his death in 1567. At an early age he became interested in astronomy; and in 1561 he built an observatory at Cassel, where observations were regularly made, first by himself, afterward by Rothmann and Bürgi. The last-named was not only a very skillful mechanic (it seems probable that he applied the pendulum to clocks long before Huygens did) but an original mathematician, who independently invented logarithms. William died on August 25, 1592.

WILLIAM, surnamed the SILENT, prince of Orange, count of Nassau, was born at the castle of Dillenburg in Nassau on April 16, 1533. Having attracted the attention of Charles V., he was invested by the emperor at the age of twenty-two with the command of the army on the French frontier; and it was on his shoulder that Charles V. leaned when in 1555, in the presence of a great assembly at Brussels, he transferred to his son Philip the sovereignty of the Netherlands. Orange was also selected to carry the insignia of the empire to Ferdinand, king of the Romans, when Charles resigned the imperial crown. He took part in Philip II.'s first war with France, and negotiated the preliminary arrangements for the treaty of Cateau-Cambrésis (1559). He was one of the hostages sent to France for the due execution of the treaty, and during his stay in that country Henry II., who entirely misunderstood his character, revealed to him a plan for the massacre of all Protestants in France and the Netherlands. The prince was horrified by this disclosure, but said nothing; and it was on account of his extraordinary discretion on this occasion that he received the surname of "the Silent." The epithet is apt to convey a mistaken impression as to his general character. He was of a frank, open, and generous nature, without a touch of moroseness in the ordinary intercourse of life.

The persecution of the Protestants in the Netherlands, carried on with such reckless ferocity by Cardinal Granvella, led Orange, Egmont, and Horn, the most prominent of the great nobles, to protest against the violence of the government; and in 1563 they wrote to



Philip urging him to withdraw Granvella, and ceased to attend the state council. In the following year Granvella was displaced, whereupon they resumed their seats at the council. But Philip, who had been longing for an excuse to crush the independent spirits of the Netherlands, now resolved to send the duke of Alva into the country, with a Spanish force. Orange, since he could not count upon the hearty support of Egmont or Horn, had no alternative but to resign his offices and withdraw from the Netherlands (1567), taking up his residence at Dillenburg.

Orange was repeatedly summoned to Brussels; but he declined to appear before the Council of Disturbances, on the ground that it had no jurisdiction over an independent prince and a knight of the order of the Fleece. The havoc wrought by Alva filled him with grief and anger; and in 1568 he contrived to collect two forces, one of which, commanded by his brothers Louis and Adolphus, gained a victory in Groningen, where Adolphus fell. Alva, having ordered the execution of Egmont and Horn, advanced against Louis and defeated him in East Friesland. Orange then invaded Brabant, but could neither bring Alva to a decisive engagement nor induce the people to rise against him. The army had therefore to be disbanded, and its disappointed leader joined Wolfgang of Zweibrücken in an attempt to aid the Huguenots. Acting on the advice of Coligny, Orange issued letters of marque to seamen against the Spaniards; and for years the "sea beggars" harassed the enemy along the coast, and often did no little harm to their own countrymen. In 1572 the revolt against Spain was so far successful that Orange resumed the functions of stadtholder of Holland and Zealand, a position to which he had been appointed in 1559; but he professed to rule in the name of the king, for as yet the people had no wish to throw off their allegiance to the Spanish crown.

On July 15, 1572, the estates of Holland met at Dort, and, recognizing Orange as the legal stadtholder of Holland, Zealand, Friesland, and Utrecht, voted the sums necessary for the prosecution of the war. In August he crossed the Meuse at the head of an army, trusting mainly to the promised coöperation of France. All his hopes, however, were shattered by the massacre of St. Bartholomew. He was obliged to disband his troops, and Mons was re-taken by the Spaniards. On April 14, 1574, at the village of Mook, near Nimeguen, the patriots were again routed, and Orange's brothers, Louis and Henry, slain. But many fortified places held out, and on October 3d, Orange, who had ordered the country to be inundated, was able to relieve Leyden, which had for months been defended with splendid bravery and self-sacrifice. At length the brutality and despotism of the Spaniards were so fiercely and generally resented that Orange was able to enter upon a series of negotiations, which resulted on November 8, 1576, in the pacification of Ghent, signed on behalf of nearly all the provinces. By this treaty the provinces bound themselves to drive the Spaniards from the Netherlands, to convoke the states-general, and to establish freedom of worship both for Roman Catholics and for Protestants. Orange retained in his own hands complete control over the movement in the seven northern provinces, which by the Union of Utrecht, signed on behalf of five of the provinces on January 23, 1579, laid the foundations of the commonwealth of the United Netherlands. Negotiations for the conclusion of peace with Spain were carried on for some time in vain; and in 1580 Philip issued a ban against the prince, and set a price of 25,000 gold crowns upon his head. Orange published a vigorous "apology," and on July 26, 1581 the estates of the United Provinces formally

renounced their allegiance to the Spanish crown. An unsuccessful attempt on the life of Orange was made in 1582. But on July 10, 1584, he was shot dead in his house at Delft by Balthazar Gerard, who seems to have been actuated in part by fanaticism, in part by the hope of gain.

WILLIAM of Holland, second count of the name, was born about 1227, succeeded his brother Floris IV. in 1235, and was chosen king of the Romans by the papal party in 1247. See GERMANY and HOLLAND. He died on January 28, 1256.

WILLIAM I., king of the Netherlands from 1815 to 1840, was born at The Hague on August 24, 1772, and died at Berlin on November 7, 1843. His son, WILLIAM II. (1792-1849), reigned from 1840, and was in turn succeeded by his son, WILLIAM III. (born 1817). (See HOLLAND.)

WILLIAM, archbishop of Tyre, was doubtless a native of the Holy Land. He was perhaps born about 1137; but this is a mere inference from his own statement. William was appointed archdeacon of Tyre at the request of Amalric on August 31, 1167. At the time of the disastrous campaign against Damietta (October-December, 1169) he had to take refuge at Rome from the "unmerited anger" of his archbishop. About 1170 he was appointed tutor to Amalric's son Baldwin, afterward Baldwin IV. A very few months after Baldwin's accession, William was made chancellor of the kingdom (c. October, 1174), and less than a year later (June 13, 1175) was consecrated archbishop of Tyre. The former office he still held in 1182. He belonged to the commission which negotiated with Philip of Flanders in 1177; and in the following October (1178) he was one of six bishops sent to represent the Latin Church of the East at the Lateran Council (March 19, 1179). He returned home by way of Constantinople, where he stayed seven months (October, 1179-April, 1180) with Manuel. This is his last authentic appearance in history; but we know from his own works that he was writing his *History* in 1182, and that it breaks off abruptly at the end of 1183 or the beginning of 1184. Some fifty years later his first continuator accused Heraclius, patriarch of Jerusalem, of having procured William's death at Rome.

WILLIAM OF CHAMPEAUX. See SCHOLASTICISM.

WILLIAM OF LORRIS, the first author of the *Roman de la Rose*, derives his surname from a small town about equi-distant from Montargis and Gien, in the old district of the Gâtinais, and in the present department of Loiret. This and the fact of his authorship may be said to be the only things positively known about him. The rubric of the poem, where his own part finishes, attributes Jean de Meung's continuation to a period forty years later than William's death, and the consequent interruption of the romance. Arguing backward, this death used to be put at about 1260; but Jean de Meung's own work has recently been dated earlier, and so the composition of the first part has been thrown back to a period before 1240.

WILLIAM OF MALMESBURY. See MALMESBURY, WILLIAM OF.

WILLIAM OF NEWBURGH, born about 1136, was a canon of Newburgh in the North Riding of Yorkshire, and author of a valuable chronicle of English affairs from the Norman Conquest to 1197. He calls himself Gulielmus Parvus, and is frequently referred to as William Petyt or Little. His work (*Gulielmi Neubrigensis Rerum Anglicarum Libri V.*) was edited by Silvius at Antwerp in 1567, and by Hearne at Oxford in 1719; the latest edition is that by H. C. Hamilton for the English Historical Society (*Historia Rerum Anglicarum Willelmi Parvi, S.T.D., Ordinis Sancti Augustini Canonici Regularis in Cœnobio B. Mariæ de Novoburgo in Agro Eboracensi*).



**WILLIAM OF OCCAM.** See **OCCAM.**

**WILLIAM OF WYKEHAM**, bishop of Winchester and chancellor of England, was born in 1324 at Wickham in Hampshire. When he was twenty-two years old he passed into the service of Edingdon, bishop of Winchester. In 1347 the bishop introduced him to the king as a young man likely to be useful from his skill in architecture. Edward III., who was then completing the Round Tower at Windsor, made him his chaplain. In 1356 he was appointed surveyor of the works at Windsor, and a little later surveyor and warden of several other castles. In 1359 he began the building of the great quadrangle to the east of the keep at Windsor, a work which occupied ten years. This building established his fame as an architect. Two years after its completion he was employed to build Queenborough Castle (Kent). Meanwhile he was also gaining experience in affairs of state. In 1360 he must have been a member of the king's council, for he appears as a witness to the ratification of the treaty of Brétigny. In 1364 he became keeper of the privy seal. In 1365 he was one of the commissioners to treat for peace with Scotland. And, although he was not yet in holy orders, he was loaded by the king with preferments, one of which, the living of Pulham in Norfolk, involved him (about 1360) in a dispute with the pope. In fact he had attained to such eminence that Froissart says, "At this time there reigned in England a priest called Sir William de Wican, so much in favor with the king that by him everything was done."

Early in life William had received the tonsure; but it was not till 1362 that he was ordained deacon and priest. In 1363 he became archdeacon of Northampton, and provost and prebendary of Wells. On the translation of Bishop Edingdon in this year from Winchester to Canterbury, William was nominated by the king to the vacant bishopric; but the pope withheld his confirmation for some time, and it was not till October, 1367, that William was consecrated bishop of Winchester. A month previously he had been made chancellor of England. During his first chancellorship, the war with France was renewed and went against the English. His second chancellorship lasted for two years, and was marked by efforts on his part to reform the government and place it on a more constitutional basis. After he had held office for a year, he and his colleagues in the ministry resigned their appointments, and challenged a public inquiry into their conduct. This being pronounced satisfactory, they resumed their offices. The chancellor drew up rules for the conduct of business in the council; and from this time minutes of the proceedings were regularly kept. In 1391 he resigned the great seal, and thenceforward retired from public life.

It is, however, as the founder of two great colleges that William is principally known to fame. Immediately after his promotion to the bishopric of Winchester he appears to have begun to carry out his educational schemes. Between 1369 and 1379 he bought the land inclosed in the northeastern corner of the city walls at Oxford, on which New College now stands. Meanwhile he was taking steps to establish the sister foundation at Winchester. In 1378 he obtained a license from the pope to found a college there, which was confirmed by the king four years later. The ground on which Winchester College stands belonged partly to the bishop and partly to other proprietors, from whom he bought it. In 1387 he began to build, and the buildings were occupied by his scholars in 1393, though they do not appear to have been finished till 1395. When his two colleges were established and endowed, he provided them with statutes, which after several revisions, took their final form in 1400. Nor does he appear to have

neglected his duties as a bishop. He visited and reformed the hospital of St. Cross, near Winchester; he corrected the abuses which had crept into the priory of St. Swithin, and he rebuilt or transformed the nave of Winchester cathedral. He kept a strict watch on the clergy under his charge, endeavoring to insure their efficiency by frequently moving them from one living to another, and he promoted the material prosperity of his diocese by repairs of bridges and roads. In the relations between England and the papacy he strongly supported the nationalist policy of Edward III. The Statutes of Provisors and Præmunire met with his full approval. So far he was in accord with Wycliffe, but he showed no sympathy with the doctrinal opinions of the reformer. Bishop Courtenay, who headed the attack on Wycliffe, was a life-long friend of the bishop of Winchester, who published in 1382 the inderdict condemning Wycliffe's heresies, and in 1392 sat on an episcopal commission to try his follower, Henry Crumpe. He died at Waltham on September 27, 1404, and was buried in the cathedral of Winchester.

**WILLIAMS, JOHN**, English missionary, was born at Tottenham, near London, on June 29, 1796. He was trained as an ironmonger, and acquired while young considerable experience in mechanical work. Having offered himself to the London Missionary Society, he was sent, after some training, in 1816, to the South Sea Islands as a missionary. Williams was fairly liberal for his age, and the results of his labors among the Pacific Islands were essentially beneficial. He traveled unceasingly among the various island groups, planting stations and settling native missionaries whom he himself had trained. Williams returned to England in 1834 (having previously visited New South Wales in 1821); and during his four years' stay at home he had the New Testament, which he had translated into Rarotongan, printed. Returning in 1838 to the Pacific, he visited the stations already established by him, as well as several fresh groups. He went as far west as the New Hebrides, and, while visiting Erromango, one of the group, for the first time, was murdered by the natives, November 20, 1839.

**WILLIAMS, ROGER**, one of the founders of the colony of Rhode Island, North America, was born of either Welsh or Cornish parents, but this, as well as the date of his birth, has been the subject of dispute. In early life he went to London, where his skill as a reporter commended him to the notice of Sir Edward Coke, who sent him to Sutton's Hospital (Charterhouse school). From Charterhouse he went to one of the universities, but whether to Oxford or Cambridge there is no direct evidence to show. The register of Jesus College, Oxford, has the following entry, under date April 30, 1624: "Rodericus Williams, filius Gulielmi Williams, de Convelgaio Pleb., an. Nat. 18." If this entry refers to the founder of Rhode Island he was of Welsh parentage, and born about 1606. As Coke was a Cambridge student, the probability is, however, that Williams was sent there; and a Roger Williams matriculated at Pembroke College of that university on July 1, 1625, and took his B.A. degree in January, 1627. This Roger Williams was the second son of William Williams, and was baptized at Gwinsea, Cornwall, on July 24, 1600, a date which corresponds with a statement regarding his age made by Williams himself. After leaving the university he entered on the study of law; but, soon forsaking it for theology, he was admitted into holy orders, and is said to have had a parochial charge. On account of his Puritan beliefs he left England for Massachusetts Bay, where he arrived in the beginning of 1631. He accepted an invitation to become pastor of a church at Salem, on April 12, 1631,



the same day that the magistrates were assembled at Boston to express disapproval of the scheme. To escape persecution he went to Plymouth, beyond the jurisdiction of Massachusetts Bay, and became assistant pastor there; but in the autumn of 1633 he returned to Salem as assistant pastor, succeeding in the following year as sole pastor. Chiefly on account of his pronounced opinions regarding the restricted sphere of the civil magistrate in religious matters, he came into conflict with the court of Massachusetts, and, being banished from the colony, left with a few sympathizers in January, 1636, for Narragansett Bay. At first they received a grant of land from an Indian chief, which is now included in Seekonk, Mass., and began to build houses, but in June following, he and five others embarked in a canoe for Rhode Island, and founded a settlement, to which Williams, in remembrance "of God's providence to him in his distress," gave the name of Providence. In 1639 he was publicly immersed, and became pastor of the first Baptist church of Providence. As Massachusetts now began to claim jurisdiction over Narragansett Bay, Williams proceeded, in June, 1643, to England, and through the mediation of his friend Sir Henry Vane, whose acquaintance he had made at Massachusetts, obtained an independent charter, March 14, 1644. In 1649 he was chosen deputy president. He again visited England in 1651 to obtain a more explicit charter, and remained there till 1654, enjoying the friendship of Milton, Cromwell, and other prominent Puritans. On his return to the colony, in 1654, he was chosen president or governor, and remained in office till 1658. He lived to the age of eighty-four, but the exact date of his death is uncertain.

**WILLIAMSBURG**, a city of Virginia, between the York and James rivers, sixty miles southeast of Richmond, site of the William and Mary College, and of the Eastern State Lunatic Asylum. Williamsburg was founded in 1632, is the oldest incorporated town in the State, and was the colonial and State capital until 1799. A battle was fought here between General McClellan and the Confederates, May 5, 1862. Population in 1900, 2,044.

**WILLIAMSPORT**, the county seat of Lycoming county, Penn., is situated in the valley of the west branch of the Susquehanna river, amid the hills of the Alleghany plateau, and is entered by four railway lines—the Northern Central, the Philadelphia and Erie, the Philadelphia and Reading, and the Corning, Cowlanesque and Antrim. The city is somewhat irregularly laid out, and the streets are mainly unpaved. The population in 1900 was 28,757. Williamsport owes its importance chiefly to its large lumber industry. The healthfulness of its climate and the beauty of the surrounding scenery have made it a popular summer resort in recent years.

**WILLIBROD**, St., the apostle of the Frisians, was born about 657. In his thirty-third year (c. 690) he started with twelve companions for the mouth of the Rhine. These districts were then occupied by the Frisians under their king Rabbod or Radbod. After a time he found in Pippin, the mayor of the palace, a strong supporter, who sent him to Rome, where he was consecrated bishop by Pope Sergius on St. Cecilia's Day 696. Bede says that when he returned to Frisia his see was fixed in Utrecht. He now seems to have spent several years in founding churches and in the work of conversion, till his success tempted him to pass into those parts of the land which did not own the Frankish sway. Being kindly received by Radbod, but failing to convert him, he passed on to Denmark, whence he carried away thirty boys to be brought up among the Franks. On his return he was wrecked on the holy island of Fosite

(Heligoland), where his disregard of the pagan superstition nearly cost him his life. When Pippin died, Willibrord found a supporter in his son Charles Martel, who, according to Alcuin's version of the story, established the bishop in Utrecht upon Radbod's death (719). At this time he was assisted for three years in his missionary work by St. Boniface (719-722). Of the later years of his life we have no special chronological details. The day of his death was November 6, 738, and his body was buried in the monastery of Epternac, which he had himself founded.

**WILLIMANTIC**, a borough in the town of Windham, Windham county, Conn., is situated in a broken, hilly country, on the Westfield river and on three railway lines—the New York and New England, the New York, New Haven and Hartford, and the Central Vermont. The population in 1900 was 8,937, and in 1890, 8,648. The industries consist chiefly of cotton manufactures, in which the town has acquired great prominence, owing to the fine water power afforded by the Westfield river.

**WILLIS, NATHANIEL PARKER**, American author, was descended from George Willis, described as a "Puritan of considerable distinction," who arrived in New England about 1630 and settled in Cambridge, Mass. Nathaniel Parker was the eldest son and second child of Nathaniel Willis, a newspaper proprietor in Boston, and was born in Portland, Me., January 20, 1806. After attending Boston grammar school and the academy at Andover, he entered Yale College in October, 1823. Although he did not specially distinguish himself as a student, university life had considerable influence in the development of his character, and furnished him with much of his literary material. Immediately after leaving Yale he published, in 1827, a volume of *Poetical Sketches*, which attracted some attention, although the critics found in his verses more to blame than to praise. It was followed by *Fugitive Poetry* (1829) and *Poems* (1831). He also contributed frequently to magazines and periodicals. In 1829 he started the *American Monthly Magazine*, which was continued from April of that year to August, 1831, but failed to achieve success. On its discontinuance he went to Europe as foreign editor and correspondent of the *New York Mirror*. To this journal he contributed a series of letters, which, under the title *Pencilings by the Way*, were published at London in 1835, and in Philadelphia, 1836; and the first complete edition in New York, 1841. Their vivid and rapid sketches of scenes and modes of life in the Old World at once gained them a wide popularity; but he was censured by some critics for indiscretion in reporting conversations in private gatherings. Notwithstanding, however, the small affectations and fopperies which were his besetting weaknesses as a man as well as an author, the grace, ease, and artistic finish of his style won general recognition. His *Slingsby Papers*, containing descriptions of American life and adventure, republished in 1836 under the title *Inklings of Adventure*, were as successful in England as were his *Pencilings by the Way* in America. He also published while in England *Melaine and Other Poems* (London, 1835; New York, 1837), which was introduced by a preface by Barry Cornwall. After his marriage to Mary Stace, daughter of General Stace of Woolwich, he returned to America, and settled at a small estate on Oswego Creek, just above its junction with the Susquehanna. Here he lived off and on from 1837 to 1842 and wrote *Letters from Under a Bridge* (1840), the most charming of all his works. During a short visit to England in 1839-40 he published *Two Ways of Dying for a Husband*. Returning to New York, he established, along with George P. Morris, a

newspaper entitled the *Evening Mirror*. On the death of his wife in 1845 he again visited England. Returning to America in the spring of 1846, he again married, and established the *National Press*, afterward named the *Home Journal*. In 1845 he published *Dashes at Life*, in 1846 a collected edition of his *Prose and Poetical Works*, in 1849 *Rural Letters*, and in 1850 *Life Here and There*. In the last mentioned year he settled at Idlewild, and on account of failing health spent the remainder of his life chiefly in retirement. Among his later works were *Hurrygraphs*, 1851; *Outdoors at Idlewild*, 1854; *Ragbag*, 1855; *Pearl Fane*, 1856; and the *Convalescent*, 1859. He died July 20, 1867, and was buried in Mount Auburn, Cambridge, Mass.

WILLIS, THOMAS, English physician, was born at Great Bedwin, Wiltshire, on January 27, 1621. He took the degree of bachelor of medicine in 1646. He rapidly acquired an extensive practice, his reputation and skill marking him out as one of the first physicians of his time. He died at St. Martin's on November 11, 1675, and was buried in Westminster Abbey.

WILLMORE, JAMES TIBBITTS, English line engraver, was born at Bristnall's End, Handsworth, near Birmingham, on September 15, 1800. At the age of fourteen he was apprenticed to William Radcliffe, a Birmingham engraver, and in 1823 he went to London, and was employed for three years by Charles Heath. He was afterward engaged upon the plates of Brockendon's *Passes of the Alps* and Turner's *England and Wales*. He engraved after Chalon, Leitch, Stanfield, Landseer, Eastlake, Creswick, and Andsell, and especially after Turner, from whose *Alruick Castle by Moonlight*, the *Old Téméraire*, *Mercury and Argus*, *Ancient Rome*, and the subjects of the rivers of France he executed many admirable plates. He was elected an associate engraver of the Royal Academy in 1843. He died March 12, 1863.

WILLOW (*Salix*), a very well marked genus of plants constituting, with the Poplar (*Populus*), the order *Salicaceæ*. Willows are trees or shrubs, varying in stature from a few inches to a hundred feet, and occurring most abundantly in cold or temperate climates, in both hemispheres, and generally in moist situations. They are not unrepresented in the tropics, but have hitherto not been discovered in Australia or the South Sea Islands. Although the limitations of the genus are well marked, and its recognition in consequence easy, it is otherwise with regard to the species. The greatest difference of opinion exists among botanists as to their number and the bounds to be assigned to each. The cross-fertilization that takes place between the species of course intensifies the difficulty. Andersson, a Swede, spent nearly a quarter of a century in their investigation, and ultimately published a monograph which is the standard authority on the subject. He admits about 100 species. To illustrate the great perplexity surrounding the subject, we may mention that to one species, *S. nigricans*, 120 synonyms have been attached. Some of these are doubtless such as no botanist, with adequate material for forming an opinion, would accept; but, after making the necessary deductions for actual mistakes and misstatements, there still remains a large number upon which legitimate differences of opinion prevail. Andersson says that he has rarely seen two specimens of this species which were alike in the collective characteristics offered by the stature, foliage, and catkins. No better example could be found of the almost limitless variation in so-called species, so that the attempt to define the indefinable can at best only result in an arbitrary grouping.

Few genera have greater claims to notice from an economic point of view. As timber trees, many of the

species are valuable from their rapidity of growth, and for the production of light, durable wood, serviceable for many purposes. Among the best trees of this kind are *S. fragilis*, especially the variety known as *S. fragilis*, var. *Russelliana*, and *S. alba*, the white or Huntingdon willow. These trees are usually found growing by rivers' banks or in other moist situations, and are generally pollarded for the purpose of securing a crop of straight poles. This plan is, however, objectionable, as inducing decay in the center of the trunk. Where poles are required, it is better to treat the trees as coppice, and to cut the trunk level with the soil. *S. Caprea*, a hedgerow tree, generally grows in drier situations. It is a useful timber tree, and its wood, like that of *S. alba*, is prized in the manufacture of charcoal. Its catkins are collected in celebration of Palm Sunday, the gaily-colored flowers being available in early spring, when other decorations of the kind are scarce. Certain sorts of willow are largely used for basket-making and wicker work. The species employed for this purpose are mostly of shrubby habit, and are known under the collective name of osiers. The best for planting is the bitter osier, *S. purpurea*. Planted on rich, well-drained soil, subject to occasional immersion, this willow may be grown profitably for basket work. It is also well adapted for forming wind-breaks or screens, or for holding the banks of streams and preventing the removal of the soil by the current. *S. viminalis* is one of the best of the green osiers, suitable for hoops, and valuable for retaining the soil on sloping embankments. *S. vitellina* yields the yellow osiers. They are easily propagated by truncheons or cuttings, inserted in a slanting direction into the soil for a depth of eight to ten inches. Land unsuitable for root or grain crops can be utilized for the growth of osiers; but, as in the case of all other plants, good cultivation, including the selection of sorts appropriate to the locality, drainage, manure, etc., insures the best return. *S. acuminata* and other species do well by the seaside, and are serviceable as wind-screens, nurse-trees, and hedges. *S. daphnoides*, *S. repens*, and other dwarf kinds are useful for binding heathy or sandy soil. In addition to their use for timber or basket-making, willows contain a large quantity of tannin in their bark. A bitter principle named SALICIN (*q. v.*) is also extracted from the bark. As ornamental trees, some willows also take a high rank. The white willow is a great favorite, while the drooping habit of the weeping willow renders it very attractive. Though named *S. babylonica*, it is really a native of China, the willow of the Euphrates being in all probability *Populus euphratica*. *S. babylonica* is sometimes spoken of as Pope's willow, having been cultivated by that poet, and as Napoleon's willow, because his tomb at St. Helena is overshadowed by a tree of this species, from which many offsets exist, or are reputed to exist, in modern gardens. *S. regalis* has very white, silvery leaves. *S. rosmarinifolia* is remarkable for its very narrow leaves, purplish above, silvery beneath.

WILLUGHBY, FRANCIS, English ornithologist and ichthyologist, who is memorable as the pupil, friend, and patron, as well as the active and original co-worker of John RAY, and hence to be reckoned as one of the most important precursors of Linnæus. He was the son of Sir Francis Willughby, and was born in 1635. His only work is his *Ornithologia*. Willughby died July 3, 1672.

WILMINGTON, the largest city of the State of Delaware, and the county seat of New Castle county, is situated between Brandywine and Christiana creeks and on the Delaware river. The site is low, but with sufficient slope to afford suitable drainage. The



surrounding country is fertile and well cultivated. Wilmington is a railway center of considerable importance, being entered by the Philadelphia, Wilmington and Baltimore, the Baltimore and Ohio, and the Wilmington and Northern railways. The Brandywine and Christiana creeks are navigable for large vessels. The city is laid out quite regularly. The population in 1900 was 76,508. The manufactories in 1900 gave occupation to 22,203 persons, the principal branches being the manufacture of paper, iron and steel, shipbuilding, and the making of wagons and carriages, steam-engines, bricks, morocco leather, glass, cotton, etc. The value of the total product (1900) was \$45,387,630.

Wilmington was settled by Swedes in 1638. The settlement was conquered by the Dutch, who in turn handed it over to the English. It was chartered as a city in 1832, and since the middle of the century has grown rapidly.

WILMINGTON, the county seat of New Hanover county, N. C., the principal seaport and the largest city of the State, is situated on the east bank of Cape Fear river, thirty miles from the ocean. It has railroad communication to the north, south, and west, and this, together with its maritime position, makes it an important shipping point. The principal objects of trade are lumber (southern pine), naval stores, and cotton. The manufactures include fertilizers, creosote, and carpets (made from pine leaves). The value of its exports, principally cotton, turpentine, and rosin, is about \$10,000,000 annually. The city, which is in the main regularly laid out, had in 1900 a population of 20,976, of whom 60 per cent. were negroes.

The site of Wilmington was originally occupied by a town named Newton, laid out in 1730. The name was changed to Wilmington nine years later. The place was incorporated as a city in 1866. During the Civil War it was the principal port of entry for the Confederate blockade-runners.

WILMOT, JOHN. See ROCHESTER, EARL OF.

WILNO. See VILNA.

WILSON, ALEXANDER, "the American ornithologist," was born in Paisley, Scotland, on July 6, 1766. He emigrated to America in 1794. After a few years of weaving, peddling, and desultory observation, he became a village schoolmaster, and in 1800 obtained an appointment near Philadelphia, where he formed the acquaintance of Bartram, the naturalist, from whom he received much instruction and encouragement. Under his influence Wilson commenced to draw birds, having conceived the idea of illustrating the ornithology of the United States; and thenceforward he steadily accumulated materials and made many expeditions. In 1806 he obtained the assistant editorship of *Rees' Encyclopedia*, and thus acquired more means and leisure for his great work, the first volume of which appeared in the autumn of 1808, after which he spent the winter in a journey "in search of birds and subscribers." By the spring of 1813 seven volumes had appeared; but the arduous expedition of that summer, in search of the marine waterfowl to which the remaining volume was to be devoted, gave a shock to his already impaired health, and soon afterward he succumbed to dysentery after a short illness, dying at Philadelphia on August 23, 1813.

WILSON, FLORENCE. See VOLUSENUS.

WILSON, HENRY, vice-president of the United States from 1873 to 1875, was born at Farmington, N. H., on February 16, 1812. His proper name was Jeremiah J. Colbath. His parents were day-laborers and very poor. At ten years of age he went to work as a farm laborer. The boy was greedy for reading, and before the end of his apprenticeship had read more than

a thousand volumes. At the age of twenty-one, for some unstated reason, he had his name changed by Act of the Legislature to that of Henry Wilson. Walking to Natick, Mass., he learned the trade of shoemaker, and by it supported himself through the Concord academy. After successfully establishing himself as a shoe manufacturer, he became a noted public speaker in support of Harrison during the presidential election of 1840. For the next ten years he was regularly returned to the State legislature. In 1848 he left the Whig party and became a "Free Soiler." The Free Soil party nominated him for governor of the State in 1853, but he was defeated. In 1855 he was sent to the United States Senate by the Free Soil and Democratic parties, and remained there by reelections until 1873. When the Civil war broke out he found a severe test awaiting him. He had been deeply interested from 1840 until 1850 in the militia of his State, and had risen through its grades of service to that of brigadier-general. He was now made chairman of the military committee, and in this position performed most laborious and important work for the four years of the war. The position offered boundless and safe opportunities for becoming wealthy. But so far was Wilson from using them that he died poor, owing to his necessary neglect of his private affairs. Sumner says that in 1873 Wilson was obliged to borrow a hundred dollars from him to meet the expenses of his inauguration as vice-president. The Republicans nominated Wilson for the vice-presidency in 1872, and he was elected; but he died, before completing his term of service, at Washington on November 22, 1875. He left two small but useful works, *Anti-Slavery Measures in Congress* (Boston, 1864) and *Military Measures in Congress* (Hartford, 1868), and a larger work in three volumes, *The Rise and Fall of the Slave Power in America* (Boston, 1871-76). His *Life* has been written by E. Nason and by J. B. Mann.

WILSON, HORACE HAYMAN, one of the most distinguished Orientalists of England, was born in London on September 26, 1786. He was educated for the medical profession, and on completing his studies went out to India in 1808 as an assistant-surgeon on the Bengal establishment of the East India Company. In 1813 he published the Sanskrit text—with a graceful, if somewhat free, translation in English rhymed verse—of Kālidāsa's charming lyrical poem, the *Meghadūta*, or *Cloud-Messenger*. He then undertook the arduous task of preparing the first *Sanskrit-English Dictionary* from materials compiled by native scholars for the college of Fort William, supplemented by his own researches. The work appeared in 1819, prefaced with an excellent general survey of Sanskrit lexicology. The appearance of the *Dictionary* at once placed Wilson in the first rank of Sanskrit scholars. In 1827 he published *Select Specimens of the Theater of the Hindus*. His interest in political and economic affairs in India is shown by his *Historical Sketch of the First Burmese War, with Documents, Political and Geographical* (1827, reprinted in London), and his *Review of the External Commerce of Bengal from 1813 to 1828* (1830), as well as by his *History of British India from 1805 to 1835*, in continuation of Mill's *History*, 3 vols. (1844-48), and largely based on his personal impressions and recollections. In 1832 the university of Oxford, in recognition of his services to Oriental scholarship, selected Doctor Wilson to be the first occupant of the newly founded Boden chair of Sanskrit. Shortly after his return to England he was also appointed librarian to the East India Company. He now found himself in a position singularly favorable to learned research and literary pursuits; and the long record of his subsequent work shows that he made the best of his



opportunities. He immediately joined the Royal Asiatic Society, and, succeeding Colebrooke as director (in 1837), he was the very soul of the society up to the time of his death, scarcely a number of its journal appeared without some interesting contribution from his pen. His death took place at London, May 8, 1860.

WILSON, JOHN, better known as CHRISTOPHER NORTH (the pen-name which he used in his contributions to *Blackwood's Magazine*), was born at Paisley, Scotland, on May 18, 1785.

In June, 1803, Wilson was entered as a gentleman commoner at Magdalen College, Oxford. He took his degree in 1807, and found himself at twenty-two his own master. On May 11, 1811, he married Jane Penny, a Liverpool girl of some family and fortune. *The Isle of Palms*, his first published volume, consisting of poems, was issued not long after this. Then came the event which definitely made a working man of letters of Wilson, and without which he would probably have produced a few volumes of verse and nothing more. His whole fortune, or at least the major part of it, was lost by the dishonest speculation of an uncle in whose hands, with no doubt rather culpable carelessness, Wilson had left it. He read law and was called to the Scotch bar, taking plentiful sporting and pedestrian excursions, on some of which his wife accompanied him, publishing in 1816 a second volume of poems (*The City of the Plague*), and generally leading a very pleasant life, if not such an entirely independent one as formerly. The year 1817 was the turning point in Wilson's life. The growth of *Blackwood's Magazine*, and its sudden transformation into an organ at once of the most red-hot Toryism in politics and of the wildest irreverence toward received notions in literature and other matters, took place in the same year. The petard of the "Chaldee Manuscript" determined the character of the new periodical, and Wilson's career was fixed. He was never exactly editor, for the powers of "Christopher North" in that respect were a fantastic imagination; and we have definite and authoritative assertions, not only that he never received any stipend for editing, but that the publishers always retained a certain supervision even over Wilson's own contributions.

The first result of this new business on Wilson's general mode of life was that he left his mother's house and established himself (1819) in Ann Street, Edinburgh, on his own account with his wife and family of five children. The second was much more unlooked for: it was his candidature for and election to the chair of moral philosophy in the university of Edinburgh (1820). To speak honestly, his qualifications for the post were almost *nil*, even if the fact that the best qualified man in Great Britain, Sir William Hamilton, was also a candidate, be left out of the question. But, luckily for Wilson and for letters, the matter was made a political one; the Tories still had a majority in the town council; he was powerfully backed up by friends, Scott at their head; and his adversaries played into his hands by attacking, not his competence (which, as has been said, was very vulnerable), but his moral character, which was not open to any fair reproach. Yet he made a very excellent professor, never perhaps attaining to any great scientific knowledge in his subject or power of expounding it, but acting on generation after generation of students with a stimulating force that is far more valuable than the most exhaustive knowledge of a particular topic. His duties left him plenty of time for magazine work, and for many years his contributions to *Blackwood* were extraordinarily voluminous. Most of the best and best-known of them appeared between 1825 and 1835, that is, between the departure of Lockhart for London in the former year and the death

of Blackwood the publisher and of Mrs. Wilson in the latter.

Late in 1850 his health showed definite signs of breaking up; and in the next year a civil list pension of \$1,500 a year was conferred on him. He died at Edinburgh on April 3, 1854.

WILSON, RICHARD, English landscape painter, was born at Penegoes, Montgomeryshire, where his father was a clergyman, August 1, 1714. During his lifetime his landscapes were never widely popular; his temper was consequently embittered by neglect, and so impoverished was he that he was obliged to seclude himself in an obscure, half-furnished room in Tottenham Court Road, London. In 1776, however, he obtained the post of librarian to the Academy; and by the death of a brother he acquired a small property near Llanferris, Denbighshire, to which he retired to spend his last days, and where he died suddenly in May, 1782. After his death his fame increased, and in 1814 about seventy of his works were exhibited in the British Institution. The National Gallery, London, contains nine of his landscapes.

WILTSHIRE, a southwestern county of England, is bounded northwest and north by Gloucestershire, east by Berks and Hants, south by Hants and Dorset, and west by Somerset. It is of an irregular oval form, its greatest length from north to south being fifty-four miles and its greatest breadth from east to west thirty-seven. The area is 866,677 acres, or about 1,350 square miles.

**Agriculture.**—According to returns made on June 4, 1899, the total area of land occupied was 759,538 acres, of which 646,653 were rented and 112,885 owned and occupied; 759,412 acres, or about seven-eighths of the whole area, were under cultivation. Of this area 395,010 acres were permanent pasture, a great portion consisting of sheep-runs on the Chalk downs. In some places, especially in Salisbury Plain, tillage was in former years extensively introduced in the Chalk districts, but much of this has again reverted to pasture. There were 174,876 acres under grain crops, 99,388 under green crops, 79,049 under rotation grasses, and 11,086 under fallow. In northwest Wilts the prevailing soil is a reddish chalky clay resting on a subsoil of broken stones, whilst on the Chalk formation the arable land is of a lighter character. There are also extensive tracts of richer soil well adapted for wheat and beans. In 1887 wheat occupied 67,357 acres, barley 50,928, oats 44,047, rye 1,728, beans 7,274, and peas 3,542. The bulk of the green crops are grown for the feeding of cattle and sheep, potatoes occupying only 3,339 acres and carrots 237, while 54,869 acres were under turnips and swedes, 5,673 mangold, 10,473 cabbage, rape, etc., and 24,527 vetches, etc. The total area under nursery grounds in 1887 was 91 acres, while market gardens occupied 3,525, and orchards 3,346. Woods in 1881 occupied 45,270 acres, a great part being comprised in the ancient forests, including Cranborne Chase and Savernake Forest, which contain some remarkable old oaks and beeches. The number of horses in 1887 was 23,616, of which 18,980 were used solely for purposes of agriculture. Cattle numbered 106,020, 60,113 being cows and heifers in milk or in calf. Dairy farming is the leading industry in the northwestern districts, Wiltshire being famous for its cheese. Of the cattle, 15,505 were two years and above, and 30,402 under two years, an indication that comparatively few cattle are kept for purposes of feeding. Sheep in 1887 numbered 643,125, and pigs 66,422.

**Manufactures and Trade.**—Wiltshire has long been celebrated for its cloths, the chief seats of the industry being Bradford and Trowbridge, while among other



places Melksham and Chippenham are perhaps the most important. Wilton is still celebrated for its carpets. Haircloth weaving and the manufacture of cocoa-nut fibers are carried on at Melksham, and there are silk works at Chippenham, Malmesbury, Mere, and Warminster. Iron-smelting from the mines of the neighborhood is carried on at Westbury; portable engines are made at Devizes; and at Swindon are the engineering works of the Great Western railway. Various towns are associated with different branches of the agricultural trade: Salisbury and Devizes have important corn markets; Chippenham, besides a trade in cheese, has a condensed milk manufactory; Wilton has a large sheep fair; and Calne is the center of the Wiltshire bacon trade.

*Administration and Population.*—Wiltshire comprises twenty-nine hundreds, the city of Salisbury or New Sarum (population 14,792 in 1881), and the municipal boroughs of Calne (2,474), Chippenham (1,352), Devizes (6,645), and Marlborough (3,343). The county has one court of quarter sessions and is divided into fifteen petty sessional divisions. The city of Salisbury and the borough of Devizes have commissions of the peace and separate courts of quarter sessions, and the borough of Marlborough has a commission of the peace. Previous to the Act of 1885 the county was divided for parliamentary purposes into North and South Wilts, each returning two members, and included the following parliamentary boroughs—Calne, Chippenham, part of Cricklade, Devizes, Malmesbury, Marlborough, Salisbury city, part of Shaftesbury, Westbury, and Wilton. All these returned one member each, with the exception of Salisbury, which returned two; by the Act of 1885 they were all merged in the county divisions, with the exception of Salisbury, which was deprived of one member. The county was reformed into five parliamentary divisions, each returning one member—north (Cricklade), into which the Wiltshire portion of Cricklade is merged; north-west (Chippenham), into which Chippenham and Malmesbury are merged; south (Wilton), into which Wilton is merged; east (Devizes), into which Devizes and Marlborough are merged; and west (Westbury), into which Westbury is merged. The county contains 340 civil parishes, with parts of seven others. It is mostly in the diocese of Salisbury. From 183,820 in 1801 the population by 1821 had increased to 219,574, and by 1841 to 256,280, and, although by 1861 it had diminished to 249,311, by 1871 it had again increased to 257,177; in 1901 it was 271,372, of whom 137,521 were males and 133,851 females. The number of persons on an acre is 0.30 and of acres to a person 3.35.

WIMBLEDON, a suburb of London, in the county of Surrey, is situated on the London and South-Western railway, seven and one-fourth miles southwest of London. The old village of Wimbledon has been greatly extended of late years, the district being now a favorite residence for the London middle classes. Wimbledon Common, to the northwest of the village, was the meeting-place of the rifle association from its foundation in 1860 till 1888. At its southwestern extremity are the outlines of a British earthwork, called Cæsar's camp, having an extreme diameter of 950 feet and a diameter with a vallum of 750 feet. At Coombe's Hill and elsewhere, British relics have been found. The parish church of St. Mary is supposed to date from Saxon times; but, after it had undergone various restorations and reconstructions, it was rebuilt in 1833 in the Perpendicular style. There are various other churches and chapels, all modern. A free library was established in 1887. The benevolent institutions include nine almshouses, a cottage hospital, a convales-

cent hospital, and a hospital for infectious diseases. The population of the urban sanitary district (area 3,220 acres) was 25,950 in 1901.

WIMBORNE MINSTER, a market town of Dorset, England, is situated on a gentle slope above the river Allen, near its confluence with the Stour, and on the Great Western railway, 6 miles north of Poole and 114 west-southwest of London. The town depends chiefly on agriculture; but the manufacture of hose is carried on to a small extent, and there are also coach-building works. The population of the parish of Wimborne Minster (area 11,966 acres) was 5,390 in 1889.

WINCHESTER, a city, and a parliamentary and municipal borough of Hampshire, England, is situated on the river Itchen, sixty-six miles southwest of London by the London and South-Western railway. Winchester was a town of much importance in early times, mainly on account of its central position on the Roman high roads in the south of England. Temples to Apollo and Concord stood within the precincts of the present cathedral close; but in the third century the place is said to have become one of the chief centers of the early Celtic Christians. The Saxon invaders at the end of the fifth century treated the Roman name *Venta* as if it were a feminine substantive, and, transforming it into "Winte," called the town *Winte-ceaster*, "the City of the Winte," hence the modern name Winchester. Throughout the Saxon period the city was one of the highest importance: early in the sixth century it became the capital of Wessex; and the kings of Wessex were crowned and usually buried in the cathedral. Even after the formation of the united kingdom of Anglia by Egbert, the great witan was still held in Winchester. It was also one of the chief centers for the coining of money under the pre-Norman kings: in the time of Athelstan it contained six mints, while London possessed only three. Even after the Norman Conquest many sovereigns were crowned and many parliaments held here; the celebrated Statutes of Winchester were passed in a parliament held in 1285. The city continued to be a favorite royal residence, and Henry II. rebuilt the palace on a larger scale. This same king gave it its first regular charter of incorporation (1184). In the Middle Ages Winchester was famed for its wool trade and textile fabrics; in the fourteenth century it was the chief wool market of England, and had an extensive trade with France, Belgium, and Holland. In the fifteenth century its prosperity began to decline. In Cromwell's time the city suffered severely from a siege, during which Winchester Castle was dismantled. Charles II. began to build a palace on the site of this fortress, after designs by Sir Christopher Wren, but the death of the king prevented the work from being completed. Its cathedral, dating from 1070, is the building of principal interest.

Winchester College was built from 1387 to 1393 by WILLIAM OF WYKEHAM, (q.v.) The foundation of the school consisted of a warden, ten fellows, three chaplains, seventy scholars, and sixteen choristers. Its fine chapel, hall, cloister, and other buildings still exist in good preservation.

Winchester suffered greatly in the plague of 1666, and its population was much reduced. At present its prosperity chiefly depends on the presence of the cathedral, the college, and its barracks, which accommodate about 2,000 men. The city has several good schools and the usual public and charitable institutions. From the twenty-third year of Edward I. it returned two members to parliament until 1885, when it lost one member. The population of the municipal and parliamentary borough (area 1,032 acres) was 16,366 in 1871 and 27,780 in 1901.



**WINCHESTER**, a city and the county seat of Frederick county, Va., is situated in the Shenandoah valley, about 700 feet above sea-level, and on a branch of the Baltimore and Ohio railroad. It lies about sixty-seven miles west-northwest of Washington. The surrounding country is rich and fertile, devoted to agriculture and cattle-raising, for which Winchester serves as a center of supply and distribution. The city has manufactories of shoes, furniture, gloves, etc., and some iron foundries and tanneries. The population in 1880 was 4,958 (1,517 colored). In 1900 it was 5,161.

Winchester was laid out as a town in 1752, and incorporated in 1779. It has had a very slow growth, and during the Civil war it suffered severely from the armies of both combatants.

WINCHESTER, the capital of Clark county, Ky., and one of the many beautiful cities to be found in the Blue Grass region, a portion of the State famous the world over for its fertile and highly cultivated farms, its blooded stock, and the hospitality of its inhabitants. The city is located on the Kentucky Central road, ninety-seven miles south of the Ohio river and a short distance east of Lexington, also on the eastern division of the Newport News and Mississippi Valley railway, 120 miles from Huntington, W. Va. The city, in addition to its advantages from a business point of view, is one of the social and educational centers of Kentucky, the location of considerable wealth and of other features in harmony with the high character for enterprise and liberality enjoyed by the citizens and residents. It contains a court house, two weekly papers, and three banks, with a combined capital and surplus amounting to \$725,000. The educational facilities embrace the common school system from primary to high school departments, also business colleges and schools conducted under private auspices, together with two academies, of which Winchester is the site. There are five churches, three hotels, a number of stores, public halls, etc., planing and flour mills, furniture factories, carriage repositories, electric light works, and other enterprises of a productive character. The population was 2,500 in 1880, but was estimated in 1900, at 5,964.

**WINKELMANN**, JOHANN JOACHIM, historian of ancient art and the founder of scientific archæology, was born at Stendal in the Altmark (Prussia), on December 9, 1717.

In 1755 Winckelmann gave the first indication of his genius by the publication of his *Gedanken über die Nachahmung der griechischen Werke in Malerei und Bildhauerkunst*. This was followed by a pretended attack on the work, and a defense of its principles, nominally by an impartial critic. One good result of the impression the *Gedanken* produced was that Augustus III., elector of Saxony and king of Poland, was induced to grant him a pension of 200 thalers, that he might have an opportunity of prosecuting his studies in Rome. He arrived in Rome in November, 1755, and, with the exception of some brief intervals, remained there during the rest of his life. He became librarian to Cardinal Archinto, and also received much kindness from Cardinal Passionei; and after their death he was received as librarian and as a friend into the house of Cardinal Albani, who was forming his magnificent collection in his villa at Porta Salara. In 1763, while retaining this position, Winckelmann was made prefect of antiquities.

From the time of his arrival in Rome he devoted himself earnestly, at first with the aid of his friend Raphael Mengs, to the study of Roman antiquities, and he gradually acquired what was then an unrivaled knowledge of ancient art. In 1760 appeared his *Description*

*des Pierres Gravées du Feu Baron de Stosch*. He published in 1762 *Anmerkungen über die Baukunst des Allen*, including an account of the temples at Pæstum. In 1758 and 1762 Winckelmann visited Naples for the purpose of studying the treasures excavated at Pompeii and Herculaneum; and from his *Sendschreiben von den herculanischen Entdeckungen* (1762) and his *Nachricht von den neuesten herculanischen Entdeckungen* (1764) scholars obtained their first authentic information about those groups of antiquities. Winckelmann again visited Naples in 1765 and 1767, and wrote for the use of the electoral prince and princess of Saxony his *Briefe an Bianconi*, which were published, eleven years after his death, in the *Antologia Romana*. For several years his energies were devoted chiefly to the preparation of his masterpiece, the *Geschichte der Kunst des Alterthums*, which was issued in 1764.

Winckelmann contributed various admirable essays to the *Bibliothek der Schönen Wissenschaften*; and in 1766 he published his *Versuch einer Allegorie*, which, although containing the results of much thought and reading, is not conceived in a thoroughly critical spirit. Of far greater importance was the splendid work entitled *Monumenti Antichi Inediti* (1767-68), prefaced by a *Trattato Preliminare*, presenting a general sketch of the history of art.

In 1768 Winckelmann left Rome with the Italian sculptor Cavaceppi, intending to visit Germany. But he went no farther than to Vienna, where he was received with honor by Maria Theresa. At Trieste on his way back to Italy he made the acquaintance of a man called Arcangeli, to whom he showed some gold coins that had been given to him by the empress; Arcangeli's cupidity was excited, and during the night he entered Winckelmann's room, and, after having tried to throttle him, stabbed him five times. Winckelmann died of his wounds on June 8, 1768. His murderer was caught and executed.

**WIND**. See METEOROLOGY.

**WINDGALLS** are puffy swellings about the joints of animals, particularly of horses, corresponding to the ganglions of human surgery, and result from irritation and inflammation being set up within the delicate synovial cavities, and thus secrete the usual quantity of thickened synovia. Rest, moderate work, wet bandages, and occasional blisters reduce the swellings, but with fast road work they are apt to reappear, especially with old horses.

**WINDHAM**, WILLIAM, English politician, was born in Golden Square, London, on May 3, 1750. In 1767 he matriculated as gentleman commoner at University College, Oxford, where he remained until 1771. He never took the degree of B.A., but qualified as M.A. on October 7, 1782, and received the degree of D.C.L. on July 3, 1793. His maiden speech on the political platform was delivered at Norwich on January 28, 1778, when he vehemently opposed the prosecution of the American War. On his return to England, in 1780, he contested the representation of the city of Norwich, but was not successful. His entrance into public life took place in April, 1783, when he went to Ireland as chief secretary to Lord Northington, the lord-lieutenant under the coalition ministry of Fox and Lord North. In April, 1784, he again contested Norwich, and was returned by a majority of sixty-four votes, thus scoring one of the few triumphs attained by the adherents of the coalition cabinet. This seat he retained until 1802, when he was beaten by William Smith, one of the leaders of the Nonconformists. The place of secretary-at-war was conferred upon him in July, 1794, and he was at the same time created a privy councillor and admitted to a seat in the cabinet.



Windham discharged the duties of his office with unflinching zeal. When he was ousted from the representation of Norwich (July, 1802), a seat for the pocket borough of St. Mawes in Cornwall was found for him. He declined a place in Pitt's new cabinet (May, 1802) on the ground that the exclusion of Fox, who had joined with them in opposition to the weak ministry of Addington, prevented the formation of an administration sufficiently strong in parliament and the country to cope with the dangers which threatened the safety of the nation, and he offered a general opposition to the measures which the prime minister proposed. He died on June 4, 1810, and was buried in the family vault at Felbrigg.

**WINDLASS** is that modification of a wheel and axle which is employed in raising weights, such as bucketsful of water from a well, coals from a pit, etc. Its simplest form is that of an axle supported by pivots on two strong upright pieces, and pierced near one end with four or six square holes, into which handles, known as handspikes, are inserted. In other forms, a winch at each end is substituted for the handspikes. If the weight (say a bucket of water) is to be lifted a considerable distance, the length of the rope which attaches it to the axle largely increases the weight, and thus aids the power when descending, and counteracts it when ascending. This difficulty is partly got over by employing a double rope with two buckets, one of which ascends while the other descends; but this modification, though partially effective for the end in view, lends aid to the power when aid is least, and hinders it when aid is most required. A more efficacious plan is to form the axle not cylindrical, but of a barrel shape, like two truncated cones placed base to base, and to fasten two ropes, one to each end, so that when coiled up round the barrel they approach the middle; in this case, when one rope is fully uncoiled and winding up commences, the gross weight, which is then at its maximum, acts as a minimum leverage of the end, and as the progress in winding up diminishes the weight, its leverage so increases that the momentum is preserved uniform. On the other hand, the empty bucket, when commencing its descent, acts as its greatest leverage, and as the unwinding of the rope adds to the weight, its leverage becomes smaller, so that the momentum of the descending weight always remains the same, and thus the strain on the power is preserved uniform. The ratio of the weight to the power it is sometimes found necessary to increase greatly, but with the ordinary windlass this could only be effected by similarly increasing the ratio between the leverage of the handle and the radius of the axle, an object attained by the great increase of the former, rendering the machine too cumbersome, or by greatly diminishing the latter, and so weakening it. The desired result is attained, however, in a manner not liable to these objections, by the use of the differential axle, an axle of which one-half is of greater diameter than the other, and the single rope, after being coiled around the whole axle from end to end, is fastened at each end of the axle, and the weight is hung by a pulley, which is supported in a bulge in the center of the rope. As the portion of the rope on one-half of the axle is unwound, that on the other half is wound up; but since the rates of winding and unwinding are different, the bulge of the rope increases when the rope is wound on the smaller end of the axle, and decreases when it is wound off the smaller end. The more nearly equal the two radii of the axle are, the greater is the weight which can be raised by the power.

**WINDMILL.** The date when windmills were first erected is unknown; but they were certainly used in Europe in the twelfth century. Of late they have gen-

erally been replaced by steam engines; but they are still extensively employed in Holland in draining the polders and grinding trass. In America they are largely used; Wolff states that in some cities in the United States over 5,000 windmills are manufactured annually. In spite of the competition of more powerful and tractable motors, windmills may often be used with success and economy, especially in new countries where fuel is scarce, and for work which can be done intermittently. The Indian Government recently made inquiries with a view to using windmills for irrigation, and a good deal of information will be found in a report by Colonel Brownlow in the *Professional Papers on Indian Engineering*. A windmill is not a very powerful motor, and in its employment its power is variable and intermittent. In good situations it will generally work for about eight hours out of the twenty-four on an average. Small windmills are useful on farms for working machines and pumping, in brickfields for pumping, and on ships for clearing out bilge water. They are employed for drainage purposes in Holland and Norfolk, and for mining purposes in some new countries. In America they are used to pump water at railway stations. Sir W. Thomson has proposed to utilize them in charging electric accumulators. As an auxiliary to a steam engine they are sometimes useful; thus at Faversham a 15-horse-power windmill raised in ten months 21,000,000 gallons of water from a depth of 109 feet, saving 100 tons of coal.

In all the older windmills a shaft, called the wind shaft, carried four to six arms or whips on which long rectangular narrow sails were spread. The wind shaft was placed at an inclination of  $10^{\circ}$  or  $15^{\circ}$  with the horizontal, to enable the sails to clear the lower part of the mill. The whip carrying the sail was often thirty to forty feet in length, so that the tips of the sails described a circle sixty to eighty feet in diameter. The sails were rectangular, five to six feet wide, and occupying five-sixths of the length of the whip. A triangular leading sail was sometimes added. Sometimes the sails consisted of a sail-cloth spread on a framework; at other times narrow boards were used. The oldest mill was no doubt the *post mill*, the whole structure being carried on a post; to bring the sails to face the wind, the structure was turned round by a long lever. The *post mill* was succeeded by the *tower*, *smock*, or *frock mill*, in which the mill itself consisted of a stationary tower, and the wind shaft and sails were carried in a revolving cap rotating on the top of the tower. Meikle introduced in 1750 an auxiliary windmill or fan, placed at right angles to the principal sails, for automatically turning the mill face to the wind. If the wind shifts, the small fan begins to revolve, and, acting through gearing, rotates the cap of the mill. Mills are exposed to great danger if the sails are not reefed or furled in high winds, and the reefing serves also to prevent the speed of the mill becoming excessive. In 1807 Sir W. Cubitt introduced automatic reefing arrangements. The sails were made of thin boards held up to the wind by a weight. As the strength of the wind increased, the boards were pressed back and exposed less surface.

American windmills generally have the sails arranged in an annulus or disk. The sails consist of narrow boards or slats arranged radially, each board inclined at a constant angle of weather; and the impulse of the wind on these inclined surfaces drives the mill. An American mill presents a larger surface for a given length of sail, and consequently the construction is lighter. To turn the mill face to the wind, a simple large rudder or fish-tail is used, projecting backward in a plane at right angles to the plane of rotation of the



sails. There are a great variety of mills in America, but those most commonly used are of two types. (1) In those which have side-vane governor wheels, the action equivalent to reefing the sails is effected by turning the whole wheel formed by the sails oblique to the wind, so as to diminish the wind's action. A side vane projects in the plane of rotation of the wheel, and the pressure of the wind on this tends to turn the wheel edgewise to the wind. This turning force is counterbalanced by a weight. Hence for moderate winds the wheel is held up face to the wind; for stronger winds it is turned obliquely. (2) In centrifugal governor mills, the slats forming the wheel are connected together in sets of six or eight, each set being fixed on a bar at about the middle of its length. By rotating this bar, the boards or slats are brought end on to the wind, the action being analogous to shutting an umbrella. The boards are held up to the wind by a weight, and are also connected to a centrifugal governor. If the speed of the governor increases, the balls fly out and lift the weight; at the same time the sails are partially furled.

WINDSOR, a parliamentary and municipal borough of Berkshire, England, twenty-one miles from London by the Great Western railway, situated on the right bank of the Thames, is chiefly remarkable for its royal castle. In 1871 the population of the municipal borough was 11,769, and in 1901, 16,273; that of the parliamentary borough (area, 3,253 acres) in the same year was 19,281 and 22,082 respectively. Of this last total, 3,464 were in Buckinghamshire, into which county the parliamentary borough of Windsor extends.

The town was formerly celebrated for the number of its inns, of which "The Garter" and "The White Hart" were the chief. The former was the favorite inn of Shakespeare's "Sir John Falstaff," and is frequently mentioned in the *Merry Wives of Windsor*.

Windsor Castle, from its commanding position, its stately group of ancient buildings, and its long list of historical associations, is one of the most magnificent and interesting of royal palaces. It has for many centuries been the chief residence of the English sovereigns.

WINDSOR, a port of entry and flourishing city in the county of Essex, and province of Ontario, Canada, is situated on the Detroit river opposite the city of Detroit, Mich., with which it is connected by a number of ferries. Windsor is the western terminus of the Great Western railroad of Canada, and the Michigan Central and Grand Trunk roads which also enter the city are included upon the list of its traffic conveniences. It is admirably located for business purposes, and is the trade center and distributing point for a large area of Canadian territory, highly cultivated and correspondingly productive. The city is well built and neatly laid out, many of the business houses and private residences attracting by reason of their substantial construction and architectural arrangements. It contains three banks, four weekly papers, half a dozen churches, a high school, grammar schools, a convent, seven hotels, an opera house, town hall, large number of stores and other agencies for the promotion of prosperity. The lines of manufacture are many and varied, being made up of silverware, fire-proof roofing, metal fabrics, boilers and machinery, sulky-harrows, stained glass, baths and heaters, hardware novelties, paper boxes, grocers' specialties, and many other articles of value included under the caption of "miscellanies." In 1890 the population was stated at 10,322, and at 12,153 in 1901.

WINDWARD ISLANDS. See WEST INDIES.

WINE. The word "wine" in its widest sense includes all alcoholic beverages derived from sacchariferous vegetable juices by spontaneous fermentation; in the narrower sense of its ordinary acceptance, it designates

the fermented product of grape juice, with which alone the present article proposes to deal. Wine-making is an easy art where there is a sufficient supply of perfectly ripe grapes. In Italy, Spain, Greece, and other countries of southern Europe nature takes care of this; in the more northern of the wine-producing districts of France, and especially on the Rhine in Germany, the culture of the vine means hard work from one end of the year to the other, which only exceptionally finds its full reward. To secure the highest attainable degree of maturity in the grapes, the vintage on the Rhine is postponed until the grapes almost begin to wither, and the white grapes on the sunny side of the bunches exhibit a yellowish brown (instead of a green) color, and show signs of flaccidity. In the best vineyards (where it is worth the trouble) the bunches are carefully sorted, the ripest being put aside and pressed by themselves. In some places even the individual bunches are analyzed, and the best berries cut out with a pair of scissors, to be used by themselves.

If the production of red wine is intended, the juice is allowed to ferment over the stalks and skins until enough alcohol has been produced to enable the juice to extract the pigment from the skins. After that juice and residue are separated. The alcohol, however, extracts other things besides the pigment, especially tannin, which imparts to red wines their characteristic astringency. The must (or magma of crushed grapes) is immediately conveyed to a cool cellar, the temperature of which should lie between 9° and 12° C., and is placed in large tubs or vats or open casks, and it is then left to itself. Although no yeast is added from without, vinous fermentation sets in sooner or later, and after some four to five days is in full swing. On the seventh day, as a rule, the process has passed its climax, and after ten to fourteen days the yeast-scum on the surface disappears and the liquid clears up. It now constitutes what is called *Jungwein*, which still contains a considerable remnant of unfermented sugar. This young wine is drawn off into large casks and placed in cellars having a temperature of 9° to 12° C.; there it is left for some months, generally until the following March. The casks are filled almost to the bung-hole, and kept full by the occasional addition of wine, the small bung-hole being covered so as to provide an outlet for the carbonic acid, without giving any greater access to the air than is absolutely unavoidable, to prevent acetous fermentation. During this period the small remnant of sugar in the young wine gradually ferments away, while the percentage of alcohol undergoes a corresponding gradual increase. As this after-fermentation progresses very slowly, there is no perceptible increase of temperature in the liquid, and even the newly-formed yeast cells remain deposited at the bottom as a precipitate. On it certain components of the must, being less soluble in (alcoholic) wine than in the must, separate out, as for instance, the albuminoids and, most markedly, the bitartrate of potash; this last separates out conjointly with tartrate of lime and coloring matters, as a coherent crust known as *argol*. The finished young wine is drawn off clear into smaller casks, bunged up and allowed to mature. It is during this period that the "bloom" of the wine develops, probably through the very slow formation of ethers from the alcohol and the acids previously produced, or from traces of higher alcohols by oxidation. How long a wine should be allowed to mature depends on its richness. With relatively poor wines a year's maturing may be amply sufficient; rich wines continue improving for years.

It sometimes happens that wine becomes viscous and forms threads when poured from the bottle. This mischief, which is caused by the development of a



foreign ferment, can be cured by the judicious addition of a solution of tannin, which precipitates the "gum." From a similar cause comes acetous fermentation, which always takes place in a moderate degree, but may assume undue dimensions. Red wines are liable to develop a foreign substance which imparts to them a bitter taste. A wine kept in a moldy cask assumes of course a moldy taste and smell.

Effervescing or sparkling wines are largely impregnated with carbonic acid engendered by an after-fermentation in the closed bottle by means of added sugar. The art originated in Champagne, where the best sparkling wines are produced, and whence it has spread to the Rhine, the Moselle, and other districts. The natural wine of Champagne is not of a very high order; yet it produces the best champagne. For champagne-making, blue grapes are preferred. In eliminating the juice excessive pressure is avoided, so as to keep the must clear of particles of skin. Champagne-makers distinguish three grades of effervescence. In *mousseux* the pressure in the bottle amounts to from four to four and one-half atmospheres; in *grand mousseux* it reaches five atmospheres; and less than four atmospheres' pressure constitutes *cremant* (from *la crème*, "cream"), a wine which throws up a froth but does not give off carbonic acid violently. A champagne which contains relatively little sugar is called "dry." In France a sweet wine is preferred. The intensely sweet substance called "saccharine" has been utilized for producing a sparkling wine which is both sweet and dry. Cheap champagnes may be (and we believe are) produced by simply adding sugar and some flavoring matter to wine, and then pumping in carbonic acid in the soda-water fashion.

At the present day wine is practically a European product, although a certain quantity is made in the United States, at the Cape of Good Hope, and in Australia. The principal countries in Europe where the vine is grown to any extent are France, Spain, Portugal, Austria-Hungary, Italy, Germany, and the southern portions of Russia and Greece; but in the first six alone is wine an article of much commercial importance. It was only by degrees, owing partly to its soil and partly to the aptitude of its inhabitants, that France developed the position which it now holds as a wine-producing country. As France is the home of wine-growing, so must the Médoc district in its turn be considered the very heart of that industry in France. The great variety of qualities that the wines of Médoc possess has necessitated their classification, by which they have been divided into paysan, artisan, bourgeois, and fine growths, the last-named being subdivided into five categories, and known as the "classed growths." This classification is the result of years of observation and study, going back to the eighteenth century, its present form being the result of a conference of brokers in 1855.

The average yield of the Gironde during the ten years 1876-1886 amounted to 1,435,863 hectoliters, or about 31,589,000 gallons, an average which has been placed considerably lower than that of the preceding decade by the small yields of 1881, 1882, 1884, and 1885. In each of the prolific years of 1874 and 1875 the production of the Gironde exceeded 5,000,000 hectoliters, and in 1869 it reached 4,500,000. The principal claret vintages of the nineteenth century are considered to have been those of 1815, '25, '28, '31, '34, '41, '47, '48, '58, '64, '69, '70, '74, and '75. From 1875 to 1882 nothing exceptional was produced.

Sauterne, or what is known as the white-wine-producing district of Médoc, lies to the south of Bordeaux; and to those who are only familiar with the Médoc

vineyards it gives the impression of being quite a distinct country, having more the appearance of the Rhine provinces than of the south of France. The Sauterne district comprises the communes of Sauternes, Bommes, and Barsac, with part of those of Preignac, Saint-Pierre-de-Mons, and Fargues. The finer growths, like the red wines of Médoc, are arranged in classes.

The prices of the "grand" Sauterne wines vary enormously according to the year, and the quality is also very various. Between 1870 and 1885 the first growths have ranged from \$40 to \$300 per hogshead. Château Yquem in the ordinary way fetches from one-fifth to one-fourth more than the other first growths, while a rather greater difference rules between the first and second growths. There is, however, no positive rule in this respect; for if, as occasionally happens, a first growth is vintaged a little too late and does not succeed so well as some second growths, the latter will fetch quite as high, if not higher, prices.

Champagne takes its name from the old province which is now represented by the departments of Marne, Haute-Marne, Aube, and Ardennes. It is from the first two that the greater portion of this description of wine is derived, the best qualities being produced in Marne. The vineyards are situated on the banks of the river in the neighborhood of Épernay, and extend from the right bank over the mountains of Rheims to the vicinity of that city, and from the left bank to the small town of Vertus.

The sparkling champagnes are made from both white and red grapes, carefully pressed, and the wine is of an amber color, more or less deep according to vintage and to the proportion of black grapes used. The grapes pressed in a large *pressoir*, the first pressing yielding the best quality, while the second and third are proportionately inferior. The wine from the first pressing is about equal in quantity to that of the other two combined. The vintage usually takes place in the first week in October, the young wines being left to ferment in the cask until the winter, when the first racking takes place, which operation is repeated a month later, when the wines are fined previously to being put in bottle. The wines of the various growths are mixed in the proportions desired, and a certain quantity of old wine (preserved in cask) is added. The amount of saccharine in the wine is also ascertained, and if deficient the requisite quantity in the form of refined candied sugar is added to bring it to the necessary degree for producing fermentation in the bottle. The bottles, which are carefully selected—those showing flaws being rejected—have sloping shoulders, in order that the sediment may not adhere to the sides in the after-process. The wine, after being corked, is secured by an iron clip, and the bottles are arranged in piles in a horizontal position, in which they remain throughout the summer months. During this time the carbonic acid gas is generated, as is also a sediment, which falls to the side of the bottle. The wines are then stacked away in cellars until required for shipment. Previous to the wine being prepared for this purpose, the bottles are placed in a slanting position, neck downward, in cranks made in the shape of the letter A, and are daily shaken very slightly, so that by degrees the sediment falls into the cork. This operation is very delicate, the slightest twist being disastrous. The incline is gradually increased, so that at last the bottle is almost perpendicular—a process which generally takes from three to six weeks. With the sediment thus on the cork, the iron clip is removed, when the force of the wine sends out the cork, together with the sediment. The wine is now subjected to *dosage* or liqueuring, the amount of which depends upon the sweetness required; the bottles



are then filled up with wine, corked, and wired ready for shipment. The liqueur used is made from the finest wine, candied sugar, and cognac. The principal centers of the champagne trade are Rheims and Épernay, although important establishments exist at Ay, Avize, Châlons, and Dizy. The total production of Marne averages about a million hectoliters annually. A large proportion of this, however, is unsuited for making champagne. At the same time the supply is still considerably in excess of the demand, the stock in merchants' cellars in the district having amounted in May, 1887, to upward of 82,000,000 bottles, while at least half that quantity existed in cask, the total stock thus equaling nearly six years' requirements.

Another district of France which produces large quantities of sparkling white wine, is that of Saumur, in the department of Maine-et-Loire. These wines have been known for centuries, but up to 1834 were only used as still wines. At that date a successful attempt was made to convert them into sparkling wines, after which they were principally used to supplement the deficient vintages in Champagne.

Next to those of Médoc, the wines of Burgundy are the best French red wines. This district comprises the departments of Côte-d'Or, Yonne, and Saône-et-Loire, known in former days as Upper and Lower Burgundy. By far the finest qualities are grown in Côte d'Or, in the two communes of Nuits and Beaune.

The wines of Côte-d'Or are full bodied and of excellent color; they are of great reputation on the Continent, especially in Belgium. In Yonne, lying to the northwest of Côte-d'Or, a considerable quantity of wine is made, both red and white. The former has good color and body, with a fair bouquet, but is much inferior to the wines of Burgundy proper. The latter, grown mostly in the commune of Chablis, is of fair quality, and is generally known by the name of this district. Saône-et-Loire, which lies to the south of Beaune, produces the wine known as Mâcon, grown in the neighborhood of that town, the best growths being those of Théorine. The wines of Mâcon have most of the Burgundy characteristics, but are lighter in color and body, and lack much of their bouquet and flavor.

Red and white wines are produced in the arrondissement of Valence in the department of Drôme. These wines are of excellent quality and improve greatly in bottle, in which state they will keep for many years. The white wines are especially choice, and have a far greater reputation than the red. They are soft and rich, and are said to have no analogy to any other white wine known.

The departments of Charente and Charente-Inférieure are celebrated on account of the brandy distilled from them. This industry has suffered enormously of late years from the ravages of the *Phylloxera*, which has destroyed many of the best vineyards in the neighborhood of Cognac.

Spain is second only in reputation to France among wine-growing countries. Its white wine, known as sherry, first brought it into prominence; and the red wines of Tarragona and Rioja have of late years formed a great feature in the commerce of the Peninsula. The reduced yield of the French vineyards, especially of those producing the cheapest wines, owing to the ravages of the *Phylloxera*, combined with an increased home consumption, has compelled that country to import large quantities of wine for its own use, and Spain has taken a foremost place in supplying the demand which has thus sprung up. In addition to this, a considerable quantity is exported to other countries, in the shape of Spanish claret and port.

Sherry, so called from the town of Jerez (Xeres) de la

Frontera, the headquarters of this industry, is produced in Andalusia, in the area included between San Lucar in the north, Port St. Mary in the south, and Jerez in the east. This tract of country contains in all about 25,000 acres of vine-growing soil. The system of preparing sherry is different from that followed in the case of most other wines. In France every small grower can make his few hogsheads of wine, and when these have been made the process is complete. In Jerez, on the contrary, the immense establishments, many of them owned by Englishmen, purchase the grape juice or fruit and make their own must. The wines, which are stored in *bodegas* or sheds above ground, are reared for a number of years as *soleras*. These *soleras* consist of vats of various characters of sherry, the style of which is unvaryingly kept up, and whenever a quantity is drawn off, they are filled up with wines of the same description. Certain quantities taken from various *soleras* are blended in order to make up the regular marks, by which means the style of different shipments is maintained.

The generous, full-flavored wines known as port are the produce of the district of Alto Douro in the northeast of Portugal, which begins at a point on the river Douro some sixty miles above Oporto, whence these wines are shipped. The whole of the port-wine district, comprising a region between thirty and forty miles in length with a maximum breadth of about twelve, is rugged and mountainous.

The method of cultivating the vine in Alto Douro differs considerably from those employed in various other parts of the country, where the vines are either trained over pollarded trees or trellised at a certain height from the ground, or where they are planted in rows and grown like bushes. The method is as follows: In November or December trenches are dug, three feet to three feet six inches deep; according as the soil is heavy or light, and two feet broad, in which vine cuttings are placed at a distance of three feet to four feet six inches apart from each other. The trenches are then partly filled in, in order that the vines may get all the benefit of the rain-water collecting in them. During the first year of planting great care is taken to keep down all weeds while the vines are shooting. At the end of two years the young vines, if they have come on well, can be grafted, the best time for performing this operation being October or February; in this way the period of production is hastened, and the vineyard will yield in four instead of five years' time.

The vintage in Alto Douro generally commences late in September. The grapes are cut by women and children, and are conveyed in large baskets—twenty-two of which full of grapes will yield a pipe of wine—by Gallegos to the place where the wine is to be made. Here they are emptied into large stone tanks, two feet to two feet six inches in depth, each holding from seven to thirty pipes of wine. Each tank is fitted with a beam press, except where the modern screw press has taken its place. As the grapes come in, the stalks are removed, either with a kind of rake or, as in the best managed establishments, with machines called *desingadores*, made for the purpose. The white grapes are separated from the red, the "white port" being made from the former; this wine was formerly much appreciated in England, but now finds its chief market on the Continent.

The wines are kept in casks ranged in rows of two or three tiers; in some establishments large vats, holding from 10 to 110 pipes, are also used, being especially serviceable for blending purposes. The amount of wine contained at the present day in these lodges is calculated at something like 80,000 pipes, the gross



value of which cannot be less than twelve or fifteen million dollars.

There is every reason to believe that vines were introduced into Madeira soon after the discovery of the island. But it was not till some 200 years later, after the marriage of the infanta Catherine of Portugal with Charles II. of England, that British merchants established themselves at Funchal, from which point the wine trade of Madeira commenced. The system of cultivation is somewhat peculiar. The vines are trained over a lattice-work of cane, about four feet from the ground, supported on stakes, thus giving room for the vine-dresser to pass underneath and keep the ground clear from weeds. This system of keeping the ground clear and moist has much to do with the excellent character of the wine produced. An English acre can yield about seven pipes (644 gallons), but the average is considerably below this quantity. The vintage commences as a rule about the last week in August, and the grapes are all pressed before the October rains set in. This latter operation is still carried out in the primitive fashion, the fruit being thrown into large presses and trodden with the naked feet. Madeira wine improves much with age, and is occasionally to be met with from 50 to 100 years old. The choicest descriptions are Malmsey, Sercial, Bual, and Tinta. Of the other wines the choicest are found on the south side of the island; but here as the elevation above the sea increases, the quality falls off. The grapes from which Malmsey is made are not gathered till a month later than those for other wines of a drier character. Sercial is also a much-esteemed wine; it is said to combine all the attributes of a perfect wine, being full-bodied and having a rich aromatic flavor peculiar to itself. The grape from which it is produced is of the Riesling variety, and is supposed to have been transplanted from the banks of the Rhine. Bual is a very luscious wine, the produce of a white grape. Tinta, on the other hand, is obtained from a red grape, and has somewhat of the character and appearance of the wines of Burgundy, whence the vines are said to have been derived.

In point of quantity of production, though far inferior in quality, Italy ranks ahead of France. The estimated area under the vine is in excess of that of France. The annual yield is some 660,000,000 gallons, valued at about \$500,000,000. Whereas in France and Spain the acreage under the vine is devoted exclusively to that plant, the vine in Italy is grown simultaneously with the olive, corn, etc. The vines are simply trained on wires at some distance from the ground, and are frequently allowed to run from tree to tree, mingling in the general vegetation, nature doing so much for the vine-grower that he, in most instances, does but little to assist her. The vintage usually takes place in September and October.

The principal wine produced in Sicily is that grown in the neighborhood of Marsala, from which town it takes its name. The character of the wine is somewhat after the style of Madeira, it having good bouquet and improving with age. It is the result of a mixture of various kinds of grapes carefully selected, among which are included the usual Madeira varieties. Thanks to the care bestowed upon its production, Marsala has of late years acquired considerable reputation.

Of the Austrian-Hungarian empire, Hungary, from a viticultural point of view, forms by far the most important part. The quantity of wine produced in that country has assumed of late years considerable proportions, the white wines being both greater in quantity and of better description than the red. Inclusive of Croatia and Slavonia, it is estimated that there are in Hungary upward of 1,000,000 acres of vineyard,

producing annually some 250,000,000 gallons of wine, the value of which is estimated at over \$90,000,000. The wines of central Hungary are strong, and include white varieties varying in color from a light to a deep yellow tinge, as well as wines of considerable depth of color. Those of the south of Croatia are as a rule less strong, but are for the most part of a deep color and are generally known as black wines. The produce of Transylvania ranks extremely high, and is for the most part white, although some excellent red wines are grown. The strength of Hungarian wines is moderate, that of Tokay being from about 20 to 25 per cent. of proof spirit, while Carlowitz averages from 24 to 25. The other descriptions generally have a less alcoholic strength.

Next to Hungary the principal vine-growing district of the empire is Dalmatia, in which the vine culture has of late increased to an enormous extent. Fifty years ago the vine was scarcely grown, except in the islands and on the sea-coast; but it has now penetrated into the interior, and occupies about one-twentieth part of the soil under cultivation. German wines, generically spoken of as Hock and Moselle, are the products of the most northern latitude of successful vine-culture in Europe. To this circumstance must be attributed the fact that a greater inequality exists in the different vintages than is known in connection with the wines of any other country. In a successful season, when the grapes have been able to mature thoroughly, perhaps no class of wine shows more elegance and quality than do those of the Rhine provinces, while, on the other hand, there are none on which the adverse influence of cold and wet is more apparent. The principal wine-producing districts of Germany are Alsace-Lorraine, Baden, Württemberg, the Hessian and Bavarian Palatinates, and the Rheingau, the total annual production of which is about 80,000,000 gallons. Of these the first three give half the aggregate yield; but their wines are chiefly light and poor, and are only used for home consumption. The best wines of Germany are grown on the banks of the Rhine in the neighborhood of Mainz: the Rheingau, in which the choicest descriptions are grown, lies on the right bank of the river, while the vineyards of Hesse lie on the left. Hochheimer is the produce of a comparatively small district situated on the banks of the Main, several miles above its junction with the Rhine. The name (whence Hock) has been known in England for upward of two hundred years, and no doubt originally included and denoted the general body of Rhine wines. The wines of the Moselle, many of which are shipped as sparkling wines, occupy only a secondary position, although in favorable seasons they are characterized by a light pleasant flavor with a marked aroma. The wines of Germany, at least of the descriptions exported, are mostly white, although a small quantity of red is grown in the Palatinate, notably at Assmannshausen, which resembles Burgundy. The yield, however, is comparatively trifling. A certain quantity of wine is made in the southern portions of Russia and in Greece; but the quality is mostly coarse and common, and the produce is almost entirely used for home consumption.

The cultivation of the vine has made rapid progress of late years in the United States, and American wines are steadily taking the place of the foreign product. The soil and climate of the Pacific coast seem best adapted to the growth of the vine, and wine-making appears likely to become one of the leading industries of California, where the vine was first introduced by the Franciscan fathers about the year 1769. The variety of grape first planted in that region was known as the "Mission" grape, and is generally supposed to



have been imported from Mexico. Subsequently the principal varieties of French, German, and Spanish vines were introduced into that State, and have all been tried with more or less success. The result is that several descriptions of wine are now made in California, resembling, to a certain extent, the leading European types, although, as a rule, of a coarser style—a defect, however, which is disappearing with the spread of technical knowledge. Although California is by far the largest grape-growing State in the Union, producing nearly one-half of the wines made in the United States, yet the rate of increase of the product during the past five years has been greatest in other States. In Ohio, upon the shores of Lake Erie and along the Ohio river, the vine is extensively cultivated. The champagnes and clarets made in the neighborhood of Sandusky and Cleveland, and the “sparkling Catawba” made originally by Nicholas Longworth of Cincinnati, are produced in considerable quantities. New York, Missouri, Illinois, and Pennsylvania are likewise large wine-producing States, the largest wine-manufacturing establishment being in New York State, in Steuben county. The annual yield in each of these States ranges now (1890) from 2,000,000 to 4,000,000 gallons. Wines of inferior quality are made in small quantities in nearly all the States. In the Eastern and Middle States the principal grapes are the Catawba and Ives seedling, while in the south the Virginia seedling and the Scuppernon grapes are the favorites. The wine-grapes in these regions resemble the grapes of Germany and France, containing more acid and flavor, while those grown on the Pacific coast are of a milder and sweeter character, resembling the wines of Spain. The principal obstacles in the way of the cultivation of the vine in the United States are mildew and blight, which sometimes destroy the entire foliage of the vine, and the grape rot, which in some localities has baffled the grower and caused the abandonment of grape-culture. The ravages of the *Phylloxera* are likewise encountered in certain localities, but these are not so extensive in the United States as in France, and indeed, certain varieties of the vine are entirely free from them. The exports of American wines, though still small, are rapidly increasing. The imports of foreign wines have steadily decreased during the past fifteen years. The total annual production of wine in the United States now amounts to about 60,000,000 gallons.

WINFIELD, a growing city of Kansas, and the capital of Cowley county, is situated on Walnut river, and possesses every facility for the development of a prosperous career. It is on the Chicago, Kansas City and Galveston division of the Atchison, Topeka and Santa Fé, and on the Anthony branch of the St. Louis and San Francisco roads, 500 miles from St. Louis, 38 miles from Wichita and 81 miles west of Independence. The surrounding country is diversified by prairie and forests, the latter consisting of hard and soft-wood timber, while the soil is fertile and large crops of cereals are grown, for which Winfield is the market and shipping point. The city is the location of the state asylum for imbeciles, an important institution occupying a commodious structure, also for the Methodist Episcopal College of the Southwestern Kansas Conference. Four banks, with a combined capital, surplus, and undivided profits amounting to \$469,500, are successfully conducted, and three daily and three weekly papers are issued. The city also contains a court-house, half a dozen churches, a high school and graded schools, two opera houses, three hotels, several public halls, a large number of stores, elevators, warehouses, etc., and manufactures of lumber, machinery, iron-ware, flour and other commodities. Gas and electric lights are used, and improvements general to enterprising

western cities are completed or in progress. The population in 1900 was returned at 5,554.

WINKELRIED, ARNOLD VON. The incident with which this name is connected is, after the feat of Tell, the best known and most popular in the early history of the Swiss Confederation. We are told how, at a critical moment in the great battle of Sempach, when the Swiss had failed to break the serried ranks of the Austrian knights, a man of Unterwalden, Arnold von Winkelried by name, came to the rescue. Commending his wife and children to the care of his comrades, he rushed toward the Austrians, gathered a number of their spears together against his breast, and fell pierced through and through, having opened a way into the hostile ranks for his fellow countrymen, though at the price of his own life. But the Tell and Winkelried stories stand in a very different position when looked at in the dry light of history, for, while in the former case imaginary and impossible men (bearing now and then a real historical name) do imaginary and impossible deeds at a very uncertain period, in the latter we have some solid ground to rest on, and Winkelried's act might very well have been performed, though, as yet, the amount of genuine and early evidence in support of it is very far from being sufficient.

WINNIPEG, capital of the province of Manitoba, in the Dominion of Canada, stands at the confluence of the Red river and the Assiniboine, in 49° 56' N. latitude and 97° 7' W. longitude, and 764 feet above the sea. Its name is taken from Lake Winnipeg (Ojibway, *Win*, “muddy,” and *Nipi*, “water”). The waters of the Red river reach the lake forty-five miles north of the city. The city is built on the prairie; a part of the site was swampy, but is being well drained. The city includes both sides of the Assiniboine, but on the east side of the Red river there is an independent corporation, the town of St. Boniface, which is virtually a suburb. St. Boniface, with 1,449 inhabitants, was first settled by Lord Selkirk's German *De Meuron* soldiers in 1817. The growth of Winnipeg has been remarkable. Living on its site in 1871 there were but 241 souls. As Canadian immigration increased, the village grew, and in 1873 it was incorporated as a city, in the face of strenuous opposition by the Hudson's Bay Company. The census of 1901 gave the city 42,340 inhabitants. In the following year Winnipeg, as being the central point of the Canadian Pacific railway, which connects the Atlantic and Pacific Oceans, became a place of great prospective importance. An enormous rise in values took place. The population of the city doubled in a few months, and the wildest speculation took place. This inflation, locally known as “the boom,” caused much damage, and in the following year the collapse brought down almost all the business men of the city. The population diminished very rapidly, but has risen again, and is now increasing. The census of 1886 gave Winnipeg 20,238 inhabitants. The city has water, gas, electricity, and ample fire protection, and architecturally presents a fine appearance. Main street, which is 132 feet wide, and block-paved for a mile, is stated to be one of the best streets in Canada. In education Winnipeg is the center of the Canadian Northwest. The Winnipeg public and secondary schools compare favorably with those of other Canadian cities, and employ fifty teachers, male and female. At Winnipeg is situated the provincial university, to which are affiliated four colleges—St. Boniface (Roman Catholic), St. John's (Church of England), Manitoba (Presbyterian), and Manitoba medical college. The university has been voted 150,000 acres of wild land by the Dominion Government, and has received \$85,000



of a legacy from a native of Rupert's Land. There are twenty-four church buildings in the city and neighborhood. The census of 1901 gives the Manitoba religious population as follows:—Church of England, 44,874; Presbyterians, 65,310; Methodists, 49,909; Roman Catholics, 35,622. The societies are the historical and scientific society, and St. Andrew's, St. George's, St. Patrick's, St. Jean Baptiste, Scandinavian, and Hebrew national societies. Masonic, oddfellows', and temperance organizations are strong. There are two hospitals, besides a children's home and maternity hospital. The finer buildings and erections are the city hall, post-office, parliament buildings, governor's residence, courthouse, college buildings, Hudson's Bay Company warehouse, Westminster block, Cauchon block, and the volunteer monument of 1886 on the City Square.

WINONA, a leading city of Minnesota in respect to population, wealth, and prominence, also the capital of Winona county, is handsomely situated on the right bank of the Mississippi river, in the midst of surroundings as picturesque and attractive as can be found between Itasca and the Gulf. It possesses unsurpassed traffic accommodations, consisting of the Chicago and Northwestern, Chicago, Milwaukee and St. Paul, Chicago, Burlington and Northern, Green Bay, Winona and St. Paul, and the Winona and Southwestern railroads, also two lines of steamers making almost daily trips between St. Louis and St. Paul. Contiguous to the latter city, also to La Crosse, Wis., and but a day's journey from Chicago, Winona has become the principal exporting point for grain in the State, and the receiving and distributing point for merchandise and produce for a very considerable area of territory.

Its growth has been gradual but permanent, and the aids enlisted in the promotion of the city's development have been valuable and effective. It contains two State, two national, and one savings bank, one daily, one semi-weekly, and five weekly papers, a court-house, many handsome residences, fifteen churches, a high-school building, a normal school edifice which cost \$145,000, an opera house, the Philharmonic, Normal and other halls, with an aggregate capacity to seat upward of 5,000, several fine hotels and many other improvements, including commodious and well built stores, elevators, warehouses, etc. The manufactures embrace machinery, furnaces, cornices, hand fire-engines, agricultural implements, carriages and wagons, sole leather, soap and oil, lumber and salt, sash and blinds, boots and shoes, artificial stone, brooms, flour, harness, etc. The city also contains electrical works for furnishing motive power and for lighting purposes, also gas works, and other modern appliances, adapted to the requirements of the times in the matter of rapid transit, production, etc. The city was surveyed and platted in 1852. By 1860 its population had increased to 2,463, to 7,200 in 1870, to 10,208 in 1880, and 19,714 in 1900.

WINSLOW, EDWARD, was born in Worcestershire, England, October 19, 1595. He became a member of Robinson's church at Leyden, and in 1620 joined the *Mayflower* company of pilgrims with his wife and brother, being one of the party which discovered Plymouth Harbor. His wife died soon after their arrival, and his marriage with Mrs. Susanna White was the first marriage in Plymouth colony. He was chosen a magistrate in 1624, and governor in 1633, 1636, and 1644, when Bradford, the usual governor, "by importunity got off." He made several voyages to England as the colony's agent. Returning to England in 1649, he remained until 1655, when Cromwell sent him on a mission to the West Indies. He died on the voyage, May 8, 1655.

WINSTON, a thriving town of North Carolina, and

capital of Forsyth county, is eligibly located but a short distance from Salem, in the same county; an important shipping point on the Northwestern North Carolina division of the Richmond and Danville railroad. The town is prettily laid out and well built, owing its chief importance, however, to the very extensive operations in the sale of raw leaf tobacco, annually conducted here, as also its manufacture. In the latter respect, Winston is one of the most prominent centers in the State, there being nearly fifty companies thus engaged, which give employment to thousands of hands, and yearly produce tons of chewing and smoking tobacco, that finds a market in all parts of the world. Other industries are also carried on, including saw and grist mills, tanneries, granite works, electric light works, agricultural implements, and furniture. One daily and two weekly papers, also an educational journal issued monthly, are published, and two banks, with an aggregate capital, surplus, and undivided profits of \$525,000, are in successful operation. An academy affords the means of instruction, and several churches are well maintained, while hotels, public halls, stores, warehouses, etc., furnish accommodations and facilities for business transactions and other purposes incident to an enterprising and progressive city. The population, which was 2,854 in 1880, is now (1900) 10,008.

WINTER, PETER, dramatic composer, was born at Mannheim in 1754 (or, according to other accounts, in 1758). His most popular work, *Das unterbrochene Opferfest*, was produced in 1796 in Vienna, where in 1797-98 he composed *Die Pyramiden von Babylon* and *Das Labyrinth*. Five years later he visited London, where he produced *Calyso* in 1803, *Proserpina* in 1804, and *Zaira* in 1805, with great success. His last opera, *Sänger und Schneider*, was produced in 1820 at Munich, where he died, October 17, 1825. Besides his dramatic works he composed some effective sacred music, including twenty-six masses.

WIRELESS TELEGRAPHY, a system of transmitting messages, without the use of wires, between points distant one from another. Although it is popularly supposed to be an invention of recent years, there is a record dating as far back as 1746 when Winckler at Leipsic, proved conclusively that messages could be transmitted a few feet without the use of wires. In 1747 Dr. Watson proved that it was possible to transmit electricity through water to a distance of several feet, so that shocks could be felt at the receiving station, the experiment being tried across the River Thames. Later, in 1748, Benjamin Franklin tried a similar experiment on the River Schuylkill with some measure of success. In 1749 De Luc transmitted electricity across Lake Geneva, but from that time until early in the 19th century there seem to be no records of any experiments along this line until Professor Henry, who was well known as a leading scientist of his day, 1838, succeeded in transmitting messages a distance of 18 feet, from one room to another, using a coil of wire with a transmitter in one room and another coil with a receiver in the other room.

In 1842 Professor Morse laid an insulated wire under the water between Governor's Island and Castle Garden, New York, with the intention of proving that messages could be transmitted in that way. But his effort was partially a failure owing to a vessel carrying away his wire. He succeeded, however, on December 16th of the same year in telegraphing 80 feet across the Potomac at Washington without wires. With the assistance of his two associates, Vail and Rogers, the following year he succeeded in telegraphing without wires across the Susquehanna at Havre de Grace, a distance of one mile. Although this fact was generally known to the electrical fraternity, a patent was granted to Lindsay in England in 1854 covering exactly the same method. In 1855 Professor Henry again succeeded in transmitting some distance greater than his experiment of 1838, and in 1877



Elisha Gray sent signals from one end to the other of the Western Electric Company's works in Chicago, using an apparatus somewhat similar to that used by Professor Henry. The next record we have is that of Professor Dolbear's experience with a disconnected telephone receiver which he had invented in 1881 and exhibited at Paris in 1882. He removed the receiver to a distance of 50 feet and found that he could still hear plainly. He followed this experiment up with the use of a perpendicular wire such as Marconi used later, raising it by means of a kite to a height of some 300 or 400 feet, using one wire at the transmitting station and the other at the receiving station. At the transmitting station he used a large induction coil and Morse key, similar to the method used by Marconi, at the receiving station he used his new telephone receiver, one side of it being connected to the wire in the air and the other side to the earth. He succeeded in transmitting messages a distance of over half a mile, but when he applied for a patent in 1882 he was told by the examiner at Washington that his idea was contrary to science and would not work. However, he succeeded in getting his patent in 1886, the examiner admitting that he had made a mistake.

The next record of moment was the discovery in 1890 by Branly, who, taking a glass tube and filling it with metallic filings, and then connecting each end of the filings to a battery and telegraph instrument, found that the instrument would sound whenever it was brought into proximity to an induction coil, the sparks from which were made to pass between round metallic balls. This was the earliest form of coherer and was used by Marconi later, though more sensitively constructed. In 1901 an apparatus was being manufactured in the United States which was doing good work and was in use by the Signal Corps of the United States Army between Washington and Fort Meyer, a distance of about five miles. Professor Fessenden, working under the supervision of the United States Weather Bureau in April, 1902, succeeded in sending messages over 200 miles.

Marconi began his experiments as early as 1895 on his father's estate in Bologna, Italy, finding it possible to transmit without wires for several miles. In 1896 he went to England to give a test of his capabilities to the English government, and succeeded in sending messages nine miles across the Bristol Channel. He used a 10-inch induction coil, somewhat similar to the familiar shocking coil, though larger. There are two small spheres, about one or two centimeters apart, connected to the terminals of the secondary winding. The spark passes between these two spheres and creates the oscillations which are necessary for the transmission of the signals. When long distances are to be covered, a vertical insulated conductor, suspended by means of a mast, is attached to one sphere and the other sphere is connected with the earth. By the pressing of an ordinary telegraphic key connecting a battery with the coil, the current from the battery is allowed to actuate the induction coil which charges the vertical conductor, discharging across the gap and separating the two spheres. This discharge is an oscillating one, the insulated conductor becoming a powerful radiator of electric waves. Thus, by pressing the key for long or short intervals, it is possible to emit a long or short succession of waves, which, when they influence the receiver, reproduce on it a long or short effect, according to their duration.

The sensitive tube, radio-conductor or coherer, as it is differently termed, is the principal point in the receiver. This small glass tube is about four centimeters in length, with two small silver plugs tightly fitted into it. A small gap separates them, which is filled with a mixture of nickel and silver filings. The resistance of this gap is too high to allow a current to pass from the local cell under ordinary conditions; but, under the influence of electric waves, there is an instant cohesion of these filings and the tube becomes a comparatively good conductor. Connected to this tube is a cell and a relay. The cohe-

sion of the filings permits the current from the cell to pass through the tube and actuate the relay. This accomplished, it becomes a very simple matter to make a bell ring or work an ordinary Morse inkwriter.

Unless tapped or shaken up, these filings will remain cohered, and this difficulty has been overcome by using an automatic tapper or discoherer, somewhat similar to an electric bell tapper, minus the bell. With this arrangement the filings are easily discohered and brought to a normal condition, and are once more ready to receive another impulse. This is worked by the relay and another local battery.

The various processes are easily followed from now on. The vertical conductor or resonator which is connected to the sensitive tube at the receiving station is acted upon by the oscillations which are started by the transmitter at the distant station. At the same time the filings up the tube cohere and the relay is actuated by the local cell. The relay, in its turn, causes a current to pass through the tapper or interrupter from the larger battery, and also through the electro-magnets of the recording instrument. As a result, the receiver is actuated for a time equal to that during which the key is pressed at the transmitting station.

With the apparatus thus explained, and a few additional important details, Marconi has worked most of his experiments and established numerous important installations.

During the short time that has elapsed since Marconi's name first became famous in connection with wireless telegraphy, much has been accomplished through severe tests which have gone to prove conclusively that wireless telegraphy is no longer a myth, but an everyday working reality. In Italy, after several successful trials of communicating from ship to ship, his system was adopted by the Italian navy.

By means of kites to raise and suspend the vertical conductor to a considerable altitude between Salisbury Plain and Bath, the system successfully covered a distance of 34 miles. Many severe tests have been given in England to prove the practicability of the system as proof against weather conditions, and after an experience of some two or three years it is conceded that such installations are not seriously affected by climatic changes.

When H. R. H., The Prince of Wales, was confined to his yacht, the "Osborne," in the Isle of Wight, Mr. Marconi established communication between Osborne House and the yacht. Despite the intervening hills, trees and other obstructions, her Royal Majesty was able to communicate with the Prince at short intervals, which could not have been possible by means of flags, semaphore or heliograph.

One of the most useful tests to which it has yet been put is the establishment of a line between the East Goodwin Lightship—the outermost lightship guarding the dangerous Goodwin Sands—with the South Foreland Lighthouse, a distance of 12 miles. The apparatus worked satisfactorily from the very beginning and several vessels stranded on the sand in a fog have received immediate assistance. The lightship noted their signals of distress, and by means of wireless telegraphy indicated the exact location where help was required, and tugs and lifeboats were sent to the rescue.

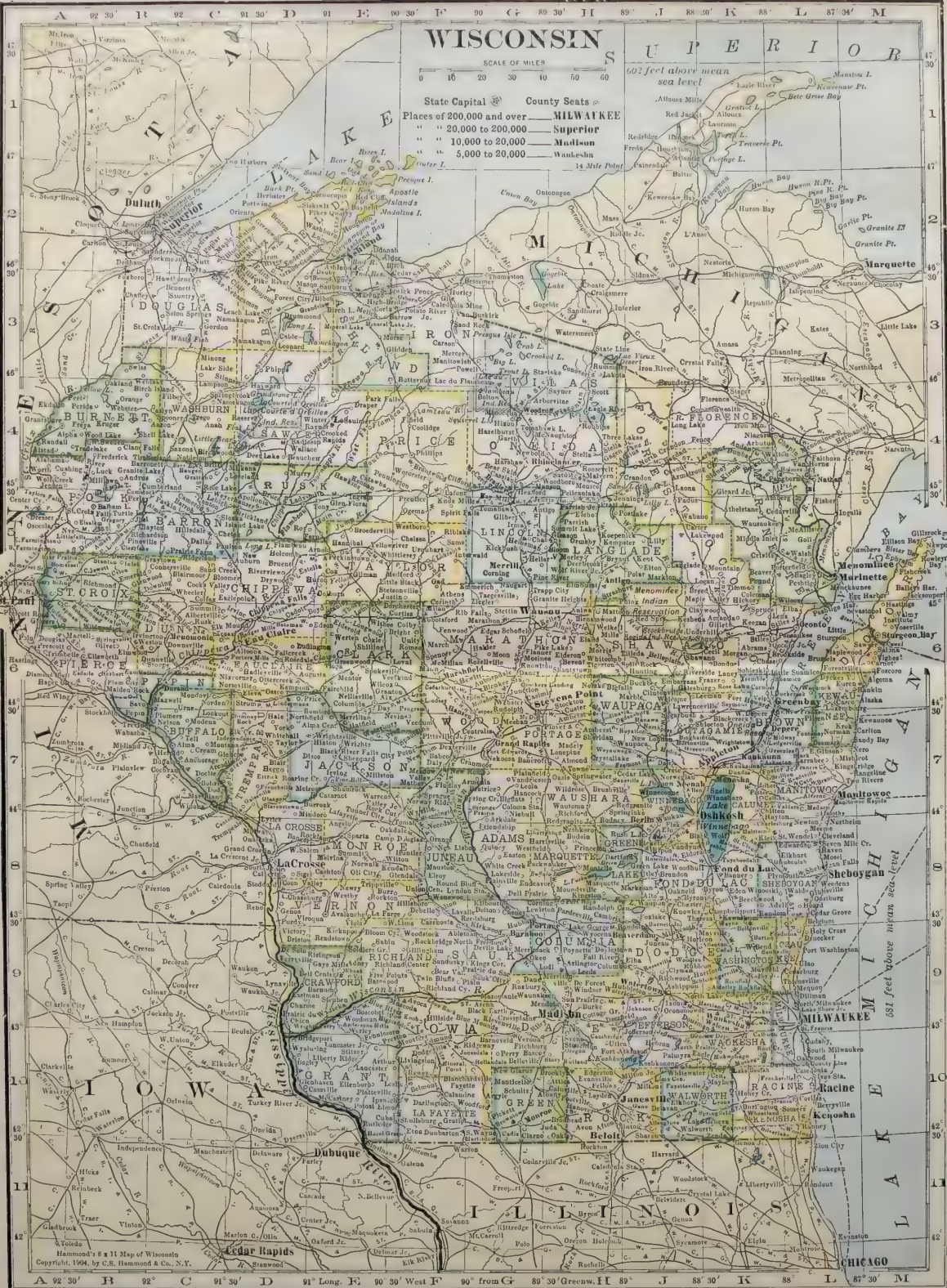
One recent installation is worth mentioning, that connecting the South Foreland Lighthouse and Boulogne, a distance of about 30 miles. The possibilities and importance of the uses to which these reflected radiations can be adopted are enormous. Not only may ships be warned of danger, but they may also know the direction from which the warning comes.

WISBY, a picturesque old town on the west coast of the Swedish Island of Gotland. It has a considerable trade, but does not occupy half the space inclosed within its old walls, which, with their towers, still survive. In 1900 the population of the town was 8,924.

WISCONSIN, one of the northeastern Central States of the American Union, has the parallel of 42° 30' N.









latitude for its southern limit, Lake Michigan for its border on the east, Lake Superior on the north, and the Mississippi on the west. Michigan on the east, Minnesota and Iowa on the west, and Illinois on the south are its neighbor States. Its area, exclusive of water surface, is estimated at 54,450 square miles. Its length from north to south is 300 miles, its breadth 250 miles; its lake shore line exceeds 500 miles. Its surface contours are gentle and pleasing. The lower parts of the State lie about 600 feet above the sea; the highest summits about 1,800 feet.

**Soils.**—The soils of the State are varied. Those of the drift-bearing region are derived from the heterogeneous mixture of pre-glacial soils and glacial grindings, and constitute for the greater part loamy clays and sandy loams of a high degree of fertility and permanence. In the southwest a considerable portion of the soils are derived from the decomposition of the underlying limestone, and are highly fertile and easily tilled. In the central portion there is a considerable area underlaid by the Potsdam sandstone, from which sandy soils, of relatively low fertility, have been derived.

**Vegetation.**—The greater part of the State was originally covered by forest, but in the south and west considerable areas of prairies were found interspersed with woodlands. The prevalent trees of this region are the oaks, poplars, hickories, and their usual associates. Along the eastern border of the State, except at the very south, is an extensive tract of heavy timber, in which maple, elm, ash, and their usual associates predominate. Toward the north the pines, hemlocks, and spruces come in. The north part of the State was originally covered by an almost unbroken forest, composed of groves of pine, of hard wood, and of a promiscuous mixture of species embracing both conifers and deciduous trees. This constitutes the great lumber region of Wisconsin.

**Population.**—In 1900 Wisconsin had a population of 2,069,042. The accompanying table exhibits the population from 1850 to 1880.

	Population.			Density per Square Mile.
	Total.	Males.	Females.	
1850.....	305,391	164,716	140,675	5.61
1860.....	775,881	407,449	368,432	14.25
1870.....	1,054,670	544,886	509,784	19.37
1880.....	1,315,497	680,065	635,428	24.16

The Federal census of 1890 gave the number as 1,693,330. The Federal census of 1900 showed 2,057,911 whites, 2,762 colored, and 8,372 Indians. The foreign-born population numbered 515,971, or 30.81 per cent. of the whole, of whom 184,328 came from the German empire, 66,284 from the Scandinavian countries, and 78,057 from Great Britain and Ireland.

**Cities.**—In 1900 Milwaukee had a population of 285,315; Oshkosh, 28,284; La Crosse, 28,895; Eau Claire, 17,517; Racine, 29,102; Fond du Lac, 15,110; Madison (the State capital), 19,164; Sheboygan, 22,962; Appleton, 15,085; and Janesville, 13,185.

**Climate.**—Lying between 42° and 47° N. latitude, and near the center of the continent, Wisconsin has a typical temperate continental climate. Its summers are warm, and diversified by short rains and clear skies; its winters are somewhat severe but relatively dry and stimulating, and are less chilly than more humid atmospheres at similar or even higher temperatures. The average rainfall is about thirty inches. The mean summer temperature varies from about 70° in the south to about 60° in the north; the mean winter temperature

varies from about 25° in the south to about 15° in the extreme north. The great lakes produce a marked effect on the seasonal temperature of the State, elevating it in winter and depressing it in summer, so that the summer isotherms run from the northwest to southeast, forced south by the cooling influence of the lakes; while those of the winter run from southwest to northeast, forced north by their warming influence. As a result, productions requiring a high summer temperature flourish in the southwestern and central portions of the State, but are precarious in the vicinity of the lakes, while fruits and crops requiring milder winters and more equable temperatures can be produced near the lakes, but are uncertain away from them.

**Agriculture.**—By the United States census of 1900 Wisconsin had 169,795 farms, embracing 19,862,727 acres, of which 11,246,972 acres were improved land. Of these farms 146,799 were cultivated by the owners, and 22,996 were rented. The total value of farm property was \$811,712,319, of which \$686,147,660 represented land improvements, \$29,237,010 implements and machinery, and \$96,327,649 live stock. The produce of crops for 1899 was as follows: Wheat, 9,005,170 bushels; corn, 53,309,810; oats, 84,040,800; barley, 18,699,690; rye, 5,142,606; potatoes, 24,641,498; hay and forage, 3,667,212 tons; tobacco, 45,500,480 pounds.

**Manufactures, etc.**—Large water-powers are found, chiefly on the Fox, Wisconsin, and Chippewa rivers. In 1900, the date of the last State census, the amount of capital used in manufacturing was over \$330,568,000; hands employed, 152,700; and the value of manufactured products, \$360,818,942. The total wages were for the year nearly seventy million dollars; the number of establishments, 16,187, the assessed value of real estate, \$503,690,767. The chief industry was that of lumber and timber products, the year's yield being over sixty-five million dollars, besides a yield from paper and wood pulp of \$10,895,576. Flouring and grist mill products yielded in 1900, \$26,327,942; foundry and machine shop products, \$22,252,730; and leather (tanned, curried, and finished), \$20,074,373. Malt liquors yielded \$19,394,709; slaughtering and meat-packing, \$13,601,125; and the yield from the industry connected with cheese, butter and condensed milk, amounted to \$20,120,147.

**Lumbering.**—The proximity of Wisconsin to the prairie States renders its lumbering interests especially important. In 1900, Wisconsin had a lumber product valued at \$57,635,816, the largest product of all the states in the Union. There were 1,066 establishments, employing a capital of \$77,366,223 and 21,701 hands, whose wages amounted to \$9,480,011. Operations are chiefly carried on along the Menomonic, Peshtigo, Oconto, Wolf, Wisconsin, Yellow, Black, Chippewa, Red Cedar, and St. Croix rivers; but the rapid increase in railroads has opened the northern forests very generally. The lumber, shingles, and lath manufactured amounted to about 3,361,943,000 feet in 1900.

**Mines and Quarries.**—In 1880 Wisconsin ranked sixth among the iron-producing States, but since then its importance has increased. The most extensive iron deposits occur in the Huronian formation in the Menomonic region, and along the Montreal river. The Montreal range, divided between Wisconsin and Michigan, about a dozen miles south of Lake Superior, has just been opened up, and there is a rich deposit of Bessemer ore. The lead and zinc region lies in the southwest of the State; production had been declining, but recently new discoveries have revived it. There is a rich supply of building-stone; limestone quarries are most numerous, but the red-brown sandstone of Bayfield county and the granite of Marquette county are especially valued.



**Fisheries.**—The whitefish and lake-trout fishing industries of Lake Michigan and Lake Superior are extensive, and the inland lakes and streams abound in bass, pike, pickerel, sturgeon, and brook-trout. A State fisheries commission annually stocks the waters with brook-trout, whitefish, and pike.

**Railways and Canals.**—There were in Wisconsin in June, 1900, 6,566 miles of railway. The report of the State Railroad Commissioner showed that the cost of construction and equipment of all railroads within the State was \$224,052,218. Their capital stock was \$112,431,124; total debt \$148,216,311; gross earnings \$26,451,564; operating expenses \$16,737,745. A canal connects the Fox and Wisconsin rivers at Portage, and the Sturgeon Bay canal unites Green Bay and Lake Michigan.

**Administration, etc.**—The State, which is divided into sixty-eight counties, is represented in the Congress of the United States by two senators and nine representatives. The supreme court is composed of a chief justice and four associate justices; there are fourteen judicial circuits, each with a judge; and besides these are county and municipal judges and justices of the peace. The State legislature, composed of the senate (33 members) and the assembly (100 members), meets biennially.

**Charitable, Reformatory, and Penal Institutions.**—The State supports two hospitals for the insane, a school for the deaf, school for the blind, industrial school for boys, industrial school for girls, State prison school; a school for dependent children has just been established. The State board of control and the board of charities and reforms have charge of these institutions.

**Education.**—The State makes liberal provision for its public schools; it sets apart as a permanent fund the Federal grant of section 16 in each township, with 500,000 acres of land, and 5 per cent. of the proceeds of the sale of public lands in the State, together with less important items. This school-fund income is supplemented by a State tax of one mill on the dollar; the combined amount is annually apportioned among the counties, towns, villages, and cities in proportion to the number of children in each of from four to twenty years of age; in their turn the counties must levy upon each town, city, and village a tax equal to their proportion of the combined school fund and State mill tax.

In 1879 attendance at a public or private school for at least twelve weeks each year was made compulsory on all children between the ages of seven and fifteen years. Women are eligible to all school offices, except that of State superintendent of public instruction. In 1890 there are 145 free high schools, receiving special aid from the State. Provision is made for the education of teachers by the five normal schools. The leading denominational colleges are Beloit, Ripon, Racine, Milton, and Lawrence university. The public school system is crowned by the State university at Madison, organized in 1848. In 1900 the school population between 4 and 20 years numbered 730,685; between 7 and 14 years 294,950; enrolled in public schools 550,342. There were 2,338 male and 9,649 female teachers employed. The sum devoted to public instruction in the year was \$5,258,463.

The State historical society at Madison, the capital, has a reference library of 125,000 volumes and pamphlets, and is the richest in the nation upon the history of the Mississippi basin; the State law library there has 25,000 volumes, the university library 18,500, and the city library 9,000. Milwaukee has a public library of 75,000 volumes.

**Antiquities and History.**—The State is noted for its exceptionally large number of animal mounds, the work of the "mound-builders." They are found along the

rivers and lake banks, and are from 2 to 6 feet high, sometimes 200 feet long; remains of prehistoric circumvallations, with brick baked *in situ*, have been found, and the largest collection of prehistoric copper implements has been made in this State. Wisconsin was the meeting ground of the Algonquin and Dakota Indian tribes. Its water system connecting the Great Lakes and the Mississippi made it the keystone of the French possessions in Canada and Louisiana. The genesis of Wisconsin was from the fur trade. French explorers, ascending the Ottawa, crossed to Lake Huron, whence they easily passed through the Straits of Mackinaw to Green Bay, thence up the Fox to the portage between it and the Wisconsin, and on to the Mississippi. In 1634 an agent of Champlain, Jean Nicolet, first of recorded white men to reach Wisconsin soil, ascended the Fox a considerable distance. In 1658–59 Radisson and Groseilliers, two fur traders who afterward induced England to enter the Hudson Bay region, passing along the south shore of Lake Superior, struck southward to the tributaries of the Mississippi. Radisson's journal describes a great river visited by him, which was probably the Mississippi. In 1665 Father Claude Allouez founded a Jesuit mission at La Pointe, and in 1669 the mission of St. Francis Xavier on the shores of Green Bay. Louis Joliet, leaving Quebec under orders to discover the South Sea, in 1673, took with him Father Marquette from Mackinaw, and reached the Mississippi by the diagonal waterway of the Fox and Wisconsin rivers.

In 1679 La Salle, accompanied by Father Hennepin, passed along the western shore of Lake Michigan to the Illinois, and in the next year Hennepin, ascending the Mississippi, met Du Luth, who had reached it by way of the western extremity of Lake Superior. Thus were traced out the bounds and principal river-courses of Wisconsin. The epoch of the fur trade followed, during which stockade posts were erected at various key-points on the trading routes; they became dependencies of Mackinaw, long the emporium of the fur trade. In the French and Indian war of 1755–60 Wisconsin savages served under Charles de Langlade against the English at Braddock's defeat and elsewhere. Near the middle of the eighteenth century De Langlade and his father had established a trading post at Green Bay, which afterward became a fixed settlement; at the close of the Revolutionary war Prairie du Chien, at the mouth of the Wisconsin, grew into a like settlement; and toward the close of the century Milwaukee, La Pointe, and Portage became permanent trading posts. The British garrison that was sent in 1761 to hold Green Bay left at the outbreak of Pontiac's war, and did not return. In the Revolutionary war Wisconsin Indians under De Langlade supported the British. England having retained Mackinaw despite the treaty of 1783, American domination was not practically felt by the Wisconsin traders until after the war of 1812. In this war they favored Great Britain, and in 1814 the latter wrested Prairie du Chien from an American detachment. But the formation of Astor's American Fur Company to deal in this region was followed by a United States law excluding English traders, which resulted in an increase of American influence. At the close of the war the United States placed forts at Green Bay and Prairie du Chien. By the ordinance of 1787 Wisconsin had been a part of the territory northwest of the river Ohio; in 1800 it was included in Indiana Territory, whence in 1809 it passed to Illinois Territory, and in 1818 to Michigan Territory. In 1825 the lead-mines in southwestern Wisconsin, which had been known from the earliest days of French exploration, and had been worked by the Sacs and Foxes and by Winnebagoes, attracted a considerable mining



population. Hostilities with the Winnebagoes followed, resulting in the cession by the latter of the lead region, and the erection of Fort Winnebago in 1828 at Portage. In 1832 occurred Black Hawk's war, occasioned by the refusal of a Sac band to remove beyond the Mississippi from Illinois, in accordance with treaty stipulations. Pursued by regulars and Illinois militia to the head-waters of Rock river, the band fled across southwestern Wisconsin to the Mississippi, where they were nearly exterminated. This expedition disclosed the rich farming lands of the region. In 1836 Wisconsin Territory was formed. Before this the fur trade and lead-mining had been the chief factors in development, but a wave of land speculation and immigration reached here at this period. In 1840 there was a population of 30,945, more than double that of four years before. On August 9, 1846, congress authorized Wisconsin to form a State government. The constitution framed in 1846 being rejected by the people, a second one was ratified in 1848, and Wisconsin became a State on May 29th of that year.

At an early period the State adopted the policy of attracting immigration by cheap lands, a work in which the railroads have greatly aided, with the result that Wisconsin has the remarkable proportion of persons of foreign parentage indicated above. There are whole communities of the same foreign nationality, such as the German groups along the shore of Lake Michigan, the Scandinavian in various localities, the Swiss colony of New Glarus, the Belgians in Door county, and many others. The recent development of lumbering has rapidly built up northern Wisconsin, a process now being accelerated by the mining interests on the Montreal range. Wisconsin furnished to the Union armies in the Civil war over 91,000 men, the famous Iron Brigade being chiefly from that State.

WISHAW, a police burgh of Lanarkshire, Scotland, and an important mining and iron town, is situated on the face of a hill, a short distance south of the South Calder water, and on the Caledonian railway, twelve miles east-southeast of Glasgow. The population of Wishaw according to its old limits was 15,112 in 1901, of which 1,829 belonged to Cambusnethan and 2,330 to Craigneuk. The town has borne in succession the following names: New Town of Cambusnethan, New Town of Wishaw, Wishawtown, and Wishaw.

WISMAR, the second commercial town and seaport of Mecklenburg-Schwerin, Germany, is situated on the Bay of Wismar, one of the best harbors on the Baltic, eighteen miles almost due north of Schwerin. The chief manufactures of Wismar are iron, chicory, cigars, roofing-felt, asphalt, etc. Fishing and agriculture are carried on by the inhabitants, but their main industry is connected with shipping and trade. The leading exports are grain, oil-seeds, butter, and cattle; the imports are coal, timber, iron, stoneware, and lime. The harbor is deep enough to admit vessels of sixteen-feet draught. The population was 18,011 in 1900.

WITCHCRAFT. This subject has already been considered in its general aspects under ASTROLOGY, DEMONOLOGY, DIVINATION, MAGIC, and SPIRITUALISM. In this place what will be mainly attempted will be to illustrate the position assumed by the law toward a crime which was regarded for centuries not only as possible, but also as specially noxious. It is a long interval from the Twelve Tables to the Bill of Rights, but the lawyers of the latter age accepted the existence of witchcraft with a faith almost as unquestioning as those of the former, and comparatively few were they, whether lawyers or laymen, who in the interval dared to raise their voices against the prevailing superstition.

In Roman law it was provided by the Twelve Tables

that no one should remove his neighbor's crops to another field by incantation or conjure away his corn. At a later date the *Lex Cornelia de Sicariis et Veneficiis* was extended by decree of the senate to cases of offering sacrifice to injure a neighbor. Exercise of magical and diabolical arts rendered the magicians themselves liable to be burned alive, and those who consulted them to crucifixion. Even the possession of magical books was criminal. To administer a love potion, even though harmless, was punished by labor in the mines; or relegation and fine in the case of persons of rank. The trial of APULEIUS (*q.v.*) for magic in 150 A.D. is the most familiar instance occurring under Roman law.

The church followed and amplified Roman law. The graver forms of witchcraft constituted HERESY (*q.v.*), and jurisdiction over such offenses was claimed by the church courts to a comparatively late date. The earliest ecclesiastical decree appears to have been that of Ancyra, 315 A.D., condemning soothsayers to five years' penance. In canon law the *Decretum* subjected them to excommunication as idolaters and enemies of Christ, and the bishop was to take all means in his power to put down the practice of divination.

In England, as in other countries, ecclesiastical law claimed cognizance of witchcraft as a crime against God. The *Penitentials* of Archbishops Theodore and Egbert and the *Confessional* of Egbert are full of condemnations of magic divinations, diabolical incantations, love-philthers, etc. An exception is made in favor of incantation by a priest by means of the Lord's prayer or the creed. The practice of magic by women is set out in the same document with minute and disgusting detail. After the conquest, commissions were from time to time issued empowering bishops to search for sorcerers. A form of such a commission to the bishop of Lincoln in 1406 is given by Rymer. The ecclesiastical courts punished by penance and fine up to 1542. For graver punishments the secular power acted as executive. Many persons guilty of sorcery were, according to Sir Edward Coke, burned by the king's writ *de heretico comburendo* after condemnation in the ecclesiastical courts. The secular courts dealt with witchcraft from a very early period. It was an indictable offense at common law and later by statute, though apparently not a felony until the Act of Henry VIII. The earliest trial recorded in England was in a secular court. In 1324 several persons were appealed before the coroners of the king's household, and the record, certifying acquittal by a jury, was then brought up by writ of *certiorari*.

Trials for witchcraft in England do not seem to have been proportionately as numerous or to have been accompanied with such circumstances of cruelty as those in most other countries. This may be accounted for partly by the diminishing authority of the church courts, partly by the absence of TORTURE (*q.v.*) as a recognized means of procedure, though no doubt it was too often used in an informal manner. The pricking of the body of an alleged witch by Hopkins, the witch-finder, and similar wretches in order to find the insensible spot or devil's mark, the proof by water (a popular survival of the old water ordeal), and similar proceedings, if not judicial torture, at least caused as much pain to the victims. Charges of witchcraft seem to have been made with great frequency against persons of rank during the wars of the Roses for political purposes. Trials in England were most numerous during the seventeenth century. In the case of the Lancashire witches in 1634 seventeen persons were condemned on the evidence of one boy. In the period from 1645 to 1647 between two and three hundred are said to have been indicted in Suffolk and Essex alone, of whom more than half were con-



victed. The most interesting trial is that of the Suffolk witches, because Sir Matthew Hale was the judge and Sir Thomas Brown was the medical expert witness. In many of these trials the accused confessed before execution. The reasons which urged them to confess not only impossibilities, but impossibilities of the most revolting kind, are not very easy to discover. In some cases, no doubt, the object was to escape the misery of life as a reputed witch.

Toward the end of the seventeenth century the feeling toward witchcraft began to change. The last trial in England was that of Jane Wenham in 1712, convicted at Hertford, but not executed.

The earliest execution in New England is said to have been in 1648. In the abstract of the laws of New England printed in 1655 appear these articles: "III. Witchcraft, which is fellowship by covenant with a familiar spirit, to be punished with death. IV. Consultants with witches not to be tolerated, but either to be cut off by death or banishment or other suitable punishment." The fanatical outbreak at Salem in 1691-92 is one of the most striking incidents in the history of New England. Nineteen persons were executed for witchcraft, among whom was Giles Cory, the only person who ever perished by the *peine forte et dure* in America (see TORTURE). In 1692 fifty were tried, but only three convicted, and they received the governor's pardon. For these proceedings the writing and preaching of Cotton Mather were largely responsible. The States have now their own legislation against pretended supernatural powers. Provisions similar to those of the English Vagrant Act are common.

WITENAGEMOT. See ENGLAND.

WITHER, GEORGE, appears in the *Dunciad* as "sleeping among the dull of ancient days, safe where no critics damn." Wither's life was full of adventure. Born June 11, 1588, the son of a Hampshire gentleman, educated at Magdalen College, Oxford, he entered at Lincoln's Inn, conceived an ardent passion for poetry, put forward as a satirist in 1613 with *Abuses Stript and Whipt*, and was promptly lodged in the Marshalsea. It was the year of the Essex divorce case, when so plain a satirist, though he whipt abuses in the abstract, might easily have given offense. In prison he wrote *The Shepherd's Hunting*, the fourth eclogue of which contains his memorable praise of poetry. Wither's *Motto* was published in 1618; *Fair Virtue, or The Mistress of Philarete*, the longest, freshest, and most captivating lover's panegyric in the language, in 1622. Besides the poems above mentioned, which are the basis of Lamb's admiration, and his curious *Emblems*, published in 1635, Wither, a man of most radiant energy and eloquence, wrote a host of satirical and polemical tracts, for which readers may be referred to the *Bibliographer*. The famous song "Shall I, wasting in despair," occurs in *The Mistress of Philarete*. He died in London, May 2, 1667.

WITHINGTON, a township of Lancashire, England, four miles south of Manchester, of which it is practically a suburb. The urban sanitary district includes part of the parish of Withington, and three other parishes (area, 5,728 acres), the population being 10,099 in 1871, and 17,109 in 1881. The population of the Withington portion (area, 2,229 acres) in 1871 was 4,863, and in 1901 it was 11,328.

WITNESS, in law, is a person who gives or might give evidence in a court of justice. The law of witnesses is on the one hand a branch of the law of EVIDENCE (*q.v.*), and on the other is closely connected with the JURY (*q.v.*), for the jurors were originally chosen for their knowledge or presumed knowledge of the facts in dispute. The part of the Scotch juror's oath "and no

truth conceal" is an obvious survival of the time when the juror was a witness. It is only by gradual steps that the law has reached its present stage in the United Kingdom and the United States. At present the disabilities of witnesses are few; almost everyone is a capable witness, and the main question has become one of credibility rather than of capability. It was far otherwise in Roman and ecclesiastical law, and in the older law of England and Scotland. A reference to TORTURE will show that in Roman and mediæval law the testimony of many persons was not admissible without the application of torture. At the same time a large body of possible witnesses was excluded for reasons which have now ceased to be considered expedient, and was subject to rules which have long become obsolete. In Roman law witnesses must be *idonei*, or duly qualified. Minors, certain heretics, infamous persons (such as women convicted of adultery), and those interested in the result of the trial were inadmissible. Parents and children could not testify against one another, nor could slaves against their masters, or those at enmity with the party against whom their evidence was offered. Women and slaves were under a disability to be witnesses to a will. The canon law extended the disability to testify to an excommunicated person, and to a layman in a criminal charge against a clerk, unless he were actually the prosecutor. In the days of trial by battle a party could render a witness against him incompetent by challenging and defeating him in the judicial combat.

The modern law of witnesses has been already treated to a considerable extent under EVIDENCE. Those witnesses whose evidence is not received may be divided into incompetent and privileged—classes which must be carefully distinguished. The evidence of the former is wholly inadmissible; that of the latter is admissible if they waive their privilege. The only privileged witnesses practically now recognized are high officers of state, executive or judicial, and members of the legal profession, who need not divulge what has been disclosed to them in professional confidence. Clergy and medical men are not privileged, though attempts have sometimes been made to protect disclosures to them, especially to priests in the confessional. Any witness is privileged from answering questions the answers to which might expose him to penalty or forfeiture or to a charge of adultery.

WITSIIUS, HERMANN, Dutch theologian, was born February 12, 1636, at Enckhuysen, North Holland, studied at Utrecht, Leyden, and Groningen, and was ordained to the ministry in 1657. In 1675 he became professor of divinity at Franeker, and in 1680 he was translated to a corresponding chair at Utrecht. In 1685 he acted as chaplain to the Dutch embassy sent to London to congratulate James II. on his accession. In 1698 he succeeded Spanheim at Leyden, where he died on October 22, 1708.

WITT. See DE WITT.

WITTEN, a rapidly growing town of Westphalia, Prussia, is favorably situated among the coalfields of the Ruhr, fourteen miles east of Essen and fifteen miles northeast of Elberfeld. The coal-mines in the neighborhood provide abundant fuel for large cast-steel works, iron foundries, railway workshops, machinery and boiler works, glass-works, distilleries, and other industrial establishments. In 1843 the population was 3,444; in 1901 it was 28,903.

WITTENBERG, now an unimportant manufacturing town in the province of Saxony, Prussia, is situated fifty-five miles to the southwest of Berlin, on the Elbe. Wittenberg is interesting chiefly on account of its close connection with Luther and the dawn of the Reformation. Part of the Augustinian monastery in which



Luther dwelt, at first as a monk, and in later life as owner, with his wife and family, is still preserved, and has been fitted up as a "Luther museum." The Augusteum, built in 1564-83, on the site of the monastery, is now a clerical seminary. The Schlosskirche, to the doors of which Luther nailed his famous ninety-five theses in 1517, dated originally from 1490-99; it was, however, seriously damaged by fire during the bombardment of 1760, and has practically been rebuilt. The old wooden doors, burnt in 1760, are replaced by bronze doors, bearing the Latin text of the theses. In the interior of the church are the tombs of Luther, Melancthon, and the electors, Frederick the Wise and John the Constant. The parish church, in which Luther often preached, was built in the fourteenth century, but has been much altered since Luther's time. The present infantry barracks were at one time occupied by the university of Wittenberg, founded in 1502, but incorporated with the university of Halle in 1817. Luther was appointed professor of philosophy here in 1508; and the new university rapidly acquired a considerable reputation from its connection with the early Reformers. Shakespeare makes "Hamlet" and "Horatio" study at Wittenberg. The ancient electoral palace is another of the buildings that suffered severely in 1760; it now contains archives. Melancthon's house and the house of Lucas Cranach the Elder (1472-1553), who was burgomaster of Wittenberg, are also pointed out. Statues of Luther and Melancthon embellish the town. The spot, outside the Elster Gate, where Luther publicly burned the papal bull in 1520 is marked by an oak tree. Woolen and linen-weaving, stocking-making, leather-working, distilling, and brewing are carried on in Wittenberg. The formerly considerable manufacture of the heavier kinds of cloth has died out. The population in 1901 was 18,856.

WLOCLAWEK, or VIOTSLAVSK, a district town of the government of Warsaw, on the left bank of the Vistula, which is crossed by an iron bridge, 118 miles by rail to the northwest of Warsaw. Its population has rapidly increased of late, and now amounts to 22,600. Its merchants carry on an active trade in grain. It has a fine cathedral, dating from the fourteenth century.

WOBURN, a town of Middlesex county, Mass., lies about ten miles somewhat west of north from Boston; it comprises within its limits four villages of greater or less size, besides a small rural population. The town contains seventy-five miles of streets. The population in 1900 was 14,254, about three-tenths of foreign birth. The industries, which are largely manufacturing, are connected chiefly with the tanning of leather and the making of boots and shoes.

Woburn is one of the older towns of Massachusetts, having been settled in 1642. Its growth, however, was slow, and it is only in recent years that it has attained to importance.

WOELFL, JOSEPH, pianist and composer, was born in 1772 at Salzburg, where he studied music under Leopold Mozart and Michael Haydn. After a short residence at Warsaw he produced his first opera, *Der Hölleberg*, with some success at Vienna, where it was soon followed by *Das schöne Milchmädchen* and some other dramatic pieces. These, however, have been long forgotten, and his fame now rests upon his compositions for the pianoforte, and the skill with which he is said to have met their formidable demands upon his power as an executant. Woelfl died in Great Marylebone street, London, May 21, 1812. Some stories once current concerning his ruin by a card-sharper and death upon a heap of straw are proved to have been utterly without foundation.

WÖHLER, FRIEDRICH, chemist, was born on July

31, 1800, in Eschersheim, near Frankfort-on-the Main. He studied medicine at Marburg and Heidelberg, graduating in that faculty at the latter university. Having, on the advice of Leopold Gmelin, decided upon devoting himself thenceforth to chemistry, he completed his chemical education at Stockholm, under Berzelius, in whose laboratory he worked for a considerable time, and with whom, during his subsequent life, he maintained the most friendly relations. While in Sweden he took part in a scientific expedition through Norway, which made him acquainted with the brothers Brongniart and with Humphrey Davy.

After his return from Sweden in 1825, he accepted a call to Berlin as teacher of chemistry in the then newly-erected "gewerbschule," and remained there until 1832, when family affairs caused him to take up his abode in Cassel. In 1836 Wöhler became professor of chemistry in the medical faculty of the university of Göttingen, which office, in his case, was combined with that of inspector-general of pharmacy for Hanover. He held his chair till his death, which occurred after a short illness, on September 23, 1882.

WOHLGEMUTH, MICHAEL, an able painter of the school of Franconia, of which Nuremberg, where he was born in 1434, was the chief artistic center. The importance of Wohlgemuth as an artist rests, not only on his own individual paintings, but also on the fact that he was the head of a large workshop, in which many different branches of the fine arts were carried on. In this atelier not only large altar-pieces and other sacred paintings were executed, but also elaborate retables in carved wood, consisting of crowded subjects in high relief, richly decorated with gold and color, such as pleased the rather doubtful Teutonic taste of that time. The earliest known work by Wohlgemuth is a retable consisting of four panels, dated 1465, now in the Munich gallery, a decorative work of much beauty. In 1479 he painted the retable of the high altar in the church of St. Mary at Zwickau, which still exists, receiving for it the large sum of 1,400 gulden. One of his finest and largest works is the great retable painted for the church of the Austin friars at Nuremberg, now moved into the museum. As a portrait-painter he enjoyed much repute, and some of his works of this class are very admirable for their realistic vigor and minute finish. Outside Germany Wohlgemuth's paintings are scarce; the Royal Institution at Liverpool possesses two good examples—*Pilate Washing his Hands*, and *The Deposition from the Cross*, parts probably of a large altarpiece. One of his latest paintings is the retable at Schwabach, executed in 1508, the contract for which still exists. He died at Nuremberg in 1519.

WOLCOT, JOHN, painter and satirist under the pseudonym of PETER PINDAR, was son of Alexander Wolcot, surgeon at Dodbrooke, adjoining Kingsbridge, in Devonshire, and was baptized there May 9, 1738. He was educated at Kingsbridge free school under John Morris, at the Bodmin grammar school, and in France, and as the result of this training was well acquainted with Greek and Latin, and spoke French with facility. His first effusion, on the recovery of the elder Pitt from gout, is said to have appeared in *Martin's Magazine*, about 1756, when he was resident at Fowey, and he dictated verses until within a few days of his death. George III. was his favorite subject of ridicule, and his peculiarities were described or distorted in *The Lousiad*, *Peeps at St. James'*, *The Royal Visit to Exeter*. Two of Wolcot's happiest satires on the "farmer king" depicted the royal survey of Whitbread's brewery and the king's wonder how the apples got into the apple dumpings. The most entertaining biography which the



English language has yet produced was ridiculed in *An Epistle to James Boswell*, and in a piece on the rival biographers, happily called *Bozzy and Piozzi*. The leading man of science and the adventurous traveler fell under his lash—the former in *Sir Joseph Banks and the Emperor of Morocco*, and the latter in a *Complimentary Epistle to James Bruce*. When Wolcot came to London with his rough artistic genius from the west his hand was directed against the painters of the day who had already established their reputation, and his *Lyric Odes to the Academicians* often turned their modes of painting into a jest with marvelous effect. Wolcot was himself no mean artist, and in 1797 there was published *Six Picturesque Views from Paintings by Peter Pindar, engraved by Alken*. His satires are said to have exercised such an effect on public opinion that the ministers pressed upon him a government pension, on condition that he refrained from any further attacks on the king's peculiarities; but it is also asserted that he speedily declined to accept it any longer, and that he even returned the moneys which he had received. Like many another ridiculer of the idiosyncracies of others he was himself very susceptible to criticism, and for some attacks made on him by Gifford, the editor of the *Quarterly Review*, he attempted to belabor his satirical opponent in Wright's shop in Piccadilly, but Gifford was too quick for him, and Wolcot was soundly thrashed. He died at Latham Place, Somers' Town, London, January 14, 1819, and seven days later was buried near Samuel Butler, the author of *Hudibras*, in the vestry vault in the churchyard of St. Paul's, Covent Garden.

WOLF. The zoological position and general characteristics of the wolf (*Canis lupus*) are described in the article MAMMALIA, where the difficulties that naturalists meet with in separating and defining the numerous variations of the animals called wolves, dogs, jackals, and foxes are shown. The true wolves are (excluding some varieties of the domestic dog) the largest members of the genus, and have a wide geographical range, extending over nearly the whole of Europe and Asia, and North America from Greenland to Mexico, but they are not found in South America or Africa, being replaced in both of these continents by various species of jackals and foxes. As might be expected from this extensive range, and the varied character of the climatic conditions of the countries they inhabit, they present great diversities of size, length and thickness of fur, and coloration, although resembling each other in all important structural characteristics. These differences have given rise to a supposed multiplicity of species, expressed by the names *C. lupus*, *C. lycaon* (Central Europe), *C. laniger* and *C. niger* (Tibet), *C. pallipes* (India), *C. occidentalis*, *C. nudilis*, *C. mexicanus*, etc., of North America, but it is very doubtful whether these ought to be distinguished as other than local varieties. In North America there is a second distinct smaller species, called the coyote or prairie wolf (*Canis latrans*), and perhaps the Japanese wolf (*C. hodophylax*) may also be distinct, although, except for its smaller size and shorter legs, it is scarcely distinguishable from the common species. Though generally distributed throughout the Indian peninsula, the wolf is not found in Ceylon nor in Burmah and Siam. Its habits are similar everywhere, and it is still, and has been from time immemorial, especially known to man in all the countries it inhabits as the devastator of his flocks of sheep. Wolves do not catch their prey by lying in ambush, or stealing up close to it, and making a sudden spring as the cat tribe do, but by fairly running it down in open chase, which their speed and remarkable endurance enable them to do, and usually, except during summer, when the young families of cubs are being separately

provided for by their parents, they assemble in troops or packs, and by their combined and persevering efforts are able to overpower and kill even such great animals as the American bison. It is singular that such closely allied species as the domestic dog and the Arctic fox are among the favorite prey of wolves, and, as is well known, children and even full-grown people are not infrequently the objects of their attack when pressed by hunger. Notwithstanding the proverbial ferocity of the wolf in a wild state, many instances are recorded of animals taken when quite young becoming perfectly tame and attached to the person who has brought them up, when they exhibit many of the ways of a dog. They can, however, rarely be trusted by strangers.

WOLF, FRIEDRICH AUGUST, was born in 1759 at Hainrode, a little village not far from Nordhausen, in the province of Hanover. After two years of solitary study, at the age of eighteen, Wolf went to the university of Göttingen. During the years 1779-83 Wolf was a schoolmaster, first at Ilfeld, then at Osterode. His success as a teacher was striking, and he found time to publish an edition of the *Symposium*, which excited notice, and led to his promotion to a chair in the Prussian university of Halle, where (in 1783-1807), by the force of his will and the enlightened aid of the ministers of Frederick the Great, he was able to carry out his long cherished ideas, and found the science of philology. Wolf defined it to be "knowledge of human nature as exhibited in antiquity." The matter of such a science, he held, must be sought in the history and education of some highly cultivated nation, to be studied in written remains, works of art, and whatever else bears the stamp of national thought or skill. It has therefore to do with both history and language, but primarily as a science of interpretation, in which historical facts and linguistic facts take their place in an organic whole.

Wolf's writings make little show in a library, and were always subordinate to his teaching. During his time at Halle he published his commentary on the *Leptines* (1789)—which suggested to his pupil, Aug. Boeckh, the *Public Economy of Athens*—and a little later the *Prolegomena* to Homer (1795). The Halle professorship ended tragically, and with it the happy and productive period of Wolf's life. He was swept away, and his university with him, by the deluge of the French invasion. A painful gloom oppressed his remaining years (1807-24), which he spent at Berlin. His most finished work, the *Darstellung der Alterthumswissenschaft*, though published at Halle (1807), belongs essentially to the Halle time. At length his health gave way. He was advised to try the south of France. He got as far as Marseilles, and was laid in the classic soil of that ancient Hellenic city in 1824.

WOLFE, CHARLES, author of *The Burial of Sir John Moore*, born in Dublin in 1791, was an Irish clergyman, curate of Ballyclog, in Tyrone, and afterward of Donoughmore. The poem seems to have been written when Wolfe was still a student in Trinity College, Dublin, and it originally appeared in an Irish newspaper (the *Newry Telegraph*) in 1817. Wolfe died of consumption at Cork in 1823, at the early age of thirty-two.

WOLFE, JAMES, the hero of Quebec, was the son of Lieut.-Gen. Edward Wolf, and was born in the vicarage of Westerham, Kent, on January 2, 1727. Obtaining a commission as ensign in the 12th regiment of foot in 1741, he embarked for Flanders May 10th of the following year, and during the campaign of 1743, in which he acted as adjutant, he was present at the battle of Dettingen. Having exhibited, in addition to high courage, a rare talent for command, he received while yet a youth a commission, June 3, 1744, as captain in the 4th or



king's regiment of foot, and shortly afterward was made brigadier-major. In this capacity he took part in the suppression of the rebellion of 1745, being present both at Falkirk and at Culloden. In January, 1747, he sailed for the Continent, and for his valor at the battle of Lawfeldt, July 2d, he received the public thanks of the commander-in-chief, the duke of Cumberland. January 5, 1749, he was gazetted major of the 20th regiment, and in the following year he became lieutenant-colonel. In the luckless Rochefort expedition he was quartermaster-general, and by his dashing gallantry attracted the special notice of Pitt. When, therefore, it was decided in 1758 to send an expedition to Cape Breton under Amherst, Wolfe was appointed by Pitt brigadier-general. Wolfe eagerly urged an attack on Quebec, expressing his determination to leave the service if nothing further was to be done. Pitt not only acted on his advice, but selected him as the leader of the difficult and almost chimerical enterprise. Quebec, besides being strongly fortified, was occupied by forces which greatly outnumbered those placed at Wolfe's disposal.

After bombarding the city from the heights of Point Levi, Wolfe made an attempt, June 29, 1759, to attack Montcalm's camp in front, but his instructions were not carried out with sufficient accuracy, and foreseeing that irretrievable disaster was imminent he found it necessary after the attack had begun to recall his troops and retire. As the enemy were now on their guard against a second attack of a similar kind, Wolfe saw that the problem must be solved by some other method, and after some time spent in careful consideration he hit upon a still more daring plan. In the evening of September 12th, with 5,000 men he silently descended the St. Lawrence in boats, and, scaling the heights of Abraham in the darkness, drew up his forces on the plains so as to cut off Montcalm's supplies. The audacity of the movement was too much for Montcalm's patience. But the genius of Wolfe was equal to the occasion. With calm self-possession he forbade a single shot to be fired till the enemy were within thirty yards. The crushing volleys with which they were then met, followed by an impetuous attack with the bayonet, was decisive of the action. While leading a charge at the head of the Louisburg grenadiers, Wolfe had one of his wrists shattered by a shot, but wrapping a handkerchief round it he kept on. Another shot struck him, and he still advanced, when a third lodged in his breast. While he was lying in a swoon some one near him exclaimed, "They run; see how they run!" "Who run?" demanded Wolfe, like one roused from sleep. "The enemy," was the answer; "they give way everywhere." Wolfe then signified that a regiment should be sent down to Charles river to cut off their retreat, and, on learning that his orders had been obeyed, he turned on his side, and murmured as his last words, "Now God be praised, I will die in peace." Montcalm, the French commander, was mortally wounded in the same action, and died soon afterward. By the surrender of Quebec Canada was lost to the French.

**WOLFENBÜTTEL**, a small town in the duchy of Brunswick, is situated on both banks of the Oker, seven miles to the south of Brunswick. It contains various minor tribunals, some schools, and a small garrison; and it carries on a few unimportant manufactures, (machinery, copper goods, linen, cork, preserves, etc.) In 1901 the population of Wolfenbüttel, including the suburbs of Auguststadt and Juliusstadt, was 16,455. The "Wolfenbüttel Fragments" are alluded to under LESSING; see also REIMARUS.

**WOLFF, CASPAR FRIEDRICH**, who is justly reckoned the founder of modern embryology, was born at

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Berlin in 1733, and studied anatomy and physiology under Meckel, and later at Halle, where he graduated in medicine in 1759, his thesis being his famous *Theoria Generationis*. After serving as a surgeon in the Seven Years' War, he wished to lecture on anatomy and physiology in Berlin; but being refused permission he accepted a call from the empress Catherine to become professor of those subjects at the academy of St. Petersburg, and acted in this capacity until his death in 1794.

**WOLFF, CHRISTIAN**, is an important figure in the history of philosophy, and his life has more dramatic interest than is usually the case with an academic teacher. He was the son of a tanner, and was born at Breslau, January 24, 1679. Wolff received a gymnasium training in Breslau, whence he proceeded in 1699 to the university of Jena. Mathematics and physics formed at first his chief attraction, to which he soon added philosophy. He studied the Cartesian philosophy as well as the works of Grotius and Pufendorf, but was chiefly influenced by Tschirnhausen's *Medicina Mentis*. In 1703 he qualified as privat-docent in the university of Leipsic, where he lectured till 1706, when he was called as professor of mathematics to Halle. Halle was the headquarters of Pietism, which, after a long struggle against the rigidity of the older Lutheran dogmatism, had itself assumed the characteristics of a new orthodoxy. Personal grounds accentuated the bitterness. Strife broke out openly in 1721, when Wolff, on the occasion of laying down the office of pro-rector, delivered an oration "On the Moral Philosophy of the Chinese," in which he praised the purity of the moral precepts of Confucius, pointing to them as an evidence of the power of human reason to attain by its own efforts to moral truth. The attacks and accusations in connection with this address were unsuccessful at the time, but Wolff continued to give offense to his colleagues, and to Lange in particular, by his action in the filling up of university chairs, and in 1723 a disappointed pupil, a docent in the same university, published a hostile criticism upon Wolff's system, at the instigation, it is said, of Lange.

On November 13, 1723, a cabinet order arrived in Halle deposing Wolff from his office, and commanding him to leave Halle and quit Prussian territory within forty-eight hours on pain of a halter. The same day Wolff passed into Saxony, and presently proceeded to Marburg, to which university he had received a call before this crisis. The landgrave of Hesse received him with every mark of distinction, and the circumstances of his expulsion drew universal attention to his philosophy. The seventeen years which Wolff spent at Marburg witnessed the publication of his chief works, and the rise of his philosophy to almost undisputed sway throughout Germany. His earlier treatises were, like his lectures, composed in German—a treatise on logic, called *Vernünfftige Gedanken von den Kräften des menschlichen Verstandes* (1712); a metaphysic, *Vernünfftige Gedanken von Gott, der Welt, und der Seele des Menschen, auch aller Dinge überhaupt* (1719); treatises on ethics and politics with similar titles (1721); three on the philosophy of nature (1723-4-5), followed by an encyclopædic review of his system in 1726. Meanwhile, after some years the king of Prussia made overtures to Wolff to return, and in 1739, by the irony of events, a cabinet order prescribed the study of the Wolffian philosophy to all candidates for ecclesiastical preferment. In 1740 Frederick William died suddenly, and one of the first acts of his successor, Frederick the Great, was to recall Wolff to Halle on the most flattering and advantageous terms. His entry into Halle, December 6, 1740, partook of the nature of a triumphal procession. In 1743 he became

chancellor of the university, and in 1745 he received the title of "freiherr" from the elector of Bavaria. But, though he was thus loaded with honors, and his philosophy everywhere triumphant, he found that he had outlived his power of attracting the academic youth. He died April 9, 1754, in the seventy-sixth year of his age, fourteen years after his return to Halle.

WOLF-FISH. See SEA-WOLF.

WOLFRAM VON ESCHENBACH, mediæval German poet, lived in the latter part of the twelfth and the early part of the thirteenth century. Little is known about the facts of his life, and such knowledge as we possess is derived wholly from his own writings. He belonged to a poor but noble family. He speaks of himself as a Bavarian, and refers to the count of Wertheim as his feudal lord. His home was the castle of Eschenbach (near Ansbach), and in the churchyard at Eschenbach what was said to be his grave was shown as late as the beginning of the seventeenth century. He spent some time at the court of Hermann, landgrave of Thuringia, where he met Walther von der Vogelweide, to whom he makes two references in his works. Wolfram survived Hermann, who died in 1216. His greatest work is *Parzival*, an epic poem completed between 1205 and 1215. It combines the story of the Holy Grail with incidents from the legends of southern France about the old princes of Anjou, and from the legendary history of Arthur and the Knights of the Round Table. Besides his chief work and various lyrics he composed two epic fragments, *Titurel*, and *Willehalm*, the former before *Parzival*, the latter after. *Titurel*, a love-tale, belongs to the same cycle of legends as the story of *Parzival*, and, so far as form is concerned, it is the brightest and most artistic of Wolfram's works. *Willehalm* presents the legendary history of St. William of Orange, a contemporary of Charlemagne. The so-called third part of this poem was continued by Ulrich von Türlin about 1250, the first part by Ulrich von dem Türlin between 1252 and 1278.

WOLLASTON, WILLIAM, English philosophical writer, was born at Coton-Clanford in Staffordshire, March, 1659. He was educated under disadvantages both at school and at the university, but left his college in September, 1681. He then became assistant-master of the Birmingham grammar school, and in that position took holy orders. In 1688 an uncle unexpectedly left him an ample fortune, on which he retired, moving to London, where he married a lady of fortune, and devoted himself to his domestic duties and the pursuit of learning and philosophy. The substance of his thinking he embodied, toward the end of his life, in the one book by which he is now remembered, *The Religion of Nature Delineated*, the first edition of which was privately printed in 1722, and the second, revised, in 1724. He died in October of the same year.

WOLLASTON, WILLIAM HYDE, chemist and natural philosopher, was born at East Dereham, in Norfolk, on August 6, 1766. Wollaston studied at Caius College, Cambridge, of which he remained a fellow until his death. He took the degree of M.B. in 1787, and that of M.D. six years later, and commenced to practice medicine in 1789 at Bury St. Edmunds. He devoted attention to the affairs of the Royal Society, of which he was elected a fellow in 1793, and made secretary in 1806. For many years he was a vice-president, but did not care to enter in competition with Sir Humphrey Davy when the latter was elected president in 1820. Toward the close of 1828 he felt the approach of his fatal malady—a tumor in the brain—and devoted his last days to a careful revision of his unpublished researches and industrial processes, dictating sev-

eral papers on these subjects, which were afterward published in the *Philosophical Transactions*. On December 22, 1828, he died, as he had lived, self-possessed, stern, and silent.

WOLLIN, an island belonging to Prussia, is the more easterly of the islands at the mouth of the Oder, which separate the Stettiner Haff from the Baltic Sea. It is divided from the mainland on the east by the Dievenow, and from Usedom on the west by the Swine. It is roughly triangular in shape, and has an area of ninety square miles. Heath and sand alternate with swamps, lakes, and forest on its surface, which is quite flat, except toward the southwest, where the low hills of Lebbin rise. The coast is fenced with dunes and shifting sand-hills. Cattle-rearing and fishing are the chief resources of the inhabitants, who number about 14,000. Misdroy, on the northwest coast, is a favorite sea-bathing resort, and some of the other villages, as Ostswine, opposite Swinemünde, Pritter, famous for its eels, and Lebbin, are also visited in summer.

WOLLSTONECRAFT, MARY. See GODWIN, MARY W., and SHELLEY, MARY W.

WOLSEY, THOMAS, cardinal, was born at Ipswich in March, 1471, though contemporary evidence would place it some years later. His education began doubtless at the grammar school of his native town, where he showed himself an apt scholar. That reputation was fully sustained when he passed to Magdalen College, Oxford, for he took his B.A. degree at the early age of fifteen, whence he was known as "the boy bachelor." He became M.A. with such credit and distinction that he had conferred upon him a fellowship and the mastership of the grammar school attached to his college, of which last in 1498 we find him bursar. From arts he went on to the study of divinity, in which the unfriendly Polydore Virgil is compelled to admit he was "not unlearned," but of which he did not become bachelor till 1510. Among Wolsey's pupils at Magdalen school were three sons of the marquis of Dorset. So well was the marquis satisfied with the progress of his children that he invited Wolsey to spend with him the Christmas holidays of what must have been the year 1499. When Wolsey returned to Oxford it was with the presentation to the quiet Somerset parish of Lymington. In the October following he was inducted. He had not been long placed when a neighboring squire, Sir Amias Paulet, put him in the stocks. The cause of this indignity is not clear; but it was remembered and resented with all the keenness attaching to an injustice suffered. In September, 1501, Dorset died, and that event finally decided Wolsey to quit Lymington. Paulet's proceeding had not affected Wolsey's character, for he now became one of the private chaplains of Henry Dean, archbishop of Canterbury. But any hopes he may have founded on this appointment were soon blighted by the death of Dean in February, 1503. Through Bray, probably, Wolsey next obtained a chaplaincy with another favorite agent of Henry's, Sir Richard Nanfan, deputy-lieutenant of Calais. Wolsey became chaplain to Henry VII. himself, and when, in 1506, Sir Richard died, Wolsey was one of his executors. On February 2, 1509, Wolsey, who by this time held several minor preferments, was collated to the deanery of Lincoln. Within three months Henry died and his son came to the throne. Already had Wolsey ingratiated himself with the young Henry, and almost at once commenced his unprecedentedly rapid rise to power.

On November 20, 1511, his signature as a privy councillor first occurs. Fox had long been anxious to withdraw from political life, and he now gradually shifted his state duties onto the willing, able, and younger shoulders of Wolsey. Nor was Wolsey's op-



portunity of distinguishing himself long in coming. An expedition against Guienne in 1512 had effected nothing and returned in disgrace. This only roused Henry's pride and persistence, and he resolved to invade France from the north in the following year. The organization of the necessary force he committed to Wolsey. Churchman though he was, Wolsey succeeded to admiration. Wolsey's favor with Henry was confirmed. Rewards came thick and fast. On the capture of Tournai, Henry named Wolsey to the bishopric of that see, which just then fell vacant; but the English nomination was never ratified by the pope. In the succeeding January (1514) the see of Lincoln lost its episcopal head, and next month the new pope, Leo X., confirmed Wolsey's appointment to it. The preferment proved but temporary; for in July Cardinal Bainbridge, archbishop of York, was poisoned at Rome, and on August 5th Wolsey was raised to his place. Two days later Wolsey brought to a triumphant termination his first great effort in diplomacy, and made with Louis XII. of France a treaty which really undid the notorious league of Cambrai, defeated Ferdinand of Spain with his own weapons, and left England, for the moment, the first power in Europe. Wolsey thereby began a new era in English politics.

The year 1515 brought him two new honors. For years Warham, archbishop of Canterbury, had desired to be released from the lord chancellorship, and Henry had repeatedly urged Wolsey to accept it. Wolsey naturally shrank from adding to his already arduous duties; but both Warham and the king became so urgent that he at last yielded. By patent dated December 21st he assumed the post, and at once threw himself into its work with his accustomed vigor, dispensing justice and introducing reforms with fearless impartiality. The second dignity, the cardinalate, was obtained through the active intervention of Henry himself, and only by the most threatening arguments did the king overcome the fears and reluctance of Leo. On September 10th Wolsey was elected cardinal sole. The bearer of the red hat and ring arrived in London in November, and on Sunday the 18th Wolsey was installed amidst all the ceremonial magnificence which he valued not only for his own sake but for his king's. Next year, 1519, Wolsey was appointed sole legate for a year, and, finally, in 1524, following several extensions, he became legate for life, after receiving unusual powers. In 1518 he received the see of Bath and Wells *in commendam*, which in 1523 he resigned for Durham, replaced in turn by Fox's bishopric of Winchester in 1529. At the conclusion of the Calais conference in 1521, Henry recompensed him with the rich abbacy of St. Albans, held, like the episcopates, *in commendam*. He was prime minister of Henry, and in his income as in his master's, there was no distinction between public and private money. Vast sums were used in founding his college at Ipswich and Cardinal College at Oxford, now known as Christ Church, which formed but part of a splendid scheme of national education, a scheme ultimately ruined by the greed of the king.

Wolsey's favor with the king had been founded on success, and it fell by failure. Suddenly across his minister's diplomacies Henry dragged the question of the divorce, and everything had to be sacrificed to its accomplishment. Seeing too clearly how much, both personal and national, depended on attaining Henry's desire, Wolsey strove his very uttermost to further a design to which he was himself opposed, stooping to the most discreditable and unworthy means. But the decision lay with Pope Clement, who was in the power of Charles V., Catherine's nephew, and all Wolsey's efforts were in vain. Vain, too, were all attempts to

intimidate Catherine herself. A collusive suit was begun before Wolsey by which she was to be condemned unheard; she got word of it and thwarted the plan by demanding counsel. A commission was obtained from the pope for Campeggio and Wolsey to try the cause in England (1529); she appeared before the legatine court at Blackfriars only to appeal to Rome, and thither under imperial pressure Clement revoked the case. It was plain Wolsey had failed, and all Henry's wrath burst out against his too faithful servant. He pointedly employed a secretary, and Wolsey's occupation was gone. On September 20th Henry parted from Wolsey without any sign of displeasure, but they parted for the last time. Anne Boleyn and her uncle Norfolk were Wolsey's bitter foes. By Anne's sway over Henry Wolsey was kept from the royal presence while Norfolk plotted his ruin. On October 17th, at the king's command, Wolsey delivered up the great seal to Norfolk and the base, ungrateful Suffolk. He was deprived of his dignities, his goods were confiscated, and surrendering York Place, he retired to Esher. The Court of King's Bench found him guilty in a præmunire, and sentenced him to imprisonment, while a bill precluding his restoration to power or dignities reached the Commons. The bill was dropped, but not till February, 1530, did Henry grant him a full pardon and restore him to the archbishopric of York, on condition that he resigned Winchester and St. Albans. Dreading his proximity to the king, his enemies procured his banishment into his diocese. Thither he went in April, and won the hearts of the people by his simplicity of life and graciousness of manner. His foes were alarmed; his death alone could quiet their fears. He was preparing to be installed archbishop on Monday, November 7th, when on the 4th he was arrested, at Cawood Castle by the earl of Northumberland for high treason. On the way south, at Sheffield Park, Nottinghamshire, he was met by Sir William Kingston, keeper of the Tower, and at last Wolsey knew his doom. Long years of toil, anxiety, and the ceaseless vexations of his cruel enemies had shattered his health. Nevertheless he set out, and by three stages reached Leicester abbey on Saturday, the 26th. "Father abbott," he said, as the convent with its head came out to receive him, "I am come hither to leave my bones among you." He felt that he was dying. Kingston assisted him upstairs, and he at once went to bed. Vomiting and faintings came on, and he rapidly sank. At eight o'clock on the morning of the 29th, he died; and within twenty-four hours was buried in a rude coffin all that remained of the genius who made possible the glories of Elizabeth and the British empire of to-day.

WOLVERHAMPTON, a municipal and parliamentary borough and market-town of Staffordshire, England, one of the principal seats of the hardware manufacture in the Midlands, is situated on an eminence commanding an extensive view toward Wales, on the Birmingham and Liverpool, the Staffordshire and Worcestershire, and the Wyrley and Essington canals, and on the London and North-Western, the Midland, and the Great Western railways, 13 miles north-west of Birmingham, 16 south of Stafford, and 126 from London. The principal streets diverge from Queen Square, and are for the most part regular and well built, with numerous handsome shops. Toward the west there are pleasant suburbs of villas, the country being rich and well wooded. Street improvements have been carried out on a large scale within recent years. Main drainage works on a thorough method have also been completed, and a large fund purchased for the utilization of the sewage. Th

water-works, opened in 1847, belong to the corporation. The water is supplied from springs in the Red Sandstone by wells sunk to a great depth. The old race-course, fifty acres in extent, has been laid out as a public park; and a new race-course was opened in 1887. The population of the municipal borough and urban sanitary district (area 3,396 acres) in 1901 is 94,179.

Situated in a district abounding in coal and ironstone, Wolverhampton has become famous for the manufacture both of the heavier and the smaller kinds of iron-ware, although in the finer class of metal manufactures for which the neighboring town of Birmingham is famous it has little or no share. It possesses large smelting furnaces, and iron and brass foundries, but is specially occupied in the manufacture of all kinds of iron implements, tools, and domestic requisites, including locks and fastenings, hinges and nails, kitchen furniture, gardeners', wrights', and smiths' tools and implements, tinplate goods, and every variety of japanned ware, of which it may be regarded as the principal seat. There are also extensive clay-retort works, chemical works, grease works, dyeworks, varnish works, coach works, corn and saw mills, cooperages, ropewalks, maltings, and breweries.

WOMB, THE, professionally known as the uterus, is a flattened pear-shaped organ. It consists of a body (1), a base or fundus (2), a neck or cervix (3), and a mouth or *os uteri* (4). It lies in the line of the axis of the outlet of the pelvis, with base directed upward and forward, and the neck directed slightly backward. In the unimpregnated condition, which we are now considering, it is about three inches in length, two in breadth, and one in thickness, and weighs about an ounce and a half. On laying it open, or exploring its interior by the introduction of an instrument through the *os uteri*, its cavity is found to be very narrow, and to contain a little mucus. Its walls are nearly half an inch thick, and are mainly composed of muscle-cells, and fibers running irregularly in all directions except round the *os*, where they make a partial sphincter.

This muscular coat, which constitutes the bulk of the organ, is covered externally with a serous coat, derived from the peritoneum, and is lined internally by a mucous coat, continuous with that of the canal called the vagina, by which the interior of the womb communicates with the outer surface of the body. This mucous coat abounds in small mucous follicles, and is provided with ciliated epithelium. The neck or cervix of the womb is distinguished from the body by a well marked constriction. The mouth, or *os*, projects slightly into the vagina. This opening is nearly round in the virgin, and transverse after parturition. It is of considerable size, and is named the *orificium uteri externum*; it leads into a narrow canal which terminates at the upper end of the cervix in a smaller opening, the *orificium internum*, beyond which is the shallow triangular cavity of the womb, of which it forms the lower angle, while the two upper angles, which are funnel-shaped, constitute the beginning of the Fallopian tubes, whose apertures are so small as only to admit the passage of a fine bristle. The blood vessels and nerves enlarge in a very remarkable way during pregnancy, so as to adapt themselves to the increased wants of the organ, which, at the ninth month of utero-gestation, weighs from two to four pounds.

The term *appendages to the uterus* is given to the Fallopian tubes and ovaries, which are inclosed by the lateral folds of the peritoneum called the broad ligaments. The womb is suspended in the pelvic cavity in such a way as, by its mobility, to escape rude shocks from without or disturbance from the varying conditions of the surrounding viscera, while at the same time

to allow of its vastly increasing in bulk with comparatively little discomfort when pregnancy occurs. This is effected by several duplicatures of peritoneum, containing variable quantities of fibrous and muscular tissue, and known from their form or connection as the broad, the round, the utero-sacral, and the utero-vesical ligaments. The uterus is an organ peculiar to the mammalia, and in comparatively few of them (excepting the apes and cœiroptera) is it of the simple oval or triangular form which we have described. It is two-horned in the ruminantia, pachydermata, solipedia, and cetacea; and it is said to be divided where it has only a very short body, as in most of the carnivora and edentata, and some rodentia, which speedily divides both externally and internally, and is continuous with the oviducts or Fallopian tubes. The uterus is actually double in some of the edentata, and in most of the rodentia, including the mouse and hare, in which each Fallopian tube passes into an intestiniform uterus, which has two completely distinct openings lying near to each other within the vagina. In the marsupialia and monotremata, the modifications of this organ are still more singular. It is impossible to do more than name the chief offices or functions of the womb. They may be divided into those which relate to (1) menstruation, (2) insemination, (3) gestation, and (4) parturition.

WOMB, DISEASES AND DERANGEMENTS OF THE. In this article we shall not include the pregnant or puerperal state, some of which, as *Phlegmasia Dolens* and *Puerperal fever*, have been noticed in special articles. Many of the diseases, however, which we shall have occasion to notice, may be traced to pregnancy, miscarriage, or severe delivery that had occurred months previously. A common result of inflammation which often succeeds miscarriage, or a bad delivery, is to check that process of involution, by which the womb ought to be restored in a few weeks to the size and condition in which it existed previous to the occurrence of pregnancy. How inflammation acts, interrupting these processes, is not easily explained; but after it has passed away its effects may remain in the enlarged size and altered structure of the womb; changes which render it likely to suffer from the alternation of activity and repose to which the female generative system is liable. In this condition the enlarged and heavy uterus is likely to become prolapsed, or to become a seat of permanent congestion or chronic inflammation, and excessive menstruation and a feeling of weight in the pelvis are almost always present. Besides this form of enlargement there is a far less common form, in which the enlargement of the womb takes place independently of previous pregnancy, and is the result of true hypertrophy. The symptoms are, a sense of weight in the pelvis, pain, usually of a burning character; hemorrhages gradually come on, and force themselves by their slowly increasing severity on the patient's notice. The treatment is much the same in both these forms of enlargement, viz., the recumbent position on a hair or spring mattress, attention to the bowels, and local leeching every two weeks, to be continued for several months, together with the careful use of iron, associated with small doses of iodide of potassium. Temporary separation from the husband's bed should also be insisted upon. There is a form of hypertrophy which is confined to the neck of the womb, which occasions great discomfort to the patient, and acts as a mechanical impediment to sexual union. In these cases no relief can be afforded except by surgical operations. From these results of simple errors of nutrition leading to increased growth of the organ, we pass on to the debatable and much-trodden ground of inflammation of the womb. Acute inflammation of the unimpregnated womb may arise from



an unaccustomed and excessive intercourse, sudden suppression of menstrual discharge, the extension of gonorrheal inflammation, etc. But as it is comparatively rare, and seldom dangerous to life, we shall at once pass on to an affection which by most practitioners is regarded as one of the commonest to which woman is liable, viz., chronic inflammation and ulceration of the neck of the womb. It is not forty years ago since a French physician, M. Recamier, invented an instrument—the speculum—for the application of local remedies to the neck of the womb in cancer; but the light which this instrument threw upon uterine conditions generally, led, among other results, to the conclusion, that leucorrhœal discharge (popularly known as the whites) were often derived from, and associated with, various morbid appearances in the mouth of the womb, and could often be removed by remedies directed to that part. Almost since the speculum began to get in general use, a large number of old fashioned practitioners raised a cry against its employment, on the grounds of indelicacy, its inutilty, etc., and denied the very existence of various morbid conditions which the employers of the instrument declared they saw with its use. Hence two parties have arisen, one who believe in the speculum and its revelations, and another who reject the recent modes of investigation of uterine diseases, who take small account of new facts regarding local diseases which have been revealed, and who regard uterine diseases as resulting from constitutional derangements, and who, therefore, trust to general treatment. Now, although the view that the local disease is everything, may not be universally true, the opposite view is certainly untenable; and Doctor West and other writers on this subject have pointed out that there are reasons why the womb should more frequently than perhaps any other organ be the seat of certain forms of local ailments, and should consequently require the frequent employment of local treatment. It would be out of place, in these pages, to describe the characters of ulcerations and abrasions of the womb, which are so frequently revealed by the speculum, or to enter into detail regarding the pathological importance attached by some writers to them. The conclusion which Doctor West draws from a prolonged investigation of this subject, is that the condition of so-called ulceration or abrasion of the os uteri is far from infrequent, even in cases where no uterine symptoms were complained of during life; but that it is usually associated with other important affections of the uterus, such as may be supposed to be the effects of inflammatory action; and further, that such affections do not seem to be readily excited by causes acting on the neck of the womb either when displaced or when the organ is in its natural position. Since uterine pain, disordered menstruation, and leucorrhœal discharge—symptoms usually associated with the ulceration of mouth of the womb—are met by impartial observers almost as frequently without as with ulceration, it may be fairly inferred that this ulceration is neither a cause of uterine disease, nor a safe index of its progress; and although the local application of caustic to the os uteri is doubtless often successful in restoring the patient to health, it must not be considered as a general rule that the attempt, by local remedies, to remove this condition is the one all-important point in the treatment of uterine disease. There is no doubt that in the great majority of cases (excepting a few of the more severe ones) temporary separation from the husband's bed, the recumbent position (which facilitates the return of blood from the womb and adjacent parts) due attention to the diet and digestive organs, and the use of injections of nitrate of silver, which may be applied by the patient,

are sufficient in a few weeks to effect a cure. Chronic uterine inflammation of a more general nature (as of the interior or the body of the womb) with very similar symptoms, is by no means rare. If the disease is met with in acute form, leeches should be applied to the womb itself; in the chronic form, which is generally observed, the pain in the back is best relieved by croton oil liniment, composed of one part of croton oil, and ten of camphor liniment, which should be applied (without rubbing it in) with a sponge twice a day on the back, at the seat of the pain. The irritability of the bladder, which is a common symptom, is usually associated with abundant phosphatic deposits in the urine.

The same general rules as to diet, etc., which have been given, must be attended to. Under the best management a tendency to relapse is liable to occur at each monthly period, and after several such relapses the womb is found (on surgical examination) to be enlarged and hardened and less movable than natural. This condition is best removed by the careful and prolonged usage of bichloride of mercury in small doses, which, as it is a deadly poison, must only be taken upon medical advice; but the pain in the groin which usually accompanies this change may be relieved or removed by application of a small blister. The profuse discharge, both menstrual and leucorrhœal, is best relieved by chalybeate preparations. A hip-bath, containing a gallon of water to every half pound of alum, is also very useful as an astringent. It should be taken in the morning before dressing, and the patient should remain in it at least half an hour. For the first time or two, the water may have the chill taken off. The same importance is not attached to vaginal injections as when it was believed that the vagina (and not the womb) was the main source of leucorrhœal discharge. It is usually hemorrhage or inability to void the urine that first directs the attention of the patient to her malady. Its tendency to excite abortion often leads the physician to suspect its presence. Although as we have mentioned before this affection is little amenable to treatment, a woman with these symptoms should at once consult a physician (if possible the physician accoucher of a large hospital) who, by his advice as to general management of the case, especially during the menstrual period, may do much to palliate her sufferings. Iodine, bromide, and certain mineral waters containing these elements and mercury have been vaunted as specifics, but nothing positive can be said regarding their successful action; and certain surgical operations have been recommended which are accompanied with so much danger to the patient that it is needless to refer to them. Although the action of medicine on these growths is uncertain, nature in this, as in many other cases, strives to complete a cure. For example, if a tumor is pediculated, and lies in the uterine cavity, the pedicle may finally give way, and the tumor may be expelled, or certain changes may take place in the interior of the womb leading either to its disintegration or elimination, or into its conversion to a chalky mass, which, though not eliminated, induces no local disturbances. These spontaneous cures are by no means rare, although we can hardly lead the patient to expect them in any special case. We shall conclude with a few words on a disease which is more painful and hopeless than all the disorders to which humanity is liable—cancer of the womb. It is a disease of which the leading features are thus graphically—we may almost say painfully—described by Doctor West: Pain, often exceeding in intensity all that can be imagined as the most intolerable, attended by accidents which render the sufferer most loathsome to herself and those whom strong affection still gathers round her bed; the general

health broken down by the action of the same poison as produced the local suffering, and all tending surely, swiftly, to a fatal issue which skill cannot avert, from which it can scarcely take away its bitterest anguish. The three most constant symptoms are pain, hemorrhage and discharge. From an examination of 132 cases by Doctor West, the first symptom was found to have been, in 58 instances, or 43.9 per cent., hemorrhage without pain.

In 26 instances, or 19.6 per cent., pain of various kinds.

" 18 " 13.6 " hemorrhage with pain.

" 18 " 13.6 " leucorrhœa and other

discharge without pain.

In 12 instances, or 10.3 per cent., pain and discharge, sometimes offensive.

It is unnecessary to enter into further details regarding the symptoms of this disease, as cases of this nature must always be under medical attendance, and for the same reason we need only say regarding the treatment, that it is divisible into the palliative and the curative, the former being directed to the three great symptoms of the cancerous cachexia (or constitution), while in the latter are included the operation of extirpating the whole womb, or removing the neck of the womb by ligature or excision. It is difficult to speak with accuracy regarding the frequency of this disease. An approximate estimate may be formed from the fact that in 1877, the mortality from cancer in England amounted to 3,823 males, and 8,038 females; the excess in the latter case amounting to 4,215 must be due to cancer in the womb or breast; according to Tanchou, a French pathologist, cancer of the womb is more frequent than that of the female breast in the rate of 26 to 10. Hence the yearly deaths from uterine cancer in England amount to about 2,972. The last named writer calculated, from ten years observation of the French records of mortality, that this disease causes 16 per 1000 of female deaths. The disease is very rare before the twenty-fifth year and by far the most common appearance of it is between the ages of forty and fifty-six years. Its average duration is sixteen to seventeen months, but it may prove fatal in three or four months. For further information on this subject generally the reader is referred to the standard works of Churchill, Lever, Simpson, West, etc.

**WOMBAT.** The animals which have received this name belong to the Marsupial family *Phascolomyidae* (see MAMMALIA). They have the following dental formula:  $i \frac{1}{1}, c \frac{0}{0}, p \frac{1}{1}, m \frac{4}{4} = \frac{10}{10}$ ; total, 24. All the teeth are of continuous growth, having persistent pulps. The incisors are large and scalpriform, much as in Rodents. The body is broad and depressed, the neck short, the head large and flat, the eyes small. The tail is rudimentary, hidden in the fur. The limbs are equal, stout, and short. The feet have broad, naked, tuberculated soles; the fore-feet with five distinct toes, each furnished with a long, strong, and slightly curved nail, the first and fifth considerably shorter than the other three. The hind feet have a very short nailless hallux; the second, third, and fourth toes partially united by an integument, of nearly equal length; the fifth distinct and rather shorter; these four are provided with long and curved nails.

There are two distinct forms of wombat:

(1) *Phascolomys* proper. Fur rough and coarse. Ears short and rounded. Muffle naked. Post-orbital process of the frontal bone obsolete. Ribs fifteen pairs. Vertebrae: C 7, D 15, L 4, S 4, C 10-12. The wombat of Tasmania and the islands of Bass' Straits (*P. ursinus*), and the closely similar but larger animal of the southern portion of the mainland of Australia (*P. platyrhinus*) belong to this form.

(2) *Lasiorhinus*. Fur smooth and silky. Ears large and more pointed. Muffle hairy. Frontal region of skull broader than in the other section, with well-marked postorbital processes. Ribs thirteen. Vertebrae: C 7, D 13, L 6, S 4, C 15-16. One species, *P. latifrons*, the Hairy-Nosed Wombat of Southern Australia.

**WOMBWELL**, a township of England, in the West Riding of Yorkshire, on the Manchester, Sheffield, and Lincolnshire railway,  $4\frac{1}{2}$  miles southeast of Barnsley, 7 northwest of Rotherham, and 184 from London by rail. The church of St. Mary is an ancient structure, enlarged and altered in 1835. The inhabitants are chiefly employed in the extensive collieries. The population of the urban sanitary district (area 3,851 acres) in 1901 was 10,500.

**WOMEN, LAW RELATING TO.** The law as it relates to women has been gradual in its operation, but its tendency has been almost uniformly in one direction. Disabilities of women, married or unmarried, have been one after another removed, until at the present day, in most civilized countries, the legal position of women differs little from that of men as far as regards private rights. Much of the law relating to married women has been already dealt with under the heads of ADULTERY, BIGAMY, DIVORCE, MARRIAGE, HUSBAND AND WIFE, and SETTLEMENT; the last two especially dealing with the rights of property.

The dependent position of women in early law is proved by the evidence of most ancient systems which have in whole or in part descended to us. In the Mosaic law divorce was a privilege of the husband only; the vow of a woman might be disallowed by her father or husband, and daughters could inherit only in the absence of sons, and then they must marry in their tribe. The guilt or innocence of a wife accused of adultery might be tried by the ordeal of the bitter water. In India subjection was a cardinal principle. Women in Hindu law had only limited rights of inheritance, and were disqualified as witnesses. In Roman law a woman was, even in historic times, completely dependent. If married, she and her property passed into the power of her husband; if unmarried, she was (unless a vestal virgin) under the perpetual tutelage of her father during his life, and after his death of her agnates—that is, those of her kinsmen by blood or adoption who would have been under the power of the common ancestor had he lived. The wife was the purchased property of her husband, and, like a slave, acquired only for his benefit. A woman could not exercise any civil or public office. In succession *ab intestato* to immovable property, Roman law did not, as does English, recognize any privilege of males over females. Legal disabilities were gradually mitigated by the influence of fictions, the praetorian equity, and legislation.

The canon law, looking with disfavor on the female independence prevailing in the later Roman law, tended rather in the opposite direction. The *Decretum* specially inculcated subjection of the wife to the husband, and obedience to his will in all things. The chief differences between canon and Roman law were in the law of marriage, especially in the introduction of publicity and of the formalities of the ring and the kiss. A promise of marriage was so sacred that it made a subsequent marriage with another person void. Spiritual cognation was a bar to marriage. The sentence of the church was made necessary for divorce.

By Magna Charta a woman could not appeal any one for murder except that of her husband. She was not admitted as a witness to prove the status of a man on the question arising whether he were free or a villein.



She could not appoint a testamentary guardian, and could only be a guardian even of her own children to a limited extent. Her will was revoked by marriage, that of a man only by marriage and the subsequent birth of a child (see WILL). Burning was the punishment specially appropriated to women convicted of treason or witchcraft.

The present position of women in English law may be treated, for purposes of convenience, under several heads. Sex alone, as will appear, does not determine the law: sex and marriage together must often be taken into consideration.

A woman may fill some of the highest positions in the State. She may be a queen, a regent, or a peeress in her own right. A queen regnant has as full rights as a king. A peeress is entitled to be tried like a peer by the House of Lords or the court of the lord high steward (see TRIAL), and has a seat in the House of Lords, but no right of speaking or voting. Other public offices which a woman can fill are those of overseer, guardian of the poor, churchwarden, and sexton. She may also, if married, be one of a jury of matrons impaneled to determine the question of pregnancy of a widow on a writ *de ventre inspiciendo* or of a female prisoner, but she cannot serve on an ordinary jury. If unmarried or a widow, she can vote in municipal, school board, local government, poor law, and other elections of a local character, and can be a member (whether married or not) of a school board, but apparently not an overseer or guardian if married and living with her husband. She cannot be registered as a voter or vote at a parliamentary election or be elected a member of parliament. The question of granting the parliamentary franchise to women was first brought before the House of Commons by John Stuart Mill in 1867, as an amendment to the Representation of the People bill of that year, and has uniformly been rejected on that and several subsequent occasions. At present the Isle of Man is the only part of the United Kingdom where such a right exists. It was there conceded in 1882 to unmarried women with sufficient property qualification. The only one of the learned professions open to women in England is the medical. Special regulations are made by the Factories and Mines Acts as to the employment of women and girls in factories and mines. Under no circumstances is a woman allowed to work underground. The Shop Hours Regulation Act, 1886 (a temporary provision), forbids the employment in shops of girls under eighteen for more than seventy-four hours in a week. A married woman may, since the Married Women's Property Act, 1882, carry on a trade separately from her husband, and in such case is liable to be made a bankrupt. She may apparently be a partner of her husband, and may lend him money, but in this case her claim to a dividend on his bankruptcy is postponed to that of other creditors. The principal disabilities under which women are now placed may perhaps be classed under the head of family rights, viz., exclusion of female heirs from intestate succession to real estate, unless in absence of a male heir (see INHERITANCE, PRIMOGENITURE), and the obtaining of DIVORCE (*q.v.*) by a husband for the adultery of his wife, while the wife can only obtain it for adultery coupled with some further cause; such as cruelty or desertion.

There are some offenses which can be committed only by women, others which can be committed only against them. Among the former are concealment of birth (in ninety-nine cases out of a hundred), the now obsolete offense of being a common scold, and prostitution and kindred offenses. Where a married woman commits a crime in company with her husband, she is generally presumed to have acted by his coercion, and so to be enti-

tled to acquittal. Formerly a wife could not steal her husband's property, but since the Married Women's Property Act this has become possible. The evidence of a wife is not usually receivable for or against her husband (see WITNESS). She does not become an accessory after the fact by receiving and harboring her husband after he has committed a felony; the husband, however, is not equally privileged if the offense be committed by the wife. Adultery is now no crime, England being almost the only country where such is the case.

The offenses which can be committed only against women are chiefly those against decency, such as rape, procurement, and similar crimes, in which a considerable change in the law in the direction of increased protection to women was made by the Criminal Law Amendment Act, 1885.

The Acts of Congress contain little affecting the subject. Any woman married to a citizen of the United States who might herself be lawfully naturalized is to be deemed a citizen. Women are allowed as clerks in government departments, and may be employed as nurses and hospital matrons in the army. The right of voting for congress or for the State legislature is still denied in the country as a whole, in spite of the strong attempts which have been made by the advocates of female suffrage. The right, however, exists to a limited extent. In Washington, Wyoming, and Utah women vote, and in the constitutions of some States, such as Colorado and Wisconsin, it is provided that the right of suffrage may be extended to women by a majority of electors at a general election. The constitutions of most States confine the franchise to male electors. The admission of women to the school franchise is, however, largely increasing, and had in 1887 been adopted by fourteen States. In a limited number of States the professions (except the military) are open to women. Where the legal profession is not so open, a refusal by a State court to grant a license to practice law is no breach of the Federal constitution (see PRIVILEGE). In most States the policy adopted in England by the Married Women's Property Act is the rule, and there is in general no distinction of sex in succession to real estate. For the testamentary rights of married women see WILL. In some of the State universities women are admitted to full privileges of instruction and graduation; in others, such as the university of Pennsylvania, they are admitted to instruction and examination, but not to graduation. The law in some cases gives women remedies for tort which are unknown in England. For instance, by the law of some States a woman may bring an action of SEDUCTION (*q.v.*) in her own name, and may recover damages for slander imputing unchastity, without proof of special damage, which cannot be done in England. The criminal law is also more extensive. In the New England and some of the other States mere fornication is punishable as a crime. Adultery is criminal by the law of most States.

WOOD. See BOTANY, BUILDING, FORESTS, STRENGTH OF MATERIALS; also FIR, OAK, PINE, TEAK, etc.

WOOD, ANTHONY A. antiquary, was the fourth son of Thomas Wood (1580-1643), B.C.L. of Oxford, where Anthony was born December 17, 1632. He was sent to New College school in that city in 1641, and at the age of twelve was removed to the free grammar school at Thame, where his studies were interrupted by civil war skirmishes. He was then placed under the tuition of his brother Edward (1627-55), of Trinity College. He was entered at Merton College in 1647, and made postmaster. In 1652 "he began to exercise his natural and insatiable genie he had to musick," and was examined for the degree of B.A. He was admitted



M.A. in 1655, and in the following year published a volume of sermons of his late brother Edward. Dugdale's *Warwickshire* came into his hands, and he describes how "his tender affections and insatiable desire of knowledge were ravished and melted down by the reading of that book." He steadily investigated the muniments of all the colleges, and in 1667 made his first journey to London, where he visited Dugdale, who introduced him into the Cottonian library, and Prynne showed him the same civility for the Tower records. On October 22, 1669, he was sent for by the delegates of the press, "that whereas he had taken a great deal of paines in writing the *Hist. and Antiq. of the Universitie of Oxon*, they would for his paines give him an 100 *li*. for his copie, conditionally, that he would suffer the book to be translated into Latine." He accepted the offer and set to work to prepare his English MS. for the translators, Richard Peers and Richard Reeve, both appointed by Doctor Fell, dean of Christ Church, who undertook the expense of printing.

In 1674 appeared *Historia et Antiquitates Universitatis Oxoniensis*, handsomely printed "e Theatro Sheldoniano," in two folio volumes, the first devoted to the university in general and the second to the colleges. In 1678 the university registers which had been in his custody for eighteen years were removed, as it was feared that he would be implicated in the Popish Plot. To relieve himself from suspicion he took the oaths of supremacy and allegiance. During this time he had been gradually completing his great work, which was produced by a London publisher in 1691-92, two vols. folio, *Athene Oxonienses: an Exact History of all the Writers and Bishops who have had their Education in the University of Oxford from 1500 to 1690*, to which are added the *Fasti*, or *Annals for the said time*. On July 29, 1693, he was condemned in the vice-chancellor's court for certain libels against the late earl of Clarendon, fined, banished from the university until he recanted, and the book burned. Wood was attacked by Bishop Burnet in a *Letter to the Bishop of Lichfield and Coventry*, 1693, and defended by his nephew, Dr. Thomas Wood, in a *Vindication of the Historiographer, to which is added the Historiographer's Answer*, 1693, reproduced in the subsequent editions of the *Athene*. The nephew also defended his uncle in *An Appendix to the Life of Bishop Seth Ward*, 1697. On October 9, 1695, Wood had an interview with the earl of Clarendon, but was not able to get his fine remitted. After a short illness he died, November 28, 1695, in his sixty-third year, and was buried in the ante-chapel of St. John Baptist (Merton College), in Oxford, where he superintended the digging of his own grave but a few days before.

WOOD, MRS. HENRY, novelist, was born January 17, 1814. She first came before the public in her own name as the author of a temperance tale (*Danesbury House*), which had gained the prize of \$500 offered by the Scottish Temperance League. This was in 1860; but it appears from the memoirs published in 1887 that "for many years" before this she had been a regular contributor of stories anonymously, month after month, to Mr. Harrison Ainsworth's magazines, Bentley's *Miscellany*, and Colburn's *New Monthly*. *Danesbury House* was very favorably reviewed, her genuine gifts as a story-teller making themselves apparent in spite of the didactic purpose of the tale; but Mrs. Wood's first great success was made in the following year with *East Lynne*, one of the most popular novels of the century. The praise of the critics continued throughout the next half-dozen of her novels, which followed one another with great rapidity: *The Chanings* and *Mrs. Halliburton's Troubles*, in 1862; *Ver-*

*ner's Pride*, and *The Shadow of Ashlydyat*, in 1863; *Lord Oakburn's Daughters*, *Oswald Cray*, and *Trevlyn Hold*, in 1864. These works were held to confirm the promise of *East Lynne*, and *The Shadow of Ashlydyat* was pronounced to be (as it is still generally considered) the best of them all. She became owner of the *Argosy* in 1867, and her stories quickly raised it to an enormous circulation. She had a certain triumph over her critics with the *Johnny Ludlow* tales, an imitation of Miss Mitford's *Tales of our Village*. Mrs. Wood's name was not put to them as they appeared in the *Argosy*, and when the first series was collected and published separately in 1874 they excited among reviewers an approach to the enthusiasm with which her first efforts had been welcomed. Her death took place February 10, 1887, at the age of seventy-three. She was active in her work till the very last, and left several completed stories, short and long, ready for publication.

WOOD-CARVING. In most countries, during the early development of the plastic art, sculpture in wood took a very important position, and was much used for statues on a large scale, as well as for small works decorated with surface carving. On the whole, wood is much more suitable for carving in slight relief than for sculpture in the round, and its special structure, with bundles of long fibers, strong in one direction and weak in another, make it very necessary for the carver to suit his design to the exigencies of the material.

Some woods, such as pear, lime, and more especially box, are comparatively free from any distinct grain, and may be carved almost like marble, but these woods are only to be had in small pieces, and from their want of fiber are structurally weak, and are therefore only available for decorative purposes on a small scale. It is this absence of grain which makes boxwood the material selected for engraving on wood, a form of wood-carving in which the artist needs to be as little as possible hampered by the structure of his material. One objection to using wood for life-sized or colossal sculpture is that large blocks are very liable to crack and split from end to end, owing to the fact that the parts near the surface dry and shrink more rapidly than the core. For this reason the mediæval carvers usually hollowed out their wooden statues from the back, so as to equalize the shrinkage and prevent splitting. In all cases wood for carving should be very well seasoned, and it is especially necessary to get rid of the natural sap, which causes rot if it is not dried out. It is usual to soak newly cut timber in running water, so that the sap may be washed away; it is then comparatively easy to dry out the water which has soaked into the pores of the wood and taken the place of the sap.

*Egyptian*.—One of the most remarkable examples of ancient Egyptian art, dating probably from nearly 4,000 years B.C., is a life-sized portrait statue of a stout, elderly man, now in the Boulak museum. This is carved out of a solid block of sycamore wood, except that the right arm is worked separately and attached by a mortise and tenon; the eyes are formed by inlaid bits of shell and crystal, and the whole is a most wonderful piece of lifelike realism (see fig. 1). After the early dynasties in Egypt, wood does not seem to have been used for sculpture on a large scale, although it was very commonly employed for mummy cases or coffins, one end carved with a human face and the rest almost plain, except for its elaborate painted ornaments in gold and colors, applied on a thin coat of stucco laid evenly over the wood. A large number of smaller examples of Egyptian wood-carving exist in various museums, such as furniture boxes, implements for the toilet, and the like, frequently decorated with slight surface reliefs of animals or plants.



# WOOD CARVING.



FIG. 2.—Part of the Carved Architrave of a Door from Ani Church.

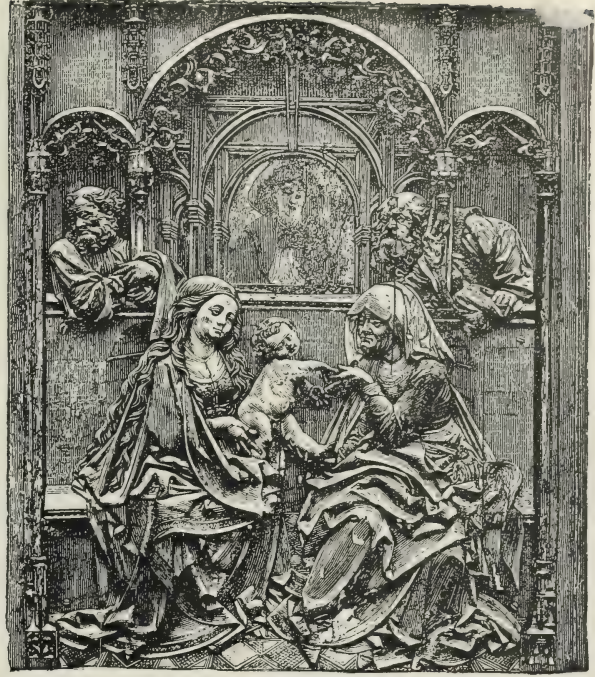


FIG. 6.—The Centre of a Wooden Triptych, attributed to Veit Stoss, now in the South Kensington Museum.

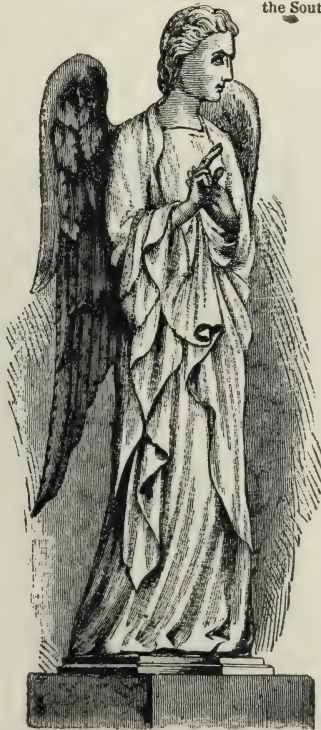


FIG. 3.—Colossal Statue of an Angel in the South Kensington Museum



FIG. 1.—Life-sized Portrait Statue from a Tomb of the Fourth Dynasty.



# WOOD CARVING.



FIG. 5.—Traceried Panel in Oak; French work of the 15th century.

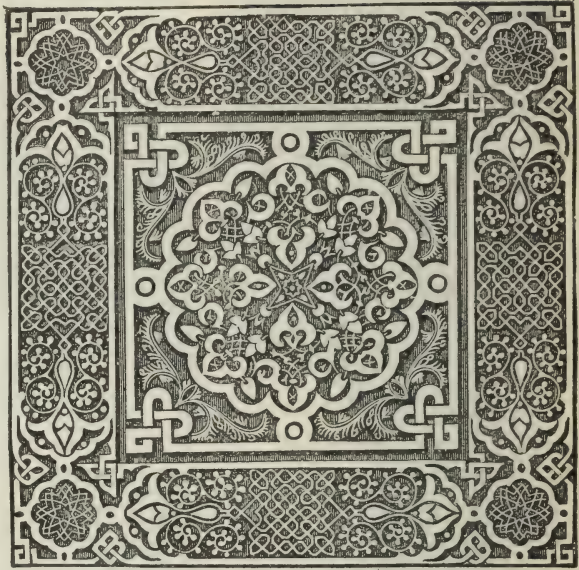


FIG. 8.—Example of Moslem Wood-Panelling, with inlay of different woods.



FIG. 4.—Example of a Carved Walnut-Wood Panel; school of Raphael.



FIG. 7.—Carved Panel from the Front of the Stalls in Ulm Cathedral.



and graceful patterns formed of the lotus or papyrus flower treated with great decorative skill.

*Greek.*—It is probable that the earliest examples of the plastic art among the Hellenic race were the rude wooden images of the gods (*ἑόρτα*), of which many examples were preserved down to late historic times. The Palladium, or sacred figure of Pallas, which was guarded by the vestal virgins in Rome, and which was fabled to have been brought by Æneas from the burning Troy, was one of these wooden *ἑόρτα* (see VESTA). A wooden figure of the *Armed Aphrodite* at Cythera is mentioned by Pausanias. Of the same kind was the wooden statue of Hermes in the shrine of Athene Polias on the Acropolis of Athens, said to have been the offering of Cecrops; and the figure of Athene Polias itself was an ancient wooden *ἑόρτον*. Another very ancient statue, carved out of cedar wood, was the statue of Apollo in his temple, dedicated 428 B. C., in the Campus Martius of Rome; this statue was called *Apollo Sosianus*, from Sosius, the prefect of Syria, who presented it to the temple. Pausanias mentions another early wooden statue of Argos—that of *Zeus Larissæus*, which was remarkable for having three eyes. A very elaborate example of cedar-wood carving enriched with gold and ivory is described by Pausanias. This was a coffer dedicated at Olympia by the children of Cypselus, tyrant of Corinth in the seventh century B. C. It was decorated with bands in relief, with scenes from the lives of various gods and heroes. A cedar box, with two carved dogs attached to it, was found at Mycenæ by Doctor Schliemann, and is now in the museum at Athens. During the most flourishing period of Greek art, wood was sometimes used for important plastic purposes, as, for example, the colossal statue of Athene at Plataea, carved by Phidias. The figure was of gilt or plated wood, with the exception of the nude parts—the face, hands, and feet—which were of Pentelic marble.

*Roman.*—Of the wood-carving of the Roman period almost no important examples now exist; but the carved panels of the main doors of S. Sabina on the Aventine Hill are very interesting specimens of wooden relief-sculpture of early Christian times, dating, as the costumes show, from the fifth century.

*Medieval.*—The most remarkable examples of early mediæval wood-carving are the doorways of wooden churches of Scandinavia and Denmark, dating from the ninth and thirteenth centuries. These are masterpieces of wood-carving, designed and executed with the most perfect sense of the necessities of the material. Fig. 2 shows part of the architrave of a door from Aal Church, Norway, dating from the twelfth century.

*English.*—For various ecclesiastical purposes a large amount of important sculpture in wood was produced in Britain throughout the Middle Ages. At the time of the Reformation every church had its rood-screen, surmounted by a large crucifix between two standing figures of St. Mary and St. John. These were of wood, except perhaps in some of the richest cathedral or abbey churches, which occasionally had the rood made of silver. A very large number of churches also had retables over the various altars, with reliefs carved in wood and decorated with gold and colors. Many examples of this class still exist in Germany and Spain, but almost all the English examples perished under the iconoclasm of the Reformation.

Another important class of wood-carving was that of large recumbent effigies from tombs, of which a good many examples still exist. One of the earliest is that of Robert, duke of Normandy, in Gloucester cathedral, illustrated in SCULPTURE. It is a work of the twelfth century, but was broken to pieces, and is now much restored. Like most wooden sculpture in England, it is

carved out of oak. The finest example of English wood sculpture is a life-sized effigy in the south choir aisle of Abergavenny church, that of the young knight George De Cantelupe (died 1273). The face is a portrait of very high plastic merit, and the whole treatment of the figure, with the graceful drapery of its tunic, and its carefully carved armor, is very remarkable as an example of the very high level of excellence that was reached by the English contemporaries of Nicola Pisano.

The church of Abergavenny also contains a colossal recumbent figure of Jesse, which formed the lower part of what was called a "Jesse tree." Out of the recumbent figure grew a great tree, on the branches of which were figures of the illustrious descendants of Jesse's line. Merely the stump of this tree now remains. The existing figure of Jesse, which is ten feet long, is cut out of a solid block of oak; a figure of an angel at the head is worked out of the same piece of wood.

Another very important application of wood-carving was for the decoration of the church stalls, screens, and roofs, which in the fifteenth century in England reached so high a pitch of splendor. The development of architectural wood-carving was much slower than that of sculpture in stone. During the "Early English" period, wood-work was rather heavy in style and coarse in detail; in "Decorated" times wood-work of much beauty and richness was produced, but forms more suitable to stone were still used, and it was not till the later "Perpendicular" period in the fifteenth century that the wood carvers of England learned to perfectly adapt their designs to the nature of their material.

The rich oak work of England was no exception to the universal application of colored decoration, and nearly every screen, roof, or choir-stall was covered with minute painting in gold and colors. Many of the Norfolk screens still have much of their painted ornament in good preservation; and additional richness was gained by the groundwork of delicately molded stucco. The very rich and graceful "watching gallery" in the abbey church of St. Albans is now bare of any coloring, though it was once a very brilliant example of polychromatic decoration. Great richness of carving is lavished on the church roofs especially of Norfolk and Suffolk. Carved bosses cover the intersections of the molded timbers, some with bunches of delicate foliage, others carved into figures of angels with outspread wings. These magnificent roofs, which are peculiar to England, and even to certain districts such as East Anglia, are among the most perfect artistic productions of the Middle Ages.

Norfolk, Suffolk, Devonshire, and other counties are still rich in elaborate chancel screens, carved with delicate foliage, especially in the hollows of the cornice, and light open cresting or "brattishing" along the top. In some cases the carver took his design from contemporary engravings by some distinguished German or Flemish artist, such as Schongauer or Albert Dürer. One of these in the chapel of Henry VII. at Westminster, representing *The Golden Age*, is a work of wonderful beauty and delicacy of touch. Toward the end of the seventeenth century a very realistic style of wood-carving came into use, in which great technical skill was displayed but little real artistic feeling. Grinling Gibbons (1648–1721) and his pupils produced the most elaborate works of this class, such as wreaths, scrolls, and friezes carved in high relief, or in the round, with fruit and flowers, modeled and carved with wonderful imitative skill, but weak in true decorative effect. The stalls and screens in St. Paul's Cathedral are some of Gibbons' best works, and a great deal of his realistic carving still exists at Oxford in Trinity College, at Trinity College, Cambridge, at Chatsworth, at

Petworth, and in many of the great country houses of that time. Since then wood-carving has not taken an important position among the lesser arts of the country.

*Italian.*—During the mediæval period, wood was often used by the greatest sculptors of Italy, especially for crucifixes and statues of saints for ecclesiastical purposes. Fig. 3 shows a magnificent example of the school of Nino Pisano, dating from about the middle of the fourteenth century. It is a colossal figure of the Angel of the Annunciation, said to have once belonged to Pisa cathedral, and now one of the chief treasures of the South Kensington Museum. Many fine roods or crucifixes of life size still exist in the churches of Italy. One attributed to Donatello is preserved at Florence, in the church of S. Croce; another by Brunelleschi still exists. Toward the end of the fifteenth century, and especially in the first half of the sixteenth, wood-carving of the most elaborate and magnificent sort was largely used to decorate church stalls, wall-paneling, doors and the like. A very important school of this branch of art was founded by Raphael, whose designs were used or adapted by a large number of very skillful wood-carvers. The shutters of "Raphael's Stanze" in the vatican and the choir stalls of the church of S. Pietro de' Cassinesi at Perugia are among the most beautiful examples of this class of carving. The work is in slight relief, carved in walnut with the graceful arabesque patterns which Raphael developed out of the newly discovered remains of ancient Roman wall-painting from the palace of Nero and other places. Fig. 4 shows a panel with carving of this school, which is always remarkable for its high finish and delicate cameo-like execution.

*Spanish.*—Spain during the fifteenth and sixteenth centuries was specially remarkable for the production of large and elaborate retables, carved with statues and reliefs, very like those of contemporary Germany. Alonso Cano and other sculptors frequently used wood for large statuary, which was painted in a very realistic way with the most startling life-like effect.

*Danish.*—Denmark also possessed a school of able wood-carvers, who imitated the great altarpieces of Germany. A very large and well-carved example still exists in the metropolitan cathedral of Røskilde.

*French.*—In France during the mediæval period wooden sculpture was produced which was very similar in character to that of England, and was decorated with similar coloring. Many of the French cathedral and abbey choir stalls are works of the utmost magnificence. Those at Amiens are specially remarkable. Fig. 5 shows an example of the delicate tracery work of the fifteenth century. In the sixteenth century many wood-carvers in France imitated the rich and delicate work of the Raphaellesque school in Italy, and much wood-work of great refinement was produced, very different from the coarsely effective work of Elizabethan and Jacobean England. In the eighteenth century large sums were spent on elaborate wooden paneling.

*German.*—In Germany, during the fifteenth century, wood was used for the most important sculpturesque purposes, such as large triptychs or retables made up of many reliefs, with sacred subjects, and statues of saints—the whole framed and canopied with rich Gothic "tabernacle work." (See SCULPTURE.) Fig. 6 shows a fine example of one of these retables, said to be the work of Veit Stoss, now in the South Kensington Museum.

Fig. 7 shows a fine example of the treatment of a large panel in the front of the stalls at Ulm cathedral, carved in unusually high relief with bold conventional foliage, full of spirit and vigorous beauty. These

splendid stalls were executed in 1468 by Jörg Syrlin. During this period the wood-carving of Germany occupied a foremost position in the world, and in many places, such as Nuremberg and parts of Bavaria, great technical skill has survived down to the present time.

Switzerland and Tyrol have also been for long celebrated for delicate wood-carving on a small scale. The cleverly executed figures of peasants and of animals, especially the chamois, are widely popular, and their production gives occupation to a large class of able artisans, who, however, rarely rise to the level of original artists, though they attain a fairly high average of excellence.

*Mohammedan.*—Nothing can exceed the skill with which the Moslem wood-carvers of Persia, Syria, Egypt, and Spain designed and executed the richest paneling and other decorations for wall-lining, ceilings, pulpits, and all kinds of fittings and furniture. The mosques and private houses of Cairo, Damascus, and other Oriental cities are full of the most elaborate and minutely delicate wood-work. A favorite style of ornament was to cover the surface with very intricate interlacing patterns, formed by delicately molded ribs. Carved ivory was also often used for the filling in of the flat spaces. Fig. 8 shows a fine example of this sort of work, dating from the fourteenth century—part of a wall-lining in the Alhambra.

In the early mediæval period very elaborate wood-work for screens and other fittings was produced for the Coptic churches of Egypt by native Christian workmen; some of these had small panels carved in a hard dark wood, with saints and Bible subjects in low relief, very Byzantine in style. The British Museum possesses some fine examples of this carved work from a church in Old Cairo. These early wood fittings are now rapidly disappearing.

*Asiatic.*—In India, wood-carving of the most magnificent kind has been constantly produced for many centuries. The ancient Hindu temples were decorated with doors, ceilings, and other fittings, carved in sandal and other woods, with patterns of extreme richness and minute elaboration. The doors of the temple at Somanath, on the northwest coast of India, were especially famed for their magnificence, and were very highly valued as sacred relics. In 1024 they were carried off to Ghuznee by the Moslem conqueror Sultan Mahmoud, and are now lying in the fort at Agra. In China and Japan the wood-carvers are absolutely unrivaled in technical skill; grotesque and imitative work of the most wonderful perfection is produced, and some of the wood-carvings of these countries are really beautiful as works of art, especially when the carver copies the lotus lily or other aquatic plants. In many cases, however, as in the other arts of Japan and China, extreme ugliness of design is combined with the most perfect execution and exquisite finish, and the carvers have very little notion of the really decorative treatment of surface reliefs.

*Wood-Carving of Savage Races.*—Many savage races, such as the Maoris and Polynesians, are very skillful in the decorative treatment of wood in slight relief. Intricate geometrical designs of much beauty and suitability to the material are used to decorate canoes, paddles, and the beams of huts. Great richness of effect is often produced by the smallest possible amount of cutting into the surface of the wood. The wooden architecture of the Maoris is sometimes decorated in the most lavish way. The main uprights of the walls are carved into grotesque semi-human monsters, enriched with painting and inlay of iridescent shell, which show much imaginative power. Other beams are carved with series of spirals, bearing much resemblance to the very early sculptured ornaments of Mycenæ, Tiryns.



and other Hellenic cities—one of the many examples which show that very similar stages of artistic development are passed through by men of the most different races and age.

In modern Europe decorative wood-carving shares the general low level of the lesser arts. The commercial spirit of the age, and the general desire to produce the utmost display with the smallest cost and labor, have reduced the art of wood-carving to a very low state.

WOOD-CHARCOAL is the most important although not the purest kind of charcoal. Wood consists of carbon, hydrogen and oxygen, the last two being in the proportion to form water. When heated in the open air it burns completely away, with the exception of a small white ash; but if the supply of air be limited, only the more volatile matters burn away, and most of the carbon remains. This is the process of charcoal burning in countries where wood is abundant, as, for example, in the Harz mountains. A number of billets of wood are built up vertically in two or three rows into a large conical heap, which is covered over with turf or moistened charcoal ash, holes being left at the bottom for the air to get in. A hollow space is also left in the middle of the heap, to serve for a flue for gaseous matters which are evolved. The heap is set on fire by throwing burning pieces of wood into the central opening, near the top of which a kind of grate made of billets of wood is placed, to prevent the burning fuel from falling at once to the bottom. The combustion then gradually proceeds from the top to the bottom, and from the center to the outside of the heap; and as the central portions burn away, fresh wood is continually thrown on top, so as to keep the heap quite full. The appearance of the smoke shows how the combustion is proceeding; when it is going on properly the smoke is thick and white; if it becomes thin, and especially if a blue flame appears, it is the sign that the wood is burning away too fast, and the combustion must then be checked, by partially stopping up the holes at the bottom, or by heaping fresh ashes on the top and sides, and pressing them down well, so as to diminish the draught. As soon as the combustion is completed the heap is completely covered with turf or ashes, and left to cool for two or three days. It is then taken to pieces, and the portions still hot are cooled by throwing water or sand upon them. One hundred parts of wood yield on the average from 61 to 65 parts by measure, or 24 parts by weight of charcoal. The charcoal thus prepared is best suited for fuel. A large quantity of charcoal is obtained in the dry distillation of wood in cast-iron cylinders, for the preparation of crude acetic acid. The charcoal thus prepared is preferable for making gunpowder, but is inferior for other purposes. A peculiar kind of charcoal of a reddish brown color, and hence termed *charbon-roux*, is prepared in France for the manufacture of gunpowder for sporting purposes, by subjecting wood in iron cylinders to the action of superheated steam under a pressure of two atmospheres. Powder made with this charcoal absorbs moisture more rapidly than ordinary gunpowder. The general properties of wood charcoal are, that it is black and brittle, and retains the form of the wood from which it was derived; it is insoluble in water, infusible and non-volatile in the most intense heat.

WOODCHUCK, THE. The *Arctomys monax*, discovered by Linnæus, is well known in North America, where it is described under various names, the most general of which are Marmot, Ground Hog, and *Sif-fleur*. It frequents Canada and the Middle and Western States, and is to be found in Maryland and other of the border States. It is of somewhat larger dimensions than the European Marmot, but of ungraceful propor-

tions. Its temper is vicious, and it will offer a vigorous defense when attacked, often putting an ordinary sized dog to flight. The animal is covered with a coarse brown fur, of little value, and its body sends forth an offensive odor, on account of which and the coarseness of its flesh, it is unpalatable, and rarely eaten by any except Indians. It lives on clover, vegetables, esculents, etc., but continues to increase and multiply notwithstanding the war waged by farmers and gardeners for its extermination. They live in holes in the ground, from which they rarely wander to any considerable distance, and are inclined to exist in families. In the colder portions of the North, they remain torpid during the winter season. The creature is chiefly known in connection with "Ground Hog day," when it is supposed to emerge from its hole at noon. If it can see its shadow in the sun it returns to its hole to sleep an additional six weeks; if, however, the day is stormy and the sun obscured, it is an indication that spring is at hand. When fat, the creature is killed for its oil, an article in demand by farmers for various purposes. Sometimes the skin is tanned, and the white leather thus made is employed in the manufacture of whip lashes. The skins are also sewn together for coats and robes, but the products are not in much demand, being but indifferent protectors against the weather.

WOODCOCK (A.-S., *Wude-coce*, *Wudu-coc*, and *Wudu-smite*), a bird as much extolled for the table, on account of its flavor, as by the sportsman, who thinks himself lucky when he has laid one low.

The woodcock is the *Scolopax rusticula* of ornithology, and is well enough known to need no minute description. Its long bill, short legs, and large eyes—suggestive of its nocturnal or crepuscular habits—have over and over again been the subject of remark, while its mottled plumage of black, chestnut, and umber-brown, ashy-gray, buff, and shining white—the last being confined to the tip of the lower side of the tail-quills, but the rest intermixed for the most part in beautiful combination—could not be adequately described within the present allotted space. It may suffice here to say that ornithologists are practically unanimous in declaring against the existence of two "species" or even "races," and moreover in agreeing that the sex of the bird cannot be determined from its plumage, though there are a few who believe that the young of the year can be discriminated from the adults by having the outer web of the first quill-feather in the wing marked with angular notches of a light color, while the old birds have no trace of this "vandyke" ornament. Careful dissections, weighings, and measurings seem to show that the male varies most in size; on an average he is slightly heavier than the female, yet some of the lightest birds have proved to be cocks.

Though there are probably few if any counties in the United Kingdom in which the woodcock does not almost yearly breed, especially since a "close time" has been afforded by the legislature for the protection of the species, there can be no doubt that by far the greater number of those shot in the British Islands have come from abroad—mostly, it is presumed, from Scandinavia. These arrive on the east coast in autumn—generally about the middle of October—often in an exhausted and impoverished state. Their future destination seems to be greatly influenced by the state of the weather. If cold or frost stops their supply of food on the eastern side of Great Britain, they press onward and, letting alone Ireland, into which the immigrant stream is pretty constant, often crowd into the extreme south-west, as Devonshire and Cornwall, and to the Isles of Scilly, while not a few betake themselves to the unknown ocean, finding there doubtless a watery grave.

though instances are on record of examples having successfully crossed the Atlantic and reached Newfoundland, New Jersey, and Virginia.

The woodcock inhabits suitable localities across the northern part of the Old World, from Ireland to Japan, migrating southward toward autumn. As a species it is said to be resident in the Azores and other Atlantic Islands; but it is not known to penetrate very far into Africa during the winter, though in many parts of India it is abundant during the cold weather, and reaches even Ceylon and Tenasserim. The popular belief that Woodcocks live "by suction" is perhaps hardly yet exploded; but those who have observed them in confinement know that they have an almost insatiable appetite for earthworms, which the birds seek by probing soft ground with their highly sensitive and flexible bill. This fact seems to have been first placed on record by Bowles, who noticed it in the royal aviary at San Ildefonso in Spain, and it has been corroborated by other observers, and especially by Montagu, who discovered that bread and milk made an excellent substitute for their ordinary food.

The eastern part of North America possesses a Woodcock, much smaller than, though generally (and especially in habits) similar to, that of the Old Continent. It is the *Scolopax minor* of most authors; but, chiefly on account of its having the outer three primaries remarkably attenuated, it has been placed in a separate genus, *Philohela*. In Java is found a distinct and curiously colored species.

WOOD-ENGRAVING. See ENGRAVING.

WOODPECKER, a bird that pecks or picks holes in wood, and from this habit is commonly reputed to have its name. More than 300 species of Woodpecker have been described, and they have been very variously grouped by systematists, but all admit that they form a very natural Family *Picidae*, which belongs to they order *Picaria*. Professor Huxley would separate the Woodpeckers still more under the name of *Celeomorpha*, and Professor Parker would raise them still higher as *Saurornitha*. They are generally of bright, particolored plumage, in which black, white, brown, olive, green, yellow, orange, or scarlet—the last commonly visible on some part of the head—mingled in varying proportions, and most often strongly contrasted with one another, appear; while the less conspicuous markings take the form of bars, spangles, tear-drops, arrow-heads, or scales. Woodpeckers inhabit most parts of the world, with the exception of Madagascar and the Australian region, save Celebes and Flores; but no number of the group is known to have occurred in Egypt.

In North America this species is replaced by *Picus pileatus*, there generally known as the Logcock, an equally fine species, but variegated with white; and further to the southward occur two that are finer still, *P. principalis*, the Ivory-billed Woodpecker, and *P. imperialis*. The *Picina* indeed flourish in the New World, nearly one-half of the described species being American, but out of the large number that inhabit Canada and the United States there is here room to mention only a few.

First of these is the Californian Woodpecker, *Melanerpes formicivorus*, which has been said to display an amount of providence beyond almost any other bird in the number of acorns which it collects, and fixes tightly in holes which it purposely makes in the bark of trees, and thus "a large pine forty or fifty feet high will present the appearance of being closely studded with brass nails, the heads only being visible." An extraordinary thing is that this is not done to furnish food in winter, for the species migrates, and after journeying a thou-

sand miles or more only returns in spring to the forests where its supplies are laid up. It has been asserted that the acorns thus stored are always those which contain a maggot, and, being fitted into the sockets prepared for them cup-end foremost, the inclosed insects are unable to escape, as they otherwise would, and are thus ready for consumption by the birds on their return from the south. But this statement has again been contradicted, and moreover it is alleged that these Woodpeckers follow their instinct so blindly that "they do not distinguish between an acorn and a pebble," so that they "fill up the holes they have drilled with so much labor, not only with acorns but occasionally with stones."

The next North-American form deserving notice is the genus *Colaptes*, represented in the north and east by *C. auratus*, the Golden-winged Woodpecker or Flicker, in most parts of the country a familiar bird, but in the south and west replaced by the allied *C. Mexicanus*, easily distinguishable among other characteristics by having the shafts of its quills red instead of yellow. It is curious, however, that, in the valleys of the upper Missouri and Yellowstone rivers, where the range of the two kinds overlaps, birds are found presenting an extraordinary mixture of the otherwise distinctive features of each, and these birds have been described as hybrids.

WOODSTOCK, an ancient corporate market-town of Oxfordshire, England, about eight miles northwest of Oxford. The church of St. Mary Magdalene, in New Woodstock, is of Norman date, but has been greatly altered by restoration, and now has Decorated chancel with Perpendicular additions, clerestoried nave, Decorated north aisle and Early English south aisle, retaining a portion of the Norman doorway, Perpendicular west porch, and Perpendicular west tower. The church contains many interesting monuments. The population of the parliamentary borough (area 20,804 acres) was 10,033 in 1901.

The old manor house of Woodstock, which is supposed to have been built upon the site of a Roman villa, was at an early period a royal residence. Here Alfred the Great is said to have resided while translating Boetius. At a witenagemot held at Woodstock by King Ethelred, a code of laws was published for the government of the Anglo-Saxon kingdom. Henry I. made Woodstock a favorite residence, and formed a zoological garden there. Woodstock was the scene of Henry II.'s courtship of Rosamond Clifford, and his frequent visits to the place led to the building of the nucleus of the town of New Woodstock. Queen Elizabeth was a prisoner at Woodstock from May, 1554, till May, 1555, and after her accession to the throne visited it in 1566 and again in 1575. During the Civil war it was the scene of frequent military operations, and after a siege it surrendered to the parliament April 20, 1646. After the battle of Blenheim the manor of Woodstock was by Act 3 and 4 of Queen Anne, chap. 4, bestowed in perpetuity on John, duke of Marlborough. Blenheim palace, built by the duke from the designs of Sir John Vanbrugh, was completed in 1715. In 1723 the old manor house was destroyed and the site leveled.

WOODSTOCK, a town, port of entry, and the capital of Oxford county, province of Ontario, Canada, is situated on the river Thames and Cedar creek, and on the Great Western railway, eighty miles southwest of Toronto. The trade is of growing importance. There is good water power, and the town possesses several corn-mills, and a woolen factory. Its healthy situation and the beauty of the neighboring scenery attract a number of summer visitors. The population (1901) was 8,833.

WOOD-WORK. See BUILDING.



### WOOL AND WOOLEN MANUFACTURES.

Wool is a modified form of hair distinguished by its slender, soft, and wavy or curly structure, and by the highly imbricated or serrated surface of its filaments. The numerous varieties of the sheep are the most characteristic, as they are also by far the most important, producers of wool; but the sheep is by no means the only animal which yields wool employed for industrial purposes. The alpaca and other allied fibers obtained from the alpaca and its congeners in South America (see ALPACA and LLAMA), the mohair yielded by the Angora goat (MOHAIR), and the soft woolly hair of the camel are all wools of much industrial importance, while the most costly wool in the world is that yielded by the Cashmere goat of the Himalayan Mountains. At what point indeed it can be said that an animal fiber ceases to be hair and becomes wool it is impossible to determine, because in every characteristic the one class, by imperceptible gradations, merges into the other; so that a continuous chain can be formed from the finest and softest merino to the rigid bristles of the wild boar.

Next to cotton, wool is the most important of all textile fibers used by mankind. From the ease with which it may be made into thread, and owing to the comfort derived from clothing of woollen texture, it naturally would be the textile first used by mankind for clothing. The testimony of all ancient records goes to prove the high antiquity of woollen textures and the early importance of the sheep.

Among the arts of civilized life which the British Isles owe to the Romans, not the least important was the spinning and weaving of wool. The sheep certainly was a domestic animal in England long before the period of the Roman occupation; and it is most probable that such use was made of sheep skins and of wool as was common among uncivilized races. The reputation which English wool at this early period established was maintained throughout mediæval times; and the fiber was in great demand in the Low Countries and other continental centers where skill in manufacture was highly developed. There are many allusions to woollen manufactures in England in early times; but altogether the native industry could not rival the products of the continent, although the troubles in various industrial centers, from time to time, caused skilled workers in wool to seek an asylum in England. In the time of William the Conqueror Flemish weavers settled under the protection of the queen at Carlisle, but subsequently they were removed to Pembrokeshire. At various periods in the reigns of succeeding monarchs further immigrations of skilled Flemish weavers occurred, and they were planted at different places throughout the country. The cloth fair in the church yard of the priory of St. Bartholomew was instituted by Henry II.; guilds of weavers were established; and the exclusive privilege of exporting woollen cloth was granted to the city of London. Edward III. made special efforts to encourage woollen industries according to the manner in which it was supposed in mediæval times that trade could be best encouraged. He brought weavers, dyers, and fullers from Flanders; he himself wore Flemish cloth; and to stimulate native industry he prohibited under pain of life and limb the exportation of English wool.

The customs duties levied on the export of wool were an important source of the royal revenue, and Edward III.'s attempt to stop the trade appears to have been an honest though misguided attempt to foster native manufactures. His prohibitory law was, however, found to be unworkable, and the utmost that both he and his successors were able to effect was to hamper the export trade by vexatious restrictions and to en-

courage much "running" or smuggling of wool. Legislation of this kind prevailed till the reign of Elizabeth, when the free exportation of English wool was permitted; and Smith, in his *Memoirs of Wool*, points out that it was during this reign that the manufacture made the most rapid progress in the country. In 1660 the absolute prohibition of the export of wool was again decreed, and it was not till 1825 that this prohibitory law was finally repealed. The prohibition appears to have been based on the mistaken notion that England possessed a monopoly of the finest kinds of wool, and that by withholding it from foreign competitors the home manufacturers would command the markets of the world. The results of the prohibitory law were exceedingly detrimental; the production of wool far exceeded the consumption; the price of the raw material fell; wool "running" or smuggling became an organized traffic; and the whole industry became disarranged. Extraordinary expedients were resorted to for stimulating the demand for woollen manufactures, among which was an act passed in the reign of Charles II. decreeing that all dead bodies should be buried in woollen shrouds—an enactment which remained on the Statute Book, if not in force, for a period of 120 years. On the opening up of the colonies, every effort was made to encourage the use of English cloth, and the manufacture was discouraged and even prohibited in Ireland.

Until the development of the cotton trade, toward the end of the eighteenth century, the woollen industries were, beyond comparison, the most important sources of wealth in England. What the actual value of the trade at an early period was it is impossible to ascertain, and the estimates of wool production and the value of the manufactures in the seventeenth and eighteenth centuries vary widely.

Sheep were introduced at Jamestown in Virginia in 1609; and in 1633 the animals were first brought to Boston. Ten years later a fulling mill was erected at Rowley, Mass., "by Mr. Rowley's people, who were the first that set upon making cloth in this western world." The factory woollen industry was, however, not established till the close of the eighteenth century, and it is recorded that the first carding machine put in operation in the United States was constructed in 1794 under the supervision of John and Arthur Schofield.

The bulk of the wool of commerce comes into the market in the form of fleece wool, the product of a single year's growth, cut from the body of the living animal. The first and finest clip, called lamb's wool, may be taken from the young sheep at about the age of eight months. When the animal is not shorn till it attains the age of twelve or fourteen months the wool is known as hogg or hogget, and it, like lambs' wool, is fine and tapers into long thin ends. All subsequently cut fleeces are known as wether wool, and possess relatively somewhat less value than the first clip. Fleece wool as it comes into the market is either "in the grease," that is, unwashed, and with all the dirt which gathers to the surface of the greasy wool present; or it is received as "washed" wool, the washing being done as a preliminary to the sheep-shearing. Skin wool is that which is obtained from sheep which either die or are killed. Such wool is always of inferior value and much impregnated with lime from the steeping pits in the tan-yard in which the skins are first treated to soften and swell the skin for facilitating the easy separation of the wool from it.

The wool market is supplied from almost every quarter of the globe, and the qualities and varieties of the article are exceedingly numerous. The range of woollen and worsted manufactures is also very wide, and the raw material suitable for one section of the trade is

not at all fitted to supply other sections. Much more than is the case in any other textile industry we have in the woolen trades practically a series of separate and distinct industries, each with its own appropriate class of raw materials. The main distinctions are—(1) carding wools, in which felting properties are desirable; (2) combing wools, requiring length of staple and brightness of fiber, for hard-spun non-felting worsteds; and (3) carpet and knitting wools, in which long and strong if somewhat coarse staple are the essential qualities. Breeding, climate, and food are the main factors in developing and rearing special races of sheep in which the qualities essential for producing the raw materials of any of these sections of industry are secured.

For centuries the finer wools used for cloth-making throughout Europe were obtained from Spain, which was the home of the famous merino breed developed from races of sheep originally introduced into the Peninsula by the Romans. Till early in the present century the superiority of Spanish merinoes remained unchallenged, but the Peninsular war and its attendant evils produced a depreciation of quality concurrently with the introduction of Saxon and Silesian wools, which suddenly supplanted the product of Spain, and hold the first place down to the present day. The Spanish merino sheep was introduced into Saxony by the elector in 1765, and by judicious crossing with the best native race developed the famous electoral breed. Merinoes were carried to Hungary in 1775, and to France in 1776, and in 1786 Daubenton took them to Rambouillet, whence a famous race developed. In 1802 the first merinoes known to have left pure descendants were brought to the United States, and in 1809-10 an importation (4,000) of merino sheep was made. The introduction of merino blood has also largely modified certain of the breeds of English sheep, and from them, crossed with the English breeds, South-downs and Leicesters, have sprung the vast flocks of sheep in the various Australasian colonies, which now bid fair to supply the whole world with wools of the merino class, and of the very highest quality. The weight of a fleece of wool of the various breeds of sheep ranges from under two pounds in the case of the small Shetland breeds up to eight or nine pounds for the large merinoes and other heavy races, and in exceptional cases a heavy ram's fleece may reach so much as fifteen pounds; but, taken all over, a sheep may be reckoned to yield on an average five pounds of wool in a year.

Where there is abundance of water and other conveniences it is the practice to wash or half-wash sheep previous to shearing, and such wool comes into the market as washed or half-washed fleece. The surface of a fleece has usually a thick coating of dirt adhering to it, and in the cases of merino breeds the fleece surface is firmly caked together into large solid masses, from the adhesion of dirt to the wool constantly moist with the exudation from the skin of the greasy yolk or "suint," so that in an unwashed fleece nearly 30 per cent. of weight may represent dirt, and about 40 per cent. the greasy suint which lubricates the wool, while the pure wool is not more than one-third part of the whole. The yolk forms a protective covering to the sheep, rendering the fleece impervious to moisture, and while left in the wool also preserves it soft, pliant, and silky to touch. Wool, however, which is merely washed in the rough-and-ready manner described below still retains great and variable quantities of suint, etc. Where running streams exist, the sheep are penned by the side of the water, and taken one by one and held in the stream while they are washed, one man holding and the other washing. The operation is objectionable in many ways, as it pollutes the stream, and it dissipates no mean

amount of potash salts, valuable for manure or for other chemical purposes. Sheep washing appliances are now largely employed, the arrangement consisting of a pen into which the sheep are driven and subjected to a strong spray of water either hot or cold, which soaks the fleece and softens the dirt. This done, they are caused to swim along a tank which narrows toward the exit, and just as they pass out of the pen they are caught and subjected to a strong douche of pure water. After a few days the wool of a washed sheep is sufficiently dry for shearing or clipping. A skillful shepherd will clip the fleece from a sheep in one unbroken continuous sheet, retaining the form and relative positions of the mass almost as if the creature had been skinned. In this unbroken condition each fleece is rolled up by itself, which greatly facilitates the sorting or stapling which all wool undergoes for the separation of the several qualities which make up the fleece. Sorting or stapling was formerly a distinct industry, and to some extent it is so still, though frequently the work is done on the premises of the spinners. Carding wools are separated and classed differently from combing wools, and in dealing with fleeces from different races the classification of the sorter varies.

Felt is a kind of cloth made without spinning or weaving, but simply by the mutual adhesion of the imbricated fibers. The peculiar quality is most distinctly developed in the short or carding wools, but all wool, in common with mohair, alpaca, vicugna, and camel's hair, possesses it. Felting properties are also found in the hair of other animals; the rabbit, especially, supplies the finer felts used for hat making, while the beaver hat, which is the ancestor of the modern dress hat, was a felt of beaver hair. Felted cloth is made by the combined influence of heat, moisture, and pressure or rubbing on a uniformly spread-out mass of woolen fibers. The wool is scribbled or carded out into a uniform lap of extreme thinness, but of a length and breadth sufficient for the size of the cloth to be made. A series of these carded laps are superimposed on each other till the requisite thickness of material is attained, and generally the two external laps are made of material superior to the body. The lap so prepared is passed on between a series of pairs of rollers, which press against each other partly immersed in a trough of water, the upper rollers being solid and heavy, while those under are hollow and heated by steam. To the upper rollers a gentle reciprocating motion is communicated, so that the material is felted as it passes on. When duly condensed, the cloth, of leathery consistence, is dyed, printed, dressed, and finished, when required, like ordinary woolen cloths. Felt has extensive applications, there being made from it druggets, carpets, table-covers, horse-cloths, etc.; the coarser varieties are used for boiler-covering and other mechanical purposes.

It becomes necessary here to indicate the specific distinction of woolen and worsted yarns and cloth. In a general way it may be said that woolen yarns are those made from short wools possessed of high felting qualities, which are prepared by a process of carding, whereby the fibers are as far as possible crossed and interlocked with each other, and that these cardings, though hard spun on the mule frame, form a light fluffy yarn, which suits the material when woven into cloth for being brought into the semi-felted condition by milling, which is the distinguishing characteristic of woolen cloth. On the other hand, worsted yarns are generally made from the long lustrous varieties of wool; the fibers are so combed as to bring them as far as possible to lie parallel to each other; the spinning is done on the throstle frame, and the yarn is spun into a com-



pact, smooth, and level thread, which, when woven into cloth, is not milled or felted.

If we adhere to the definition of worsted yarn which distinguishes it as being made from wool fibers brought as far as possible into a level parallel condition, we shall have to do only with two methods of manufacture—(1) of yarn from long wool by the method of drawing, gilling, and combing, and (2) of yarn from medium and short staple wools, which are at first carded and afterward combed. But there is commonly added a third class of worsted yarns, worsted only in the sense that they are not meant for felting. These are carpet yarns and lightly twisted knitting yarns, which, being meant to be full and open in structure, are prepared for spinning by carding alone, precisely as in making woolen yarns.

The primitive method of wool-combing, and the simple implements employed till comparatively recent days, when the ingenious machinery now used was invented, will serve to illustrate the problem of preparing long wool for spinning. The hand combs employed were studded with two—sometimes three—rows of long, smooth, rounded, and sharp-pointed steel spikes. The operative was provided with a pair of these combs. He had a comb-post to which he could attach them, and a comb-pot or small stove in which he heated the teeth of his combs and the wool which he worked. The teeth of one comb being duly heated he fixed it in the comb-post, and taking a quantity of wool previously oiled he dashed it in portions into the teeth of the comb and drew it through, leaving a portion locked in the spikes, and this operation he continued till the comb was well filled with wool. Then he placed it in the comb-pot to heat up, while he similarly proceeded to fill the teeth of the second comb, which in the meantime had been heating. With both filled and duly heated, he took one comb in his left hand, laying it in his lap teeth upward, and with the other in his right he proceeded to comb out the locks, beginning first at the tips and working gradually in as the fibers were smoothed and opened out. In the end the combs were worked with teeth close up to each other and through the entire mass, the noils or short fiber being thus entirely combed out, excepting a small quantity left in the teeth which could not be reached by the opposing combs.

The range and variety of cloths and other textures made from wool are exceedingly great. Under the heading of cloth manufactures, there may be enumerated, of piled cloths, broad-cloth, doeskins, cassimeres, meltons, beavers, and friezes. Of cloths milled and cropped bare there are venetians, sataras, and diagonals, which differ in the arrangements of warp and weft in the weaving. Tweeds, which form an important item, are cloths only slightly felted, raised dry, cropped, and pressed. The variety of worsted cloths is still greater, embracing says, serges, sateens, reps, merinoes, mouselaines-de-laine, tartans, camlets, Russell cords, coburgs, lastings, delaines, and Orleans cloth. Hosiery forms a manufacture apart, as do also the processes of making carpets, blankets, flannels, shawls, rugs and wrappers, curtain-cloths, and alpaca and mohair textures. Wherever civilized mankind dwell there is found wool production, with more or less of woolen manufacture. This fact notwithstanding, the cultivation of wool tends to become increasingly associated with special localities, and from age to age different regions enter into competition as sources of wool, and the great sources of supply correspondingly change their positions.

WOOLLETT, WILLIAM, engraver, was born at Maidstone, of a family which came originally from Holland, on August 15, 1735. He was apprenticed to John Tinney, an engraver in Fleet street, London, and he also studied in the St. Martin's Lane academy. His

first important plate was from the *Niobe* of Richard Wilson, published by Boydell in 1761, which was followed in 1763 by a companion engraving from the *Phaethon* of the same painter. After West he engraved his fine plate of the *Battle of La Hogue* (1781) and the *Death of General Wolfe* (1776), which is usually considered Woollett's masterpiece. In 1775 he was appointed engraver-in-ordinary to George III.; and he was a member of the Incorporated Society of Artists, of which for several years he acted as secretary. He died in London May 23, 1785.

WOOLSORTER'S DISEASE (ANTHRAX, ANTHRACÆMIA, CHARBON, or MALIGNANT PUSTULE) is the term applied to a virulent acute malady occasionally occurring in workers in the wool or hair, as well as in those handling the carcasses, of animals, chiefly sheep and oxen, which had been effected with splenic fever. The disease, as it is seen in animals, has been described in the article MURRAIN, (*q.v.*) The present notice refers only to the malady in man.

For many years cases of sudden death had been observed to occur from time to time among healthy men engaged in woolen manufactories, particularly in the work of sorting or combing wool. In some instances death appeared to be due to the direct inoculation of some poisonous material into the body, for a form of malignant pustule was observed upon the skin; but, on the other hand, in not a few cases without any external manifestation, symptoms of blood-poisoning, often proving rapidly fatal, suggested the probability of other channels for the introduction of the disease.

Two well-marked forms of this disease are recognized, external anthrax and internal anthrax. In external anthrax the infecting agent is accidentally inoculated into some portion of skin, the seat of a slight abrasion, often the hand, arm, or face. A minute swelling soon appears at the part, and develops into a vesicle containing serum or bloody matter, and varying in size, but seldom larger than a shilling. This vesicle speedily bursts, and leaves an ulcerated or sloughing surface, round about which are numerous smaller vesicles which undergo similar changes, and the whole affected part becomes hard and tender, while the surrounding surface participates in the inflammatory action, and the neighboring lymphatic glands are also inflamed. This condition, termed malignant pustule, is frequently accompanied with severe constitutional disturbance, in the form of fever, delirium, perspirations, together with great prostration and a tendency to death from septicæmia, although on the other hand recovery is not uncommon. It was repeatedly found that the matter taken from the vesicle during the progress of the disease, as well as the blood in the body after death, contained the *bacillus anthracis*, and when inoculated into small animals produced rapid death, with all the symptoms and post-mortem appearances characteristic of splenic fever.

WOOLSTON, THOMAS, English deist, born at Northampton in 1669, was the son of a "reputable tradesman," entered Sidney College, Cambridge, in 1685, studied theology, and was made a fellow of his college. Whiston states that he "was in his younger days a clergyman of very good reputation, a scholar, and well esteemed as a preacher, charitable to the poor, and beloved by all good men that knew him." After a time, by the study of Origen, he became possessed, to fanaticism bordering on insanity, with the notion of the importance of an allegorical interpretation of Scripture, and advocated its use in the defense of Christianity both in his sermons and in his first book, *The Old Apology for the Truth of the Christian Religion against the Jews and Gentiles Revived* (1705). He

denied absolutely the proof from miracles, called in question the fact of the resurrection of Christ and other miracles of the New Testament, and maintained that they must be interpreted allegorically, or as types of spiritual things. Two years later he commenced a series of *Discourses* on the same subject. The publication of the *Moderator* drew upon him a prosecution by the attorney-general in 1726 for blasphemy and profaneness, which was suspended in consequence of Whiston's intercession. But the appearance of the first four of his *Discourses* caused the renewal of the prosecution, and on March 4, 1729, the trial ended in his being found guilty of the alleged crime. He died in prison January 21, 1731.

WOOLWICH, a parliamentary borough and garrison town of Kent, England, is situated chiefly on the south bank of the Thames, on the declivity of Shooter's Hill, which slopes downward to the river, ten miles from Charing Cross by rail and twelve by steamer. The town is irregularly built, with narrow streets, and, for the most part, mean-looking houses. The spacious level at the summit of the hill is known as Woolwich Common. The feature of Woolwich is the Royal Arsenal, at which the number of men usually employed is about 10,000. The population of the entire parish of Woolwich (area 1,126 acres) in 1901 was 46,665. The population of the district now included in the parliamentary borough, which comprises the parishes of Woolwich, Eltham, and Plumstead, was 74,963 in 1889.

WOONSOCKET, a town of Providence county, R. I., on the Blackstone river, sixteen miles from Providence, and thirty-seven miles from Boston. The surrounding country, which is fertile, is devoted to market-gardening and dairying. The population, 28,204 in 1900, was nearly half of foreign birth, a fact explained by its extensive manufactures. The principal industries are the manufacture of cotton and woolen goods; of the latter Woonsocket produces more than any other city in the United States, while in the former industry it is excelled by few. Its importance as a manufacturing town is due to the magnificent water-power within its limits.

WOOSTER, a city of Ohio, in the center of a rich agricultural country, and the capital of Wayne county, is situated upon Killbuck creek and the Pittsburgh, Ft. Wayne and Chicago railway, 55 miles south of Cleveland, nearly half way between Massillon and Mansfield, and 333 miles east of Chicago. It occupies a considerable elevation, commanding an admirable view of the beautiful scenery, of which the city is in the immediate vicinity, and is well laid out and handsomely built. It is also contiguous to productive mines of bituminous coal and quarries of limestone, sufficiently developed to indicate their superior quality and inexhaustible quantity. Among the lines of industrial endeavor successfully carried on in the city are manufactures of engines and machinery, plows, reapers and mowers, burial cases, paints and varnish, harness and saddles, highwines, tiles, furniture, novelties, lumber, sash, doors, and blinds. Commercially the city is equally well provided, and two banks represent the financial interests. The city contains, in addition, six weekly papers, two monthly periodicals, fourteen churches, a court house, high and graded schools, also the Wooster university, an institution founded in 1870 under Presbyterian auspices and now having an able faculty and a large attendance of students, five hotels, an opera house, academy of music and number of public halls, together with gas and electric light works, stores, etc., and many attractive private residences. The city's population of 1900 was 6,603.

WORCESTER, a midland county of England, of

a very irregular shape, and of curious arrangement. Some of its parishes are detached from the county, while portions of other counties extend within its boundaries. It is bounded on the north by Staffordshire, east by Warwickshire, south by Gloucestershire, west by Herefordshire, and northwest by Shropshire. The greatest length from north to south is thirty-four miles, and its breadth thirty miles. The area is 472,453 acres, or about 738 square miles.

The surface consists of very fine and picturesque hills and well-watered and fruitful valleys, and the county is certainly one of the fairest and most picturesque in England. Its finest hills are the well-known Malvern Hills on its southwest border, the Abberley Hills running north from them, the Lickey and Clent Hills in the east, and in the south the Bredon Hills, which are a continuation of the Cotswolds. The principal rivers are the Severn, which is navigable, and runs through the county from north to south; the Stour, which joins the Severn at Stourport; the Teme, which enters the county at Tenbury, receives the Kyre and the Leigh, and falls into the Severn below Worcester; and the Warwickshire Avon, which joins the Severn at Tewkesbury. The valley of the Severn is appropriately named the Vale of Worcester, and that of the Avon the Vale of Evesham, the latter being generally considered one of the loveliest valleys in England. The rivers are well stocked with fish, salmon, trout, grayling, shad, and lampreys being found in most of them.

The climate is generally equable and healthy, and is very favorable to the cultivation of fruit, vegetables, and hops, for which Worcestershire has long held a high reputation, the red marls and the rich loams which are so prevalent being good both for market gardens and tillage. Its agricultural productions consist principally of wheat, barley, beans, fruit, and hops, in the cultivation of which great care and skill are employed. The large and well-stocked orchards, the picturesque hop fields, and the wonderfully productive market gardens are the pride of the county, and form the most attractive objects to all visitors. According to the agricultural returns for 1887, the area under cultivation was 401,936 acres. Population of the county (1901), 358,356.

Agriculture in its various branches is the principal industry of the county. Its mineral wealth consists of coal, iron, and salt; and a considerable number of people find employment in the quarries of limestone around Pershore and Evesham, and at other quarries of freestone and flagstone. There is not much mining in the county; the largest number of artisans are employed in the various hardware trades. Glass is largely produced at Dudley and Stourbridge. Worcester is famous for its porcelain, its gloves, and its coach-building, and Kidderminster for its carpets. The salt works at Droitwich are as old as the Roman occupation, and there are others at Stoke. There are a large variety of other trades, including crate making, coke burning, alkali, vinegar, and vitriol works, button making, leather staining, paper making, and tanning. The shire contains 243 civil parishes, and is mostly in the diocese of Worcester, but partly in that of Hereford. The principal places besides the city of Worcester are Bewdley (population 3,088 in 1901), Bromsgrove (12,813), Droitwich (3,761), Dudley (48,809), Evesham (5,112), Halesowen (7,763), Kidderminster (30,270), Oldbury (25,841), Redditch (10,961), Stourbridge (11,757), and Tenbury (2,083).

WORCESTER, an episcopal city, municipal and parliamentary borough, the capital of the above county, and a county of itself, is situated on the eastern bank of the Severn, 120 miles from London by rail, and a little over 26 from Birmingham.



The principal building and chief glory of the city is the cathedral. The see was founded by the advice of Archbishop Theodore in 673, though, owing to opposition on the part of the bishop of Lichfield, it was not finally established till 780. The building is cruciform, and is without transept aisles, but has secondary transepts to the choir.

The population of the city and municipal borough (area 1,263 acres) in 1901 was 46,623. The population of the parliamentary borough (area 3,266 acres) in 1901 was 50,354.

WORCESTER, a city and the county seat of Worcester county, Mass., thirty-nine miles west of Boston. Besides the closely-built portion, the city includes a large suburban district, which contains fourteen villages of various sizes. The closely-built portion is very irregularly laid out, conforming in some degree to the slope of the ground. There are 107 miles of streets, very little of which is paved. The public parks have an aggregate area of thirty-five acres. The population in 1900 was 118,421 (30,182, or 24 per cent, of foreign birth). The population of colored people was very small. The manufacturing industries are very large and varied; prominent among them are the manufactures of iron and steel; foundry and machine shop products and tools, and second to these the manufacture of boots and shoes.

WORCESTER, FLORENCE OF. See vol. iv., p. 2476.

WORDSWORTH, WILLIAM, the poet, was born at Cockermouth, on the Derwent, in Cumberland, April 7, 1770. At the age of eight Wordsworth was sent to school at Hawkshead, in the Esthwaite valley in Lancashire. His father died while he was there, and at the age of seventeen he was sent by his uncle to St. John's College, Cambridge. He did not distinguish himself in the studies of the university, and for some time after taking his degree of B.A., which he did in January, 1791, he showed what seemed to his relatives a most perverse reluctance to adopt any regular profession. In November of 1791 he crossed to France, ostensibly to learn the language, made the acquaintance of revolutionaries, sympathized with them vehemently, and was within an ace of throwing in his lot with the Brissotins. When it came to this, his relatives cut off his supplies, and he was obliged to return to London toward the close of 1792. At this stage, at the age of twenty-four, Wordsworth seemed to his friends a very hopeless and impracticable young man.

In June, 1797, he received a visit from Coleridge, who had read his first publication, and seen in it, what none of the public critics had discerned, the advent of an "original poetic genius." It would be impossible to exaggerate the importance for Wordsworth of the arrival of this enthusiastic Columbus.

The *Lyrical Ballads* were the poetic fruits of their companionship. Out of their frequent discussions of the relative value of common life and supernatural incidents as themes for imaginative treatment grew the idea of writing a volume together, composed of poems of the two kinds. Coleridge was to take the supernatural; and, as his industry was not equal to his friend's, this kind was represented by the *Ancient Mariner* alone. Among Wordsworth's contributions were *The Female Vagrant*, *We are Seven*, *Complaint of a Forsaken Indian Woman*, *The Last of the Flock*, *The Idiot Boy*, *The Mad Mother* ("Her eyes are wild"), *The Thorn*, *Goody Blake and Harry Gill*, *The Reverie of Poor Susan*, *Simon Lee*, *Expostulation and Reply*, *The Tables Turned*, *Lines left upon a Yew-tree Seat*, *An Old Man Traveling* ("Animal Tranquility and Decay"), *Lines above Tintern Abbey*. The volume was published by Cottle of Bristol in September, 1798.

His first great sonnet, the *Lines on Westminster Bridge*, was composed on the roof of the Dover coach; the first of the splendid series "dedicated to national independence and liberty," the most generally impressive and universally intelligible of his poems, *Fair Star of Evening*, *Once did she Hold the Gorgeous East in Fee*, *Toussaint*, *Milton, thou shouldst be living at this Hour*, *It is not to be Thought of that the Flood, When I have Borne in Memory what has Tamed*, were all written in the course of the tour, or in London in the month after his return. A tour in Scotland in the following year, 1803, yielded the *Highland Girl* and *The Solitary Reaper*. Soon after his return he resumed *The Prelude*; and *The Affliction of Margaret* and the *Ode to Duty*, his greatest poems in two different veins, were coincident with the exaltation of spirit due to the triumphant and successful prosecution of the long-delayed work. The excitement of preparing for publication always had a rousing effect upon him; the preparation for the edition of 1807 resulted in the completion of the ode on the *Intimations of Immortality*, the sonnets *The World is too much with us*, *Methought I saw the Footsteps of a Throne*, *Two Voices are there*, and *Lady*, the *Songs of Spring were in the Grove*, and the *Song at the Feast of Brougham Castle*. After 1807 there is a marked falling off in the quality, though not in the quantity, of Wordsworth's poetic work. It is significant of the comparatively sober and laborious spirit in which he wrote *The Excursion* that its progress was accompanied by none of those casual sallies of exulting and exuberant power that mark the period of the happier *Prelude*. The completion of *The Excursion* was signaled by the production of *Laodamia*. The chorus of adverse criticism with which it was received inspired him in the noble sonnet to Haydon—*High is our Calling, Friend*. He rarely or never again touched the same lofty height.

For five years after the condemnation of *The Excursion*, Wordsworth published almost nothing that had not been composed before. The chief exception is the *Thanksgiving Ode* of 1816. He was occupied mainly in the task of putting his work and his aims more fully before the world, maintaining his position with dignity and unflinching courage, so far unmoved by criticism that he would not alter his course one jot for the sake of public favor. In 1815 he published a new edition of his poems, in the arrangement according to faculties and feelings in which they have since stood; and he sought to explain his purposes more completely than before, in an essay on *Poetry as a Study*. In the same year he was persuaded to publish *The White Doe of Rylstone*, written mainly eight years before. Two other poems, with which Wordsworth made another appeal, were not more successful. *Peter Bell*, written in 1798, was published in 1810; and at the instigation of Charles Lamb it was followed by *The Waggoner*, written in 1805. Both were mercilessly ridiculed and parodied.

Wordsworth was appointed poet-laureate on the death of Southey in 1843. His only official composition was an ode on the installation of the Prince Consort as chancellor of Cambridge University in 1847. This was his last writing in verse. He died at Rydal Mount after a short illness, on April 23, 1850, and was buried in Grasmere churchyard.

WORKINGTON, a seaport and market-town of Cumberland, Eng., on the south bank of the Derwent, where it enters the Solway Firth, and on several branch railway lines, thirty-four miles southwest of Carlisle and 311 miles from London by rail. The Derwent is crossed by a stone bridge of three arches erected in 1841. The ancient parish church of St. Michael was rebuilt in 1770, and, this building having been destroyed by fire in 1887,



another has been erected. The other public buildings are the jubilee hall, the assembly rooms, the temperance hall, the mechanics' institute, the infirmary, the new covered market, the custom-house, and the bonded warehouses. Near the town is Workington Hall, the seat of the ancient lords of the manor, a quadrilateral castellated structure in great part modern, but still retaining some of the ancient rooms, including that in which Mary Queen of Scots is said to have slept when she escaped to England after the battle of Langside in May, 1563. The harbor is remarkably safe, and has a breakwater 600 feet in length. The Lonsdale dock, four and one-half acres in extent, was opened in 1862.

In the neighborhood there are large collieries, but the chief industry is the manufacture of iron and steel by the Bessemer and Siemens process. There are large blast-furnaces, engineering works, and bolt and rivet and tinplate works. Iron shipbuilding is also carried on. The population in 1901 was 16,371.

**WORLD'S COLUMBIAN EXPOSITION.** It is impracticable in these pages to do more than barely outline the event which has just passed into history by the title here given. The project of holding a great International Exposition in celebration of the quadro-centennial of the discovery of America was first seriously entertained in the summer of 1889. It speedily gained popular approval, and when the question of the Fair's location came to be discussed, Chicago, the second city in the United States, urged her claims with characteristic force and energy, and ultimately triumphed.

An act of Congress providing for the fair was approved by President Harrison, April 25, 1890. A feature of this act deserving of particular attention, in view of its unprecedented nature, and its great progressive significance was the authorization of the appointment of a board of lady managers of the World's Columbian Exposition, this being the first official recognition ever accorded the sex by the government of the United States.

The whole world was promptly invited, through the customary official channels, to participate in the celebration. The invitation was immediately accepted by France, Great Britain, Germany, Spain, Japan, China, Mexico, Peru, Honduras, Salvador, Costa Rica, Colombia, Cuba, Guatemala, Jamaica, Nicaragua, Chili, San Domingo, Turkey, Ecuador and Denmark, while a tardier but not less cordial acceptance came from Russia, Egypt, Morocco, Venezuela, Brazil, Hayti, Argentine Republic and several others.

Starting with a proposed expenditure of \$5,000,000, the financial managers of the Exposition soon found themselves confronted with the necessity for raising a very much larger sum. In May, 1890, it was voted to double the amount of capital stock. A million shares of \$10 were issued and of these 588,520 were subscribed for, chiefly in Chicago, the payment being made in six installments. The city of Chicago itself issued \$5,000,000 of bonds to help. In 1892 Congress appropriated \$2,500,000 more in *souvenir* half dollars, of which over a million were sold at a profit of 100 per cent. and many at fancy prices. Up to March 31, 1893, the World's Fair, as it was popularly termed, had received in all \$17,496,432, but still several millions were needed and raised before the gigantic enterprise was finished.

On behalf of the U. S. government the ruling body was a National Commission, which held its first meeting in Chicago in June, 1890, and elected as its president Thomas W. Palmer of Michigan. The local interests and the Exposition Co. were represented by a Board of Directors, of which Lyman J. Gage of Chi-

cago was president. Mrs. Potter Palmer, of the same city, was the presiding spirit of the Board of Lady Managers. In September, 1890, Col. George R. Davis was elected Director General.

Legislative action having been effected at Springfield, Jackson Park, with the Midway Plaisance, became eligible for Fair purposes, and ground was broken for the first building on July 2, 1891. The construction of a sea wall, pier, and lagoons was pressed by night and day, the entire area was drained and sodded, and by the fall of 1892 the unsightly swamp had been metamorphosed into a garden. Monday, May 1, 1893, President Cleveland touched the golden key which set in motion the machinery, and the historic exhibit was declared open in the presence of hundreds of thousands.

The building devoted to the display of manufactures and liberal arts is the largest ever put under roof. It occupies a commanding position on the lake shore, with the lagoon to the west, and covers an area of thirty and one-half acres. In form it is a rectangle, its central hall being surrounded by a nave and two vast aisles with galleries. The great central hall occupies a clear space of 1,280 by 380 feet, and its roof rises to a height of 245½ feet. The entire 380 feet space is covered by a single arched span, without a supporting column, being by many feet the largest in the world. The center of the roof is carried on twenty-two steel arches, each weighing 125 tons, and more than 5,000 tons of steel were used in the construction of this building. This tremendous structure is of the Corinthian style of architecture and of a severely classic model.

The Administration Building, with its splendid dome 120 feet in diameter and 220 high, is universally considered as the gem of the Exposition palaces. Its style is that of the French Renaissance, the first story in Doric and second in the Ionic style, and it consists of four splendid pavilions connected by the great gilded dome and entered by four arches. The dome is decorated in the most elaborate manner, the principal subject being "The Glorification of the Arts," in which Apollo is shown on his throne crowning the Arts as they approach from either side.

The Electrical Building, lying between the great quadrangle and the lagoon, is 345 by 700 feet, and consists of a longitudinal nave crossed in the center by a transept. The second story is composed of a series of galleries connected across the nave by two bridges, access to which is had by four grand staircases. This building is in the Corinthian style, with a splendid portico, and is elaborately decorated.

The Fine Arts Building, with its annexes, forming three great sections, is beautifully located in the northern part of the park, and facing the northern basin, from which it is separated by terraces. It is Grecian Ionic in style, and is surmounted by a dome 123 feet in height, from which rises a colossal statue of "Winged Victory."

The Transportation Building, conspicuous for its golden door and elaborate exterior decoration, overlooks "Wooded Island" and forms one of the group of buildings composing what is known as the northern architectural court. The interior consists of a broad nave and isles, after the style of a Roman Basilica. The main building is 960 feet by 250 feet, and there is a one-story annex, covering nine acres, in which the more bulky exhibits are shown.

The Fisheries Building has proved one of the most popular attractions of the Exposition. It is an elaborate structure of Spanish Romanesque and the exterior decorations are of unique character, the medal-



nions, capitals, brackets, and cornices representing fish and sea forms of all varieties.

The Mines and Mining Building, adjoining the Electricity Building and looking northward on the middle lakes and the island, is a severely simple structure of commanding appearance and great beauty. The two principal fronts have enormous arched entrances, richly embellished with sculptural decorations emblematic of mining and the allied industries.

Machinery Hall measures 850 by 500 feet and is located in the south end of the park, midway between the lake shore and the western boundary of the park. It is of classical design and is enriched with numerous colonnades. Its annex, covering nearly five acres, renders the Machinery Building the second largest on the ground.

The Woman's Building, which was designed by a woman, is a plain structure in the style of the Italian renaissance, and is about 400 by 200 feet. It is situated in the northwestern part of the park, and consists of a center pavilion flanked by corner pavilions, connected by open arcades on the first story.

The Horticultural Building is 1,000 feet long, with an extreme width of 250 feet, and is roofed by a crystal dome 187 feet in diameter and 113 feet high, under which the large palms and tree ferns are shown.

The Agricultural Building is among the largest and certainly one of the finest on the grounds. It is in the classic renaissance style, 500x800 feet in dimensions, and lies to the south of the main lagoon, looking out on the harbor to the east.

The Government Building in which Federal exhibits are shown is of classic style, much resembling the National Museum at Washington, D. C. The exhibits in this building proved a great attraction and it was crowded with visitors every day.

The Forestry Building was a complement to the Fisheries Building and of equally unique design. On the lake shore were the Dairy and Shoe and Leather Buildings, and in close proximity to the Agricultural Building was the large amphitheater devoted to livestock exhibits and the many acres of sheds in which the prize swine and sheep were housed.

The Manufactures and Liberal Arts Building cost \$1,727,431; Machinery Hall, \$1,173,897; Administration Building, \$450,000; Agricultural, \$658,000; Fine Arts Galleries, \$737,000; Electricity, \$423,000; Mines and Mining, \$266,000; Fisheries, \$207,000; Horticultural, \$298,000; Transportation, \$483,000; Woman's Building, \$135,000. It cost \$448,000 for the electric light plant; \$236,000 for sculpture and statuary; \$293,000 for water and sewer pipe; and \$321,000 for the piers and breakwater. More than 10,000 persons found regular employment on the Fair grounds at good wages.

The States of the Federal Union contributing the finest buildings were Illinois, New York, Pennsylvania, Indiana, Washington, Minnesota, the two Dakotas, Colorado, California, Michigan, Massachusetts, Kansas, Kentucky, Connecticut, Rhode Island, Missouri, Maine, Maryland, Iowa, Ohio, New Jersey, Texas, Vermont, West Virginia, and Wisconsin. Virginia had a duplication of Mount Vernon and Utah's was a characteristic building. The structures of the foreign nations were extremely varied, beautiful and characteristic. Great Britain laid out \$125,000 on Victoria House, and the great German Building cost \$150,000. Of the United States, Pennsylvania paid \$90,000 for its building, and West Virginia \$20,000. The building of the Federal Government, with its exhibits and the auxiliary stations, involved an outlay of \$1,025,000.

The history of the Fair was a succession of triumphs. On Dedication day the largest crowd ever assembled inside a roofed building thronged the Manufactures and Liberal Arts Building. Representatives of all countries and of every State and Territory, diplomats, the clergy, and the army and navy gathered to witness the dedicatory services, and the pageant was indeed a marvelous one. It was exceeded, however, on May 1, 1893, when 100,000 citizens thronged the plaza in front of the Administration Building to hear the President of the United States formally declare the Fair open. Unlike all previous exhibitions, the World's Columbian Exposition opened on the day appointed.

The setting apart of special days for the different States and for the foreign countries, which have so largely contributed to the population of Chicago and the Northwest, was a most valuable idea. It created a generous rivalry between the States and culminated on Chicago day in the greatest gathering of humanity ever brought together for any purpose. The daily attendance at the Fair, aside from special days, ranged from 10,991 to 305,961. The great and unapproachable gathering of October 9 (Chicago Day), amounted to 716,881 visitors. The Exposition was closed October 31, 1893.

No account of the great Exposition would be complete without a reference to the Midway Plaisance, with its hundreds of attractions, constituting perhaps the most attractive feature of the Fair. The Ferris wheel, the reproduction of a street in Cairo, with its camels, donkeys, and Bedouins, its shops and stores, its theaters and other shows; "Old Vienna"; the Irish Villages and Blarney and Donegal Castles; the Beauty Show, and the Javanese Village, constituted a Fair in themselves and were the most extensively patronized of all branches of the great Fair. By day and night, on week days and Sundays, the plaisance was the resort of crowds reaching up into the hundreds of thousands.

The Fair was a valuable educator for Chicago and the country at large. It familiarized the people with all that is best in art and newest in invention, and brought before their eyes the priceless treasures of antiquity and the latest triumphs of modern science. It widened the sympathies and quickened the artistic instincts of every man, woman, and child who was privileged to gaze upon it, and its lessons will be impressed upon their minds for all time. As an educator of the people no such force has hitherto made itself manifest in this nineteenth century of human progress.

**WORM.** This word has no definite significance in modern zoological classification; it is constantly applied to several phyla of the animal kingdom, which have for the most part no special relations to each other. By Linnaeus the Latin equivalent "Vermes" was applied to the modern divisions of Mollusca, Cœlentera, Protozoa, Tunicata, and Echinodermata, as well as to those animals which are in many current text-books of zoology grouped together under the same name.

**WORMS,** one of the oldest, and from a historical point of view one of the most interesting cities in Germany, is situated on the left bank of the Rhine, in the grand-duchy of Hesse-Darmstadt, twenty-five miles south of Mainz and twenty miles northwest of Heidelberg. The town is irregularly built, and some of the old walls and towers still remain, but its general aspect is modern and commercial. Worms formerly contained many ecclesiastical buildings, now represented by eight churches, two of which, however, are no longer used for divine service. The principal church and chief

building is the spacious Romanesque cathedral, which ranks beside the cathedrals of Spire and Mainz among the famous ecclesiastical edifices of the Rhine.

The trade and industry of Worms are important. The leading resource of the inhabitants is wine-growing. The manufacture of patent leather employs 3,000 hands. Machinery, chicory, slates, etc., are also produced. Worms possesses a river-harbor, and carries on some trade by water. The population is 21,903, of whom about one-third are Roman Catholic. In its prosperous days Worms is estimated to have had 70,000 inhabitants. Pop. (1900), 40,705.

WORSBROUGH, a township in the West Riding of Yorkshire, Eng., nine miles northwest of Rotherham and three south of Barnsley. The church of St. Mary, an interesting structure with remains of Norman work, but chiefly in the Transition Early English style, underwent restoration in 1864. It contains some old monuments and brasses. There are extensive collieries and gunpowder mills in the neighborhood, and the township possesses iron and steel works and corn-mills. The population of the urban sanitary district (3,779 acres) was 10,443 in 1901.

WORSTED. See WOOL.

WORTHING, a watering-place of Sussex, Eng., sixty-one miles south of London and ten and a half west of Brighton. On account of its sheltered situation at the foot of the South Downs it has some reputation as a health-resort for pulmonary complaints. There is a marine parade one and a quarter miles in length, a long range of firm sands, and an iron promenade pier, 960 feet in length, constructed in 1882. A public park, twenty-one acres in extent, was opened in 1881. The population of the urban sanitary district (979 acres) was 10,976 in 1880.

WOTTON, SIR HENRY, was born in 1568. Henry, the youngest of four sons, was sent to school at Winchester, and thence to Oxford (New College and afterward Queen's). On the fall of Essex he made his escape from England and took refuge at Florence, where he employed his leisure in writing a sketch of "the state of Christendom." While he was at Florence the grand-duke discovered a plot against King James, and Wotton was sent to Scotland with the information. King James was so charmed with the emissary that on his accession to the English throne he at once offered Wotton ambassadorial employment. After twenty years of diplomatic service he obtained the post of provost of Eton in 1624. Two of his witticisms are immortal—his definition of an ambassador as "an honest man sent to lie abroad for the good of his country," and his advice to a young diplomatist to tell the truth, and so puzzle and confound his adversaries. He died in 1630.

WOTTON, WILLIAM, is now remembered chiefly for his part in the famous *Battle of the Books*, but to his own generation his *Reflections upon Ancient and Modern Learning* was only one of many proofs of his extraordinary amount and variety of scholarship. Born in 1666, the son of an English clergyman, rector of Wrentham, in Suffolk, he was one of the wonders of his age in precocity. He could translate from several languages at the age of five. He died in 1726.

WOUNDS may be defined to be divisions of soft parts produced by external mechanical force. They are divided: first into *open* and *subcutaneous* wounds, the former including those in which the outer portion of the wound is almost or quite as extensive as the deeper part; and the latter, all those in which the outer part of the wound is very much smaller than the deeper part. These wounds (especially those of the first kind) may be further divided into (1) incised wounds, such as

cuts or incisions, including those which remove a portion of the body; (2) punctured wounds, such as stabs; (3) contused wounds, in which the divided parts are bruised or crushed; (4) lacerated wounds, in which there is tearing of the tissues; (5) poisoned wounds, in which some poison or venom is inserted; and to these may be added, as a special variety, (6) gunshot wounds. Simple open incised wounds may be more fully noticed than any of the others, because they have been most fully studied, and in their surgical relations are the most important. In a clean cut, whether accidentally made or in a surgical operation, three things are chiefly to be observed, viz., the opening or gaping by the retraction of their edges, the bleeding and the pain. The gaping of a wound is caused by the retraction of the various tissues which are divided. Of the various tissues the skin exhibits the greatest degree of retraction, and then (in the order in which they stand) elastic tissue, cellular or connective tissue, arteries, muscles, fibrous tissues, nerves and cartilages. In addition to the immediate gaping of fresh wounds, many wounds, if they be not prevented, will continue to retract for a long time. For example, in stumps that heal slowly, the limb terminates in a cone, in consequence of the prolonged retraction of the muscles. The bleeding from an incised wound depends chiefly on the number and size of the divided vessels, and their connection with the surrounding parts, but to a certain extent on the previous condition of the wounded part, or on the peculiar constitution of the patient. Gradually, with or without help, the vessels cease to bleed; and then, if the wound be left open, there is an oozing of blood tinged with serous fluid, succeeded gradually by a paler fluid, which collects like a whitish film on the surface, and contains an abundance of white or colorless blood-cells, imbedded in a fibrinous (and therefore spontaneous coagulating) fluid. The nature of the pain cannot be made clear by any description to those who have not felt it; and it is more than probable that a similar wound inflicted on two or three persons would occasion different degrees of pain in each. The healing of open incised wounds may be accomplished, according to the high surgical authority from whom we already have quoted, in five different ways, if we include those in which the process is assisted by treatment—viz., (1) by immediate union, or (in surgical language) by union by the first intention; (2) by primary adhesion, or union by adhesive inflammation; (3) by granulation, or by the second intention; (4) by secondary adhesion, or the third intention, *i.e.* by union of granulations; and (5) by scarring under a scab, the so called sub-cutaneous cicatrization.

WOUWERMAN, PHILIP, a Dutch painter of battle and hunting scenes, was born at Haarlem in May, 1619. He received the elements of his art instruction from his father, Paul Joosten Wouwerman, a historical painter of moderate ability, and he then studied under Jan Wynants, and for a short time under Evert Decker. Returning to Haarlem, he became a member of its guild of painters in 1640. In that city he seems to have led the rest of his singularly productive life, and there he died in May, 1668.

WRASSE. This name is applied to the fishes of the family *Labridæ* generally. They are without exception inhabitants of the sea, very abundant in the tropical zone, less so in the temperate, and disappearing altogether on the confines of the Arctic and Antarctic Circles. Their body is generally compressed, like that of a carp, covered with smooth (cycloid) scales; they possess one dorsal fin only, the anterior portion of which consists of numerous spines. Many wrasses are readily recognized by their thick lips, the inside of which is sometimes curiously folded, a peculiarity



which has given to them the German name of "lip-fishes." The dentition of their jaws consists of strong conical teeth, of which some in front, and often one at the hinder end of the upper jaw, are larger than the others. But the principal organs with which they crush shell-fish, crustaceans, and other hard substances are the solid and strongly-toothed pharyngeal bones, of which the lower are coalesced into a single flat triangular plate. The majority of wrasses are beautifully colored, exhibiting extraordinarily varied patterns of permanent pigmentary colors, as well as evanescent reflections of the scales.

WRECK (in Low Latin *wreccum* or *warectum maris*) is a ship or goods cast on land by the sea in tidal waters. While still at sea such ship or goods do not constitute wreck but derelict, which includes flotsam, jetsam, and lagan (see FLOTSAM). Theft from a wreck was regarded as aggravated by the helpless position of the owner, and the thief was liable for fourfold the loss if an action was brought against him within a year, after that time for the loss simply. Plunderers of wreck, and exhibitors of false lights, were also punished criminally.

In the United States legislation as to disposition of wrecked property is generally in favor of the owner on his claim being made within a limited time. As to the acts of Congress on the subject, the secretary of the treasury is empowered to make contracts and provisions for the preservation, sale, or collection of wrecked property, *Revised Statutes* § 3,755, and may issue a register for a foreign vessel wrecked in the United States and purchased and repaired by a citizen of the United States, § 4,136. Special provisions are made as to wreck in Florida, §§ 4,239-4,241. Plundering wreck, or impeding the escape of a shipwrecked person, or showing false or extinguishing true lights in order to cause wreck are punishable offenses, § 5,358. Wreck is not confined, as in England, to loss on tidal waters, but extends to that happening on the great freshwater lakes and rivers.

WREDE, KARL PHILIPP, PRINCE OF, a Bavarian field marshal, was born at Heidelberg April 29, 1768. He early obtained official employment, and in 1792 was assessor to the high court of Heidelberg; in 1793 was elected civil commissary in the Palatinate, and in this latter capacity accompanied for five years the armies of Wurms, Duke Albert, and Archduke Charles, in Italy and Germany; and frequently took a direct share in military operations. In 1799 his military career may be said to have commenced by his leading a body of Bavarian volunteers to meet the Archduke Charles, and for his distinguished conduct in that campaign he obtained on May 15, 1800, the grade of major-general. After the peace of 1800 he devoted much time and labor to the organization of the Bavarian army. He took a prominent part in the campaigns against the Austrians, Prussians, and Russians until 1813. But, after the retreat from Russia, offended at some real or fancied insult which had been offered to him, he returned to Munich, joined the anti-French party, which was headed by the queen and crown prince, and, though his intrigues were put to a stop by the victories of Lutzen and Bautzen, he soon afterwards succeeded in bringing about the treaty of October 8, 1813, by which Bavaria joined the coalition against France, and before the end of the same month was at the head of 70,000 men. Attacked by Napoleon with an inferior force, he was, after a bloody and protracted contest, defeated at Hanau. He was chosen soon after to command the fourth corps of Schwarzenberg's army, and, though unsuccessful in most of his petty conflicts, contributed considerably to the successful advance on Paris. His services were rewarded by the dignities of field-marshal and prince, and by the gift

of the Dominion of Ellingen. On the brief renewal of the contest during the "Hundred Days" he was preparing to invade Lorraine, when the battle of Waterloo put an end to the strife. After this period he was employed on many important missions, and was charged with the pacification of Rhenish Bavaria during the revolution of 1830. He died at Ellingen, December 12, 1838.

WREN (Anglo-Saxon *Wrænna* and *Wrenne*, Icelandic *Rindill*), a well-known little brown bird that braves the winter of the British Islands and even that of the European Continent, and, except in the hardest of frosts, will daily sing its spirit-stirring strain. It is the *Motacilla* or *Sylvia troglodytes* of the earlier systematists, and the *Troglodytes parvulus, europæus, or vulgaris* of most later writers. The name Wren is improperly applied to several American members of the family *troglodytes*, no fewer than sixty of these allied species being given by one writer.

The Wren hardly needs description here, and its domed nest, apparently so needlessly large for the size of the bird, is a well-known object, for it is built with uncommon care, and often (though certainly not always) in such a fashion as to assimilate its exterior to its surroundings, and so to escape observation. Very curious, too, is the equally unaccountable fact that near any occupied nest may generally be found another nest, or more than one, of imperfect construction. The widespread belief concerning these unfinished fabrics is implied by their common name of "cocks' nests," but evidence to that effect is not forthcoming. The range of the Wren in Europe is very extensive, though it seems to stop short of the Arctic Circle; but it occurs in Algeria, Madeira, and, according to Bolle, in the Canaries. It also inhabits Palestine.

WREN, SIR CHRISTOPHER, was born at East Knoyle, Wiltshire, England, in 1631; he entered at Wadham College, Oxford, in 1646, took his degree in 1650, and in 1653 was made a fellow of All Souls. While at Oxford, Wren distinguished himself in geometry and applied mathematics; in 1657 he became professor of astronomy at Gresham College, and in 1660 was elected Savilian professor of astronomy at Oxford. It is, however, as an architect that Wren is best known, and the great fire of London, by its destruction of the cathedral and nearly all the city churches, gave Wren a scope for his talent such as probably no architect has ever had to the same extent. Just before the fire, Wren was asked by Charles II. to prepare a scheme for the restoration of the old St. Paul's. In May, 1666, Wren submitted his report and design for this work; the old cathedral was in a very ruinous state, and Wren proposed to remodel the greater part. According to this scheme, only the old choir was left; the nave and transepts were to be rebuilt after the classical style, with a lofty dome at the crossing—not unlike the plan which was eventually carried out.

In September of the same year (1666) the fire occurred, and the old St. Paul's was completely gutted, though the greater part of its walls still remained standing. From 1668 to 1670 attempts were being made by the chapter to restore the ruined building; but Dean Sancroft was anxious to have the cathedral wholly rebuilt, and in 1668 he had asked Wren to prepare a design for a wholly new church. This first design, the model for which is preserved in the South Kensington Museum, is very inferior to what Wren afterward devised. The present very graceful dome and the drum on which it stands, masterpieces of graceful line and harmonious proportion, were very important alterations from the earlier scheme. As a scientific engineer and practical architect, Wren was perhaps more remarkable than as an artistic designer. The construction of the

wooden external dome, and the support of the stone lantern by an inner cone of brickwork, quite independent of either the external or internal dome, are wonderful examples of Wren's constructive ingenuity. The first stone of the new St. Paul's was laid on June 21, 1675; the choir was opened for use December 2, 1697; and the last stone of the cathedral was set in 1710. After the destruction of the city of London, Wren was employed to make designs for rebuilding its fifty burnt churches, and he also prepared a scheme for laying out the whole city on a new plan, with a series of wide streets radiating from a central space. Difficulties arising from the various ownerships of the ground prevented the accomplishment of this scheme.

Among Wren's city churches the most noteworthy are St. Michael's, Cornhill; St. Bride's and St. Mary le Bow, Fleet Street, the latter remarkable for its graceful spire; and St. Stephen's, Walbrook, with a plain exterior, but very elaborate and graceful interior. In the design of spires, Wren showed much taste and wonderful power of invention. The western towers of Westminster Abbey are usually attributed to Wren, but they were not carried out till 1735-45, many years after Wren's death, and there is no reason to think that his design was used. Wren (D.C.L. from 1660) was knighted in 1673, and was elected president of the Royal Society in 1681. He was in parliament for many years, representing Plympton from 1685, Windsor from 1689, and Weymouth from 1700. He occupied the post of surveyor of the royal works for fifty years, but by a shameful cabal was dismissed from this office a few years before his death. He died in 1723, and was buried under the choir of St. Paul's; on a tablet over the inner north doorway is the well-known epitaph, "Si monumentum requiris, circumspice."

**WRESTLING AND BOXING.** Wrestling is the art of forcing an antagonist to the ground without resorting to blows or kicks. It is a trial of strength and skill between two opponents standing face to face, who strive to throw one another. As a gymnastic exercise it was greatly encouraged among the ancient Greeks, and the highest honors and rewards were bestowed on the victors at the Olympic, Isthmian, Nemean, and other games. It was also cultivated by the Romans, though their tastes inclined to more savage and brutalizing exhibitions than that of wrestling. It was not unknown in Egypt and at Nineveh, as may be seen from the sculptures in the British Museum. At the same time it differed very much in its ancient form from the wrestling of to-day; the wrestlers of old being wont to compete almost if not quite nude, their bodies besmeared with oil or some other kind of grease by way of making their muscles supple; but, as this practice rendered it very difficult to get fair hold of one another, the wrestlers were accustomed to use sand on their hands, or even to roll in the dust of the arena as a corrective. In their contests they took hold of each other by the arms, drew forward, pushed backward, used many contortions of the body, interlocked their limbs, seized one another by the neck, throttled, lifted each other off the ground, and butted like rams, though the chief point of their art was to become master of their opponent's legs, when a fall was the immediate result. In England the pastime has been popular from an early period, more especially in the Middle Ages.

The four English systems of wrestling include those of (1) Cornwall and Devon, (2) Lancashire, (3) Catch hold, first down to lose, and (4) Cumberland and Westmoreland. The Cornwall and Devon men compete in strong loose linen jackets, catching hold above the waist or of any portion of the jacket. Kicking, which used to be a prominent feature of the west-country style, is now forbidden, and the men wrestle in their stocking-

feet. In order to be fairly thrown, two shoulders and one hip must be on the ground, or two hips and one shoulder, and a man must be thrown flat on his back before any other portion of his body touches the earth ere a decision can be given against him. Formerly each county wrestled under different rules, but the systems are now amalgamated, and are classed as one and the same. In Lancashire the wrestlers compete in their stocking feet, but are allowed to catch hold of any portion of the body. This is the most barbarous of all the English systems, and includes the objectionable battling on the ground which is the fatal characteristic of the French method. Tripping, however, is not forbidden, and a fall is sometimes secured without a resort to scrambling tactics, which is impossible under French rule. The "catch hold, first down to lose" style of wrestling is of recent origin, and promises to become popular.

Boxing, though perhaps hardly as popular as wrestling, is closely identified with it in the gymnasium, if not outside it. Its present comparative popularity is principally due to the efforts of the late Mr. John G. Chambers, who, in 1866, founded the Amateur Athletic Club, and, in conjunction with the marquis of Queensberry, drew up a code of rules (known as the Queensberry rules), which regulate the principal glove contests.

**WREXHAM**, a market-town and municipal and parliamentary borough of Denbighshire, North Wales, eleven miles south-southwest of Chester, and 201 miles from London by rail. Wrexham church, dedicated to St. Giles, contains fourteenth and fifteenth century work, but was in great part reconstructed at the beginning of the sixteenth century. The Tower, erected between 1506 and 1520, has been styled "one of the seven wonders of Wales." The church was restored in 1867. It contains a large number of monuments. The bells, ten in number, are the most famous in the principality. The population of the parliamentary borough (1,791 acres) in 1901 was 17,000.

**WRIGHT, JOSEPH**, subject, landscape, and portrait painter, was born at Derby, England, on September 3, 1734. During his early years he manifested an aptitude for mechanical pursuits, and also for music, but he finally resolved to become a painter, and in 1751 he went to London and for two years studied under Thomas Hudson, the master of Reynolds. Returning to Derby he practiced portrait painting, and varied his work in portraiture by the productions of the subjects seen under artificial light, with which his name is chiefly associated, and by landscape painting. He married in 1773, and at the end of that year he visited Italy, where he remained till 1775. While at Naples he witnessed an eruption of Vesuvius, which under various treatment formed the subject of many of his subsequent pictures. On his return from Italy he established himself at Bath as a portrait-painter; but meeting with little encouragement he returned to Derby, where he spent the rest of his life. He was a frequent contributor to the exhibitions of the Society of Artists, and to those of the Royal Academy, of which he was elected an associate in 1781 and a full member in 1784. He, however, declined the latter honor on account of a slight which he believed that he had received, and severed his official connection with the Academy, though he continued to contribute to the exhibitions from 1783 till 1794. He died at Derby on August 29, 1797.

**WRIGHT, SILAS**, was born at Amherst, Mass., May 24, 1795. He graduated at Middlebury College, Vt., in 1815, was admitted to the bar in 1819, and began practice at Canton, in northern New York. From the first he showed those characteristics which finally made him a representative American Democratic leader. In his professional work he was



a type of the lawyer of the old school—shrewd, skillful, rigidly just, and controlled by the belief that his profession was a public trust, and that judicial qualities must mingle with those of the advocate. He seems never to have sought an office, and never to have felt at liberty to refuse one, even that of village postmaster, if he could possibly serve. He was appointed surrogate in 1820, and was elected successively to the State senate in 1823, to the house of representatives in 1827–29, comptroller of the State 1829–33, United States senator 1833–44, and governor of New York 1844–46. During his public life he had become a leader of the Democratic party of New York, Van Buren being his closest associate. When the national Democratic party, in 1844, nominated and elected Polk to the presidency, instead of Van Buren, Wright and the State organization took an attitude of armed neutrality toward the new administration. Renominated for governor in 1846, Wright was defeated, and the result was ascribed to the hostility of the Polk administration. The death of the defeated candidate, at Canton, August 27, 1847, gave intense bitterness to New York politics for several years; and his faction, in 1848, succeeded in defeating their national party's candidates in the presidential election.

WRIGHT, THOMAS, antiquary, was born at Ludlow, in Shropshire, England, April 21, 1810, and was descended from a Quaker family formerly living at Bradford, in Yorkshire. He was educated at the old grammar school at Ludlow, and afterward at Trinity College, Cambridge, where he graduated in 1834. While at Cambridge, he contributed to the *Gentleman's Magazine* and other periodicals, and in 1835 went to London to devote himself to a literary career. His first separate work was *Early English Poetry in Black Letter, with Prefaces and Notes*, 1836, 4 vols. 12mo, which was followed during the next forty years by a very extensive series of publications, many of lasting value. He helped to found the British Archaeological Association, and the Percy, Camden, and Shakespeare societies. In 1842 he was elected corresponding member of the Académie des Inscriptions et Belles Lettres of Paris, and was a fellow of the Society of Antiquaries as well as member of many other learned British and foreign bodies. In 1859 he superintended the excavations of the Roman city of Uriconium, near Shrewsbury, of which he issued a description. He died at Chelsea, December 23, 1877, in his sixty-seventh year.

WRIT, in law, is a formal commission from the supreme executive officer to an inferior executive officer, or to a private person, enjoining some act or omission. The word represents the Latin *brevis* or *breve* (both forms are found, the latter more commonly), so called, according to Bracton, from its shortly expressing the intention of the framer. Writs in United States courts are by Act of Congress to be tested in the name of the chief justice of the United States. By State laws, writs are generally bound to be in the name of the people of the State, in the English language, and tested in the name of a judge. Writs of error have been the subject of much legislation in the United States, and by the States. In New York, writs of error and of *ne exeat* have been abolished. Writs as parts of real actions have been generally superseded, but in Massachusetts a writ of entry on disseisin is still a mode of trying title. Writs of dower and of estrepement are still in use in some States. By the law of some States, e.g., New Jersey, writs of election are issued to supply casually occurring vacancies in the legislature.

WRITERS' CRAMP, or "Scrivener's Palsy," is a peculiar kind of local spasm, in which every attempt to write instantly calls forth uncontrollable movements in the thumb, the index, and middle finger, so that the

pen starts up and down on the paper, and instead of legible handwriting a mere scrawl results. The more the patient persists in his attempt, the more the difficulty of using his pen increases, and to the visible contractions of the muscles of the thumb, contractions of the forearm, and even of the upper arm, are often superadded. Abnormal sensations, especially of a sense of weight and constriction of the hand, or of pain extending up the upper arm to the back, are occasionally present. It is diagnostic to these attacks that they are instantly arrested when the individual ceases writing, and that the hand is capable of every other combination of movements and exertions. The disease is chiefly confined to middle age, and scarcely ever occurs in women; and there can be no doubt that an occupation entailing much writing predisposes to it, and the quality of the paper or pen have nothing to do with it.

WRITING MACHINES. Machines and appliances of various kinds are in common use to facilitate the process of writing, and to produce copies of writings already made with the pen. Such facsimile writings are obtained by numerous devices, all of which, however, come under the heads (1) of manifolding, (2) of processes analogous in principle to lithography, and (3) of stenciling. The simplest form of manifold writing is by sheets of paper prepared with lamp-black, being interleaved between the sheets of white paper on which the impressions are to be taken, and writing over the whole with a stylus or other sharp-pointed instrument. By this means a considerable number of copies can be made at one time, and the method is in general use among newspaper writers and telegraphists in the production of what is technically known as "flimsy," where several copies of the same matter are required. Of processes analogous to lithography, the best known is the "hekograph" method, in which the writing is done in the first instance on paper with aniline ink, and then a transfer is made to a gelatine composition which gives off a considerable number of impressions. In principle the autotypist is like the hekograph, but in this apparatus the writing is done with a special ink, which is transferred to a prepared and properly stretched sheet of parchment. From this parchment copies are obtained precisely as from a lithographic stone on which a transfer has been impressed. Of the apparatus worked in the stencil method, the cyclostyle has been most extensively adopted. This machine consists of a frame of sufficient size containing a plate of tin on which the paper from which the impression is to be taken is rested. The paper is prepared in a particular way, and the "pen" with which the writing is done consists of an ordinary wooden holder, at the end of which is fixed on a pivot a minute wheel. The edge of the wheel is studded with fine points, which, as it revolves and turns in the direction of the writing, pierce the paper, thus making a perfect stencil. The ink is passed over the top of this stencil by means of a roller, and the impression is left on a sheet of ordinary paper placed beneath. Another form of stencil reproduction is the mimeograph, in which a prepared gelatinized sheet is rested on a corrugated steel plate; the words to be copied are then traced with a sharp stylus; the paper is then inked through the stencil with a thick, viscid ink, and any number of impressions can be taken by pressing the stencil over sheets of thin, ink-absorbing paper, and running a roller charged with ink backward and forward over the stencil. Similar to this machine is the "cyclostyle."

The principal substitute for the pen, however, is the machine now generally known as the type-writer, which in its present form dates only from 1873, but it has since that time come into extensive use, especially in



America, the country of its origin. The success of this machine has induced many inventors to enter the field, and now three principal classes of type-writers are more or less in use. These are type-bar machines, cylinder machines, and wheel machines. The Remington is the type and original of all type-bar machines, which are so called because the steel types are fixed at the extremity of a bar or rod of iron. These bars are, in the Remington, arranged in a circle around a common center, and by striking the key of any particular letter, a lever is moved which raises the type-bar, and causes the type at its point to strike on an inked ribbon, and impresses the letter on the paper, which lies against an india-rubber roller. The type-bars are so hinged that all the types as they are struck hit precisely the same spot, so that were the paper to remain stationary the impressions of all the types struck would be superimposed on each other; but, by an automatic mechanism, the cylinder with the paper moves a space to the left after the impression of each type, and the depression of a wooden bar similarly moves the cylinder a space after each word without impressing any sign. In the form of the Remington machine most used, each type bar carries two types, capital and lower case, or other duplicate signs, the one a little behind the other, and when a capital letter is to be printed, the depression of a key shifts the position of the cylinder so as to bring the second type in contact with the ink ribbon. In this way from one set of keys two sets of type can be with facility acted upon. With practice, an average writing speed of fifty words per minute can easily be attained on a type-writer, and very expert writers have been able to keep up a speed of from 80 to 100 words for a short time. It is safe to say that type-writing can be ordinarily done at about three times the speed of ordinary handwriting. In the cylindrical machines the letters and signs are all upon a cylinder or "sleeve," and the striking of a key produces a combined lateral and rotary motion for bringing the proper type to the common printing point. Thus, for every separate impression the entire cylinder has ordinarily to make two movements of variable length, and the instrument is noisy in operation, and does not possess the rapid direct action of the type-bar machines.

WRVNECK (Germ. *Wendehals*, Dutch *Draaihalsen*, French *Torcol*), a bird so called from its wonderful way of writhing its head and neck, especially when captured, as it may easily be, on its nest in a hollow tree. The *lynx torquilla* of ornithology, it is a regular summer visitant to most parts of Europe, generally arriving a few days before the Cuckoo, and it is in many countries known by some name associating it with that well-known bird—as in England "Cuckoo's leader" and "Cuckoo's mate"—but occasionally it is called "Snake-bird," not only from the undulatory motions just mentioned, but from the violent hissing with which it seeks to repel an intruder from its hole.

WUDWAN, a town in India, in the peninsula of Kattywar, province of Guzerat, 105 miles west-by-north from Baroda. It is situated on a small river, which falls into the great salt marsh, the Runn of Cutch. Population, 32,000. The surrounding district is in a high state of cultivation, and is celebrated for the excellence of the cotton which it produces.

WUHU, or Woo-Hoo, a district city in the province of Gan-hwuy, China, is situated about a mile from the south bank of the Yang-tze Kiang river, with which it is connected by a straggling suburb. By the treaty of 1858 it was marked out as one of the treaty ports, but it was not opened to trade until 1877. At first its commercial progress was very slow, the neighborhood of the older ports of Kew-keang and Chin-keang militating

against its success; but of late years there has been a distinct improvement in the trade of the port. The principal exports are rice and silk piece goods, while next in importance come feathers, hides, nutgalls, and tea. For the production of feathers large quantities of ducks are reared in the surrounding districts. Of imports, opium is a considerable item. Pop. (1900), 92,230.

WUN, a British district in the chief commissionership of Berar, containing an area of 3,907 square miles. It is bounded on the north and west by Amraoti and Basim districts, on the south by the Nizam's Dominions, and on the east by Wardhá and Chándá districts of the Central Provinces. Wún is a wild, hilly country intersected by offshoots from the Ajanta chain of mountains. For the most part the hills in the district are bare, or clothed only with dwarf teak or small jungle; but on the heights near Wún town the bamboo grows abundantly, and elsewhere small bamboos are found in the ravines. The Wardhá and Paingangá, which bound the district on the east and south, unite at its southeast corner. The Paingangá carries off nearly all the drainage of the district. Wún is rich in coal and iron ores.

The population in 1901 was 392,102 (males 201,491, females 190,611); Hindus numbered 335,787, Mohammedans 17,031, Christians 127, and aboriginals 37,252. Wún, the chief town of the district (population 4,207), has some fine temples.

WÜRTEMBERG, or WÜRTTEMBERG, a European kingdom, forms a tolerably compact mass in the southwest angle of the German empire, of which it is the third factor in point of area and the fourth in point of population. In the south it is cleft by the long narrow territory of Hohenzollern, belonging to Prussia; and it incloses six small enclaves of Baden and Hohenzollern, while it owns seven small exclaves within the limits of these two states. Its greatest length from north to south is 140 miles; its greatest breadth is 100 miles; its boundaries, almost entirely arbitrary, have a circuit of 1,116 miles; and its total area is 7,531 square miles, or about one twenty-eighth of the entire empire. It is bounded on the east by Bavaria, and on the other three sides by Baden, with the exception of a short distance on the south, where it touches Hohenzollern and the Lake of Constance. For administrative purposes the country is divided into the four circles ("kreise") of the Neckar in the northwest, the Jagst in the northeast, the Black Forest in the southwest, and the Danube in the southeast.

Württemberg forms part of the South-German tableland, and is hilly rather than mountainous. In fact the undulating fertile terraces of Upper and Lower Swabia may be taken as the characteristic parts of this agricultural country. The usual estimates return one-fourth of the entire surface as "plain," less than one-third as "mountainous," and nearly one-half as "hilly." The chief mountains are the Black Forest on the west, the Swabian Jura or Rauhe Alb, stretching across the middle of the country from southwest to northeast, and the Adelegg Mountains in the extreme southeast, adjoining the Algaun Alps in Bavaria. The Rauhe Alb or Alp slopes gradually down into the plateau on its south side, but on the north it is sometimes rugged and steep, and has its line broken by isolated projecting hills. The highest summits are in the southwest, viz., the Lemberg (3,326 feet), Ober-Hohenberg (3,312 feet), and Plettenberg (3,293 feet).

About 70 per cent. of Württemberg belongs to the basin of the Rhine, and about 30 per cent. to that of the Danube. The principal river is the Neckar, which flows northward for 186 miles through the country to join the Rhine, and with its tributaries drains 57 per cent. of the kingdom. On the west it receives



the Enz, swelled by the Nagold, and on the east the Fils, Rems, Murr, Kocher, and Jagst. The Danube flows from east to west across the south half of Württemberg, a distance of sixty-five miles, a small section of which is in Hohenzollern. Just above Ulm it is joined by the Iller, which forms the boundary between Bavaria and Württemberg for about thirty-five miles. The Tauber in the northeast joins the Main; the Argen and Schussen in the south enter the lake of Constance. The lakes of Württemberg with the exception of those in the Black Forest, all lie south of the Danube. The largest is the Federsee (640 acres) near Buchau.

The climate is temperate—colder among the mountains in the south than in the north. The mean temperature varies at different points from 43° to 50° F. The abundant forests induce much rain, most of which falls in summer. The soil is on the whole fertile and well cultivated; and for many centuries agriculture was almost the only resource of the inhabitants. Middle and Lower Swabia are the most fertile districts. The removal of burdens and restrictions in 1848 and 1849, and intelligent state-aid, combined with the formation of agricultural societies, have encouraged farming, but the practice of parceling the land in minute patches among the members of the communities still retards progress.

Salt and iron are the only minerals of industrial importance found in Württemberg, and both are worked almost entirely by government. There are five government salt-works (the chief of which are Friedrichshall and Wilhelmshluck), employing together 425 hands. The iron industry is of great antiquity, though it is much hampered by the entire absence of coal mines in Württemberg. The chief fuel used in smelting the iron is wood or charcoal. Iron is mined at Neuenburg, Freudenstetten, and to a very limited extent, in the Black Forest. The locomotive engines of Esslingen enjoy a wide reputation; and agricultural and other machinery, boilers, and tools of various kinds are also manufactured and exported by various towns. The organs of Ludwigsburg are well-known; bell founding is carried on at Stuttgart, Reutlingen, and Cannstatt; beetroot sugar and beer are considerable items in the list of annual produce—wine has been already mentioned. The manufacture of chemicals at Stuttgart, Heilbronn, etc., is important.

Trade has prospered since Württemberg joined the North German Customs Union in 1834. The leading trading towns are Heilbronn, Stuttgart, Ulm, and Friedrichshafen. Cattle, horses, sheep, agricultural produce, timber, salt, and various manufactured goods are the chief exports; coal, hops, steel goods of various kinds, eggs, and poultry are among the chief imports. The book-trade of Stuttgart is very extensive; that town has been called the Leipzig of southern Germany.

In 1900 1,193 miles of railway were open for traffic in Württemberg. With the insignificant exception of two private lines, together no more than thirty-one miles long, all the railways are in the hands of the state. The Neckar, the Schussen, and the Lake of Constance are all navigable for boats; the Danube begins to be navigable at Ulm. The roads of Württemberg are fairly good; the oldest are Roman. Württemberg, like Bavaria, retained the control of its own postal and telegraph system on the foundation of the new German empire. In 1901 the population of Württemberg was 2,169,434, or one twenty-third of the total population of Germany on one twenty-eighth of its area. The average per square mile is 264.9. There are 15 towns with more than 10,000 inhabitants, viz., Stuttgart (176,705), Ulm (42,985), Heilbronn (37,891), Esslingen (27,325), Cannstatt or Canstatt (26,497), Reutlingen (21,494), Ludwigsburg (19,436), Gmünd (18,699), Tübingen

(15,339), Göppingen (19,384), and Ravensburg (13,453). About two-thirds of the population are Protestants. In 1900, when the total population was 2,169,434, there were 1,497,349 Protestants, 649,876 Roman Catholics, 11,859 Jews, 9,845 of other Christian sects, and 505 "others." Württemberg is a constitutional monarchy and a member of the German empire, with four votes in the federal council and seventeen in the imperial diet. The constitution rests on a law of 1819, amended in 1868 and 1874. The crown is hereditary, and conveys the simple title of king of Württemberg.

WURTZ, CHARLES ADOLPHE, chemist, was born at Strasburg on November 26, 1817. Wurtz was educated first at Wolfisheim and afterward at the Protestant gymnasium of Strasburg. There he obtained several prizes. He took special interest in those studies which bore upon nature; in 1828 he took part in a botanical class with excursions, which developed his taste for natural science. In 1839 he was appointed superintendent of practical chemistry in the faculty of medicine under Professor Cailliot. He graduated as M.D., August 13, 1843, the title of his thesis being "On Albumin and Fibrin." He then went for a year to Giessen, to study under Liebig. There he made the acquaintance of Hermann, Strecker, and Kopp. On leaving Giessen he went to Paris, where he worked in Dumas' private laboratory, and in 1845 was appointed assistant to Dumas in the École de Médecine. In 1847, on his presentation of a thesis "On Pyrogenic Bodies," he was appointed "professeur agrégé," and in 1849 he gave the lectures on organic chemistry in place of Dumas. His laboratory in the École Pratique de la Faculté de Médecine was very inconvenient and ill fitted up; he therefore, in 1850, along with Dollfus and Verdeil, who had just returned to Paris from Giessen, opened a private laboratory in the Rue Garancière.

In 1853 Dumas resigned the chair of organic chemistry in the faculty of medicine; at the same time the chair of mineral chemistry and toxicology became vacant by the death of Orfila; the two chairs were united, and Wurtz was appointed to the post thus constituted. In 1866 he was made dean of the faculty of medicine, and used his influence for the rearrangement and reconstruction of the buildings devoted to scientific teaching. In 1874 he persuaded the government to found a chair of organic chemistry at the Sorbonne, and resigned his office of dean, retaining the title of honorary dean. At the Sorbonne he had a smaller but better prepared audience than at the École de Médecine. He was appointed senator in 1881. He was one of the founders of the Chemical Society of Paris, of which he was the first secretary, and was three times president. He was elected member of the Academy of Sciences in 1867, in succession to Pelouze. He was vice-president in 1880 and president in the following year. He died, after a short illness, May 12, 1884. Wurtz was an honorary member of nearly every scientific society in Europe. In 1878 he gave the Faraday lecture of the Chemical Society of London, and in 1881 was awarded the Copley medal by the Royal Society of London.

WÜRZBURG, or WIRZBURG, the fourth largest town in Bavaria, and the chief town of the district of Lower Franconia in the northwest of that kingdom, is situated on both sides of the Main, sixty miles southeast of Frankfurt. An ancient stone bridge, 650 feet long, and adorned with statues of saints, connects the two parts of the town. A university was founded at Würzburg in 1403, but only existed for a few years. The present university was founded by Bishop Julius in 1582. Owing to its connection with the large hospital, its laboratories, and its rich anatomical collections, the



medical faculty speedily became famous, and has remained the most important faculty at Würzburg ever since. The other educational establishments of Würzburg are numerous; among them is a music institute, which gives instruction gratis in vocal and instrumental music.

Würzburg is surrounded by vineyards, which yield some of the best wines in Germany; it also carries on the manufacture of beer, leather, tobacco, and railway carriages. The population of Würzburg (1901) was 75,497, of whom 9,000 are Protestants.

WYANDOTTE, formerly a city and the county seat of Wyandotte county, Kan., is situated upon the west bank of the Missouri river and north bank of the Kansas river, in eastern Kansas, immediately adjoining the State line, and separated by it from Kansas City, Mo. The surrounding country is a fertile and highly cultivated prairie. The city is intersected by several railroads, most of which are branches of the Missouri Pacific system. Population (1900) of township, 3,343.

WYAT, SIR THOMAS, is an important figure historically in English literature, although his poetry does not rank very high in intrinsic value. He was undoubtedly the leader, the first in point of time, and the acknowledged master of "the company of courtly makers" who, in the reign of Henry VIII., under Italian influence, transformed the character of English poetry. Surrey is usually associated with Wyatt in this leadership, and his influence was probably greater, as his verse was superior in fluency, dexterity, and force. But the priority, the actual lead, undoubtedly belongs to Wyatt, who was Surrey's senior by fourteen years, and was celebrated by the younger poet with all the homage of an enthusiastic disciple. It is to Wyatt that the praise rightfully belongs of being the first writer of sonnets in English. He is also the first writer of satires in the classical form.

Wyat was born in 1503, and we have no record of him between his taking his bachelor's degree at Cambridge at the age of fifteen and his being sworn a member of the privy council at the age of thirty, except that he took part in the tournament at a great feast held by the king at Greenwich in 1525. He was knighted in 1536, and twice sent as ambassador to the emperor, a strong proof of his repute as a statesman and diplomatist. He died in 1542.

WYATT, JAMES, a popular architect, born in Staffordshire in 1743, who lived at a time when architectural taste was at its lowest ebb. He spent some time in Rome making measured drawings of the classical remains, and on his return to England became one of the most successful architects of his time, and eventually was elected president of the Royal Academy. On the death of Sir William Chambers in 1796, Wyatt was appointed surveyor to the Board of Works. His chief works were a number of buildings at Kew for George III. He was killed by a fall from his carriage in 1813.

WYATT, RICHARD JOHN, an English sculptor of great eminence, was born in Oxford street, London, on May 3, 1795. He belonged to a collateral branch of the family which made the name of Wyatt famous during two centuries in connection with architecture and sculpture, sharing their descent from a stock of yeomen long settled at Weeford, in Staffordshire. Having the bias of his family toward art, he became an articulated pupil of Charles Rossi, R.A., sculptor, and afterward a student of the Royal Academy, whose medal was twice awarded to him during his pupilage. He afterward passed some time in Paris, studying under Bosio; and from Paris, in 1821, he went to Rome, and entered the studio of Canova, where he had Gibson for a fellow

pupil. The remainder of his life was spent in Rome, in complete devotion to the prosecution of his art; and he died at Rome on May 29, 1850. His youth had shown great promise, in the estimation of painters like Lawrence and sculptors like Canova; and the works which he produced in rapid succession early placed him in the front ranks of English sculptors. Several of his works were shown at the great exhibition of 1851, and the medal for sculpture was awarded to him, though he had died in the previous year.

WYATT, SIR MATTHEW DIGBY, an eminent English architect and writer on art, was born in 1820 at Rowde, near Devizes, Wilts. After his apprenticeship and studying for some time at the Royal Academy, he, in 1844, went to the Continent and made a diligent study of the architecture of Italy, France, and Germany. He returned to England in 1846, and in 1848 published *Geometrical Mosaics of the Middle Ages*. He not only studied decorative art in his own profession, but also in its various applications. In 1849 he made a report to the Society of Arts on the Paris Exposition of Industry; and soon after, as secretary to the royal commissioners, took an important part in the arrangement of the 1851 exhibition. He took a similar interest in the Sydenham Crystal Palace. In 1856 he was appointed architect to the East India Company, for whom he designed several important public works—bridges, barracks, and hospitals. In 1865 he was made honorary member of several foreign academies, and in 1866 received the royal gold medal of the Royal Institute of British Architects. He was knighted in 1869, and in the same year was chosen Slade professor of fine arts at Cambridge. His chief art publications are, *Metal Work and its Artistic Design*, 1852; *Industrial Arts of the Nineteenth Century*, 1853; *Art Treasures of the United Kingdom*, 1857; *Fine Arts*, 1870; *Architect's Handbook in Spain*, 1872. He died in May, 1877.

WYCHERLEY, WILLIAM, the typical "Restoration dramatist," and one of the greatest masters of the comedy of repartee, was born about 1640 at Clive, near Shrewsbury, England. Like Vanbrugh, Wycherley spent his early years in France. Though a man of far more intellectual power than is generally supposed, he was a fine gentleman first, and a responsible being afterward. As a fellow-commoner of Queen's College, Oxford, Wycherley only lived (according to Wood) in the provost's lodgings, being entered in the public library under the title of "Philosophiæ Studiosus" in July, 1660. And he does not seem to have matriculated or to have taken a degree. Pleasure and the stage were alone open to him, and in 1672 was produced, at the Theater Royal, *Love in a Wood*.

Whether Wycherley's experiences as a naval officer, which he alludes to in his lines "On a Sea Fight which the Author was in betwixt the English and the Dutch," occurred before or after the production of *Love in a Wood* is a point upon which opinions differ, but on the whole we are inclined to agree with Macaulay, against Leigh Hunt, that these experiences took place not only after the production of *Love in a Wood* but after the production of *The Gentleman Dancing Master*, in 1673. This second comedy is inferior to *Love in a Wood*.

It is, however, on his last two comedies—*The Country Wife* and *The Plain Dealer*—that must rest Wycherley's fame as a master of that comedy of repartee which, inaugurated by Etheredge, and afterward brought to perfection by Congreve and Vanbrugh, supplanted the humoristic comedy of the Elizabethans. *The Country Wife*, produced in 1675, is so full of wit, ingenuity, animal spirits, and conventional humor that, had it not been for its motive—a motive which, in any healthy state of society must always be as repulsive to the most lax as



to the most moral reader—it would probably have survived as long as the acted drama remained a literary form in England.

It was after the success of *The Plain Dealer* that the turning-point came in Wycherley's career. The great dream of all the men about town in Charles' time, as Wycherley's plays all show, was to marry a widow, young and handsome, a peer's daughter if possible—but in any event rich, and spend her money upon wine and women. While talking to a friend in a bookseller's shop at Tunbridge, Wycherley heard *The Plain Dealer* asked for by a lady who, in the person of the countess of Drogheda, answered all the requirements. An introduction ensued, then love-making, then marriage—a secret marriage, for, fearing to lose the king's patronage and the income therefrom, Wycherley still thought it politic to pass as a bachelor; but the news of his marriage oozed out—it reached the royal ears. Wycherley lost the appointment that was so nearly within his grasp—lost indeed the royal favor forever; and the result of his marrying the rich, beautiful, and titled widow was that the poet was thrown into the Fleet prison. There he languished for seven years, being finally released by the liberality of James II.—a liberality which, incredible as it seems, is too well authenticated to be challenged. James had been so much gratified by seeing *The Plain Dealer* acted that, finding a parallel between Manly's "manliness" and his own, such as no spectator had before discovered, he paid off Wycherley's execution creditor. Other debts still troubled Wycherley, however, and he never was released from his embarrassments, not even after succeeding to a life estate in the family property.

Wycherley wrote verses, and, when quite an old man, prepared them for the press by the aid of Alexander Pope, then not much more than a boy. But, notwithstanding all Pope's tinkering, they remain contemptible. He died in December, 1715, and was buried in the vault of the church in Covent Garden.

WYCLIFFE, or WYCLIF, JOHN, was born, according to Leland, our single authority on the point, at Ipreswel (evidently the place now called Hipswell), a mile from Richmond, in Yorkshire. The date may have been somewhere about 1320. It has been generally believed, and was in fact believed not many years after his death, that he was a fellow of Merton College in 1356; but in all probability this identification rests upon a confusion with another and contemporary John Wycliffe. That the future reformer was a fellow of Balliol College is implied in the fact that some time after 1356, but before the summer of 1360, he was elected master of the college. This office he held but a short time. So soon as 1361 he accepted a college living, that of Fillingham in Lincolnshire, and probably left Oxford for some time. A certain amount of residence at Oxford was necessary if he was now proceeding to a degree in divinity, and still more if, as is generally understood, he is the same person with the John Wycliffe who was appointed, December, 1365, to the Wardenship of Canterbury Hall, a house which Archbishop Islip had lately founded for a mixed body of monks and secular clergymen, and then, changing his mind, had filled exclusively with the latter. His successor, Archbishop Langham, in 1367, reversed the arrangement, expelled Wycliffe and his colleagues, and substituted monks. Wycliffe appealed to Rome and lost his case, 1370. There seems no reason to dispute the legality of the action either of Archbishop Langham or of the cardinal who tried the appeal at Viterbo; but Wycliffe no doubt felt himself hardly used, and (if he be rightly identified with the reformer) the experience may have confirmed him in some of the opinions which

are characteristic of his subsequent career, and which have been attributed, but only on the authority of a bitter opponent, Thomas Netter of Walden, to disappointment at not receiving the bishopric of Worcester (perhaps at its voidance in 1368). But the doubt as to the identification in the one case, and the suspicion attaching to the evidence in the other, may disincline us to reason about the motives which directed Wycliffe on to the path of reform.

Some time after his return Wycliffe was given the prebend of Aust in the collegiate church of Westbury-on-Trim, which he held but a short time, the confirmation of his appointment (November 6, 1375) being followed within a fortnight by the grant of the benefice to another person. Henceforth he lived mainly at Lutterworth and Oxford, making, however, frequent, and as it seems, prolonged visits to London from time to time. He assumed the position of a popular preacher there, and delighted an audience already sufficiently disaffected toward the rich and powerful clergy. He was also closely allied with John of Gaunt, who welcomed him as an instrument toward his design of humbling the church. For some years he was suffered to spread his doctrines without hindrance. The archbishop of Canterbury, Simon Sudbury, had no mind to proceed against him until at length the pressure of the bishops compelled him to summon the dangerous preacher to appear before the bishop of London and answer certain charges laid against him. The nature of these accusations is not stated, but their purport can hardly be doubtful. On February 19, 1377, Wycliffe made his appearance at St. Paul's. He was accompanied by the duke of Lancaster, by Lord Percy, the marshal of England, and by four doctors of the four mendicant orders. The trial, however, came to nothing; for, before Wycliffe could open his mouth, the court was broken up by a rude brawl between his protectors and Bishop Courtenay, ending in a general riot of the citizens of London, who were so much enraged by the insult to their bishop in his own cathedral church—coming as this did at the same time as a serious attempt at an invasion by the duke in parliament of their civic liberties—that they would have sacked his palace of the Savoy had not Courtenay himself intervened.

Wycliffe had escaped for the time, but his enemies did not rely solely on their own weapons. Probably before this they had set their case before the pope; and toward the end of May five bulls were issued by Gregory XI., who had just returned to Rome from Avignon, condemning eighteen (or in other copies nineteen) "conclusions" drawn from Wycliffe's writings. All the articles but one are taken from his first book *De Civili Dominio*, the recent publication of which shows the charges to be honestly made and the quotations to be entirely free from any suspicion of unfairness. The execution of the papal bulls was impeded by three separate causes—the king's death on June 21st; the tardy action of the bishops, who enjoined the university to make a report, instead of simply sending Wycliffe to them; and the unwillingness of the university to admit external authority, and, above all, the pope's right to order the imprisonment of any man in England. The convocation, indeed, as the St. Albans chronicler states with lamentation, made serious objections to receiving the bull at all; and in the end it merely directed Wycliffe to keep within his lodgings at Black Hall for a time.

The year 1378 forms a turning point in Wycliffe's career. The schism in the papacy caused by the election in September of Clement VII. in opposition to Urban VI. slowly decided Wycliffe toward a more revolutionary attitude with respect to the Roman see, a power

which he now convinced himself was at the root of the disorders of the church. He set on foot an active propaganda, choosing the two special means of sending forth his "poor" or "simple priests" to preach pure doctrine throughout the country, and of making the first complete English version of the Bible. This latter work was mainly executed by Wycliffe himself, but his friend Nicholas Hereford did part of the Old Testament. Afterward the whole was revised by John Purvey, who assisted Wycliffe in his parish duty at Lutterworth, and finished his edition probably not long after the reformer's death. Most existing copies are of the latter redaction, which is printed in parallel columns with the older one in the great edition of the version edited by J. Forshall and Sir F. Madden (Oxford, 1851). Wycliffe's translation of the Bible, and still more his numerous English sermons and tracts, establish his now undisputed position as the founder of English prose writing.

In spite of a paralytic seizure which came upon him in 1382 or early in 1383, he continued his labors. In 1384 it is stated that he was cited by pope Urban VI. to appear before him at Rome; but to Rome he never went. On December 28th of this year, while he was hearing mass in his own church, he received a final stroke, from the effects of which he died on the New Year's eve. He was buried at Lutterworth; but by a decree of the council of Constance, May 4, 1415, his remains were ordered to be dug up and burned, an order which was carried out by Bishop Fleming in 1428.

WYCOMBE, HIGH WYCOMBE, or CHIPPING WYCOMBE, a municipal borough and market-town of Bucks, England, twenty-nine miles west-northwest of London, twenty-five southeast of Oxford, and ten north of Maidenhead. Notwithstanding many additions to the town within recent years, it still retains many evidences of antiquity, including several mediæval buildings. The parish church of All Saints, the largest in the county, was rebuilt in 1273 by the abbess and nuns of Godstowe. The borough, which is divided into three wards, is governed by a mayor, six aldermen, and eighteen councillors. The population of the municipal borough in 1881 was 10,618. The population of the parliamentary borough (area 6,395 acres), which existed till 1885, was 13,154 in 1881.

WYKEHAM, WILLIAM DE, was born at Wikeham in Hampshire, in 1324. He was educated at Winchester. On October 8, 1366, by the king's recommendation, he was elected bishop of Winchester. He was consecrated October 10th of the year following. Meanwhile he had been appointed lord high chancellor of England; in which office he was confirmed September 17, 1367. He resigned on March 14, 1371, on a petition being presented to the king against the government remaining too long in the hands of men connected with the church. He now devoted himself to various objects of lasting usefulness. His preparatory school at Winchester was opened for teaching in 1373; but the building of the college was not begun till 1387. It was finished in 1393. In the college which he instituted at Oxford, teaching had also begun in 1373; but the building of "St. Mary's College of Winchester in Oxford" was not begun till 1380; it was finished in 1393. He began the rebuilding of Winchester Cathedral in 1395, and just lived to see it finished. Meanwhile he had become the object of the resentment of the duke of Lancaster and party, at whose instance he was indicted for pecuniary defalcation, and other crimes alleged to have been committed by him as keeper of the privy seal and lord chancellor. He was heard in 1376, before a commission of peers, bishops, and privy councillors, declared guilty, and a

severe sentence was passed upon him. It was, however, ultimately commuted into a fine, which was remitted on the accession of Richard II. in 1377. He was one of the council of fourteen appointed to the king in 1386, and in May, 1389, he was again made lord chancellor. He continued in office till September 27, 1391, when he resigned; and from this date he appears to have taken little active part in public affairs. He was present in the parliament held on September 30, 1399, when Richard II. was deposed. He was also present in the first parliament of Henry IV. He died at South Waltham, September 27, 1404. Wykeham was one of the most munificent benefactors of the English church; but he was not a fanatic. He loved learning, order, civilization, and purity of manners; and as bishop of Winchester signalized himself by his rigorous reformation of ecclesiastical abuses; but he had not the slightest tendency toward Protestantism, affording, in this respect, a most striking contrast to his great contemporary Wicliff (*q.v.*).

WYNTOUN, ANDREW OF, a Scottish monk who flourished at the beginning of the fifteenth century, was the author of the *Orygynale Cronykil of Scotland*. The chronicle, which is in verse and has some historical value from the use made in it of the St. Andrew's registers, is called "original" because it begins with the beginning of the world, the second chapter giving an account of the creation of man. The history of Scotland is brought down to the death of Robert III. in 1406. Of the chronicler himself nothing is known except what he tells us in his prologue, namely, that he was a canon regular of St. Andrew's, and prior of Serf's Inch in Lochleven. The chronicle has been twice carefully edited and annotated, by Macpherson in 1795, and by David Laing in 1872-79.

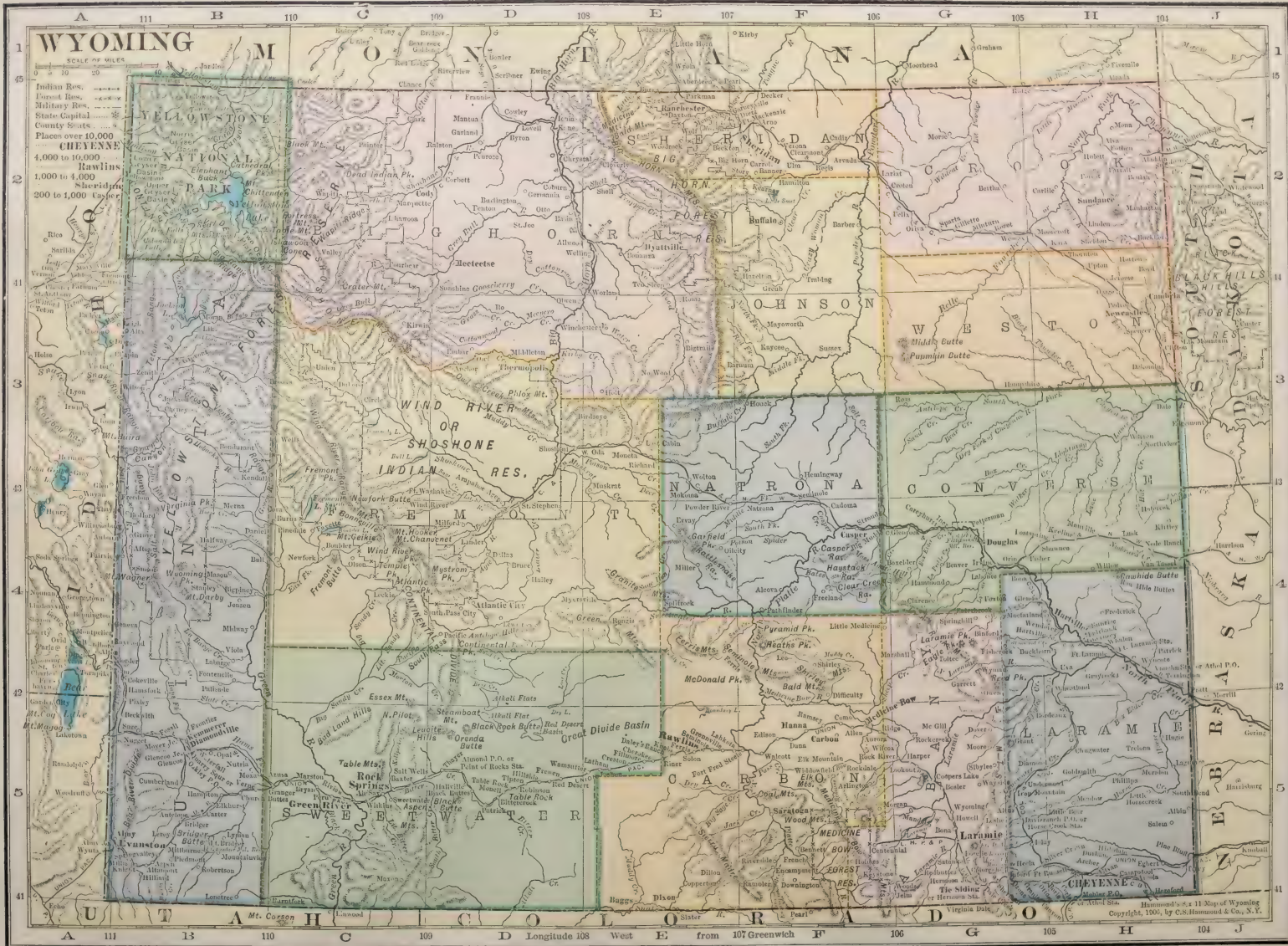
WYOMING, admitted in July, 1890, as a State, is nearly rectangular in shape, having as its boundaries the 41st and 45th parallels of N. latitude and the 27th and 34th meridians west of Washington. South of it are Colorado and Utah; on the west, Utah, Idaho, and Montana; on the north, Montana, and on the east, Dakota and Nebraska. The area is 97,890 square miles.

The surface is greatly diversified. Its mean elevation is not less than 6,400 feet. The lowest portions of the State are along the northern and eastern borders, where in several places the surface is less than 5,000 feet above sea-level, while its highest points exceed 13,000 feet. By far the greater part consists of high plains, which are broken by numerous mountain ranges and ridges, which form parts of the Rocky Mountain system. On the south it consists of three members, the Laramie range, which is crossed by the Union Pacific railroad at Sherman, and the Medicine Bow and Park ranges, which separate branches of the North Platte river. The ill-defined summit of this plateau forms the parting between the waters of the Missouri and Colorado. Eastward this plateau slopes to the Great Plains, and westward to the Green river basin. The Union Pacific railroad traverses it, and therefore the traveler upon this road sees little of the Rocky Mountains except at a distance. Farther north the mountains rise again from this plateau in several ranges.

The drainage system of Wyoming is somewhat complex. While the mountainous regions are well watered by numerous streams, the broad valleys and the plains are poorly supplied with streams. Many of those which flow full in the mountains during the entire year run dry in summer upon the plains. None of the streams are navigable. Of this area the North Platte drains the southern portion of the Rocky Mountain system, together with a large part of the plains lying north and east of it. Farther northward and eastward









the plains are drained by the Cheyenne river. The eastern face of the Big Horn mountains is drained by the Powder and Tongue rivers, while from its western slopes, and from the eastern slopes of the Wind river and Absaroka ranges, the Wind river, known lower down in its course as the Big Horn, collects the waters. The Yellowstone, heading in the confused mass of mountains about the north end of the Wind river range, flows northward through a beautiful lake, draining the west slope of the Absaroka range. The Snake or "Mad" river of the early explorers, heading in the same mass of mountains, flows southwestward to seek an exit from them, while the Green, whose sources are in the same elevated country, drains the west slope of the Wind river range, and flows southward through the broad sage-covered expanse known as the Green river basin. In the southwest corner of the State is a small area drained by means of Bear river into Great Salt Lake.

The geological structure of Wyoming is even more complicated than its surface features. In the northwestern corner is an area in which volcanic action, as represented in hot springs and geysers, is still alive, while the evidences of volcanic action upon a tremendous scale, in recent geological time, are seen in the form of sheets of lava and volcanic breccia, which are spread over the land, and from which mountain ranges have been carved. Most of this region is comprised in the YELLOWSTONE NATIONAL PARK (*q. v.*), which has been set apart from settlement by the general government. Many of the mountain slopes show a succession of the stratified formations, from the Triassic downward through the series. The plains region is mainly floored by Tertiary and Cretaceous formations, as is also the case with the higher plateaus and with the Green river basin.

The larger quadrupeds, which were formerly very abundant, and which are now not infrequently to be met with, are the grizzly, black, and cinnamon bears, the North American panther, the elk, the moose, two or three species of deer, and the antelope. Upon the plains are seen the gray wolf and the coyote, the jack rabbit, the prairie dog, and the gopher. The buffalo, which was formerly extremely abundant upon the plains, is now practically extinct.

The eastern plains are mainly grass-covered, but as one goes westward the grass gradually disappears, and gives place to artemisia and greasewood. Forests are confined almost entirely to the mountains, although the high plains in the Yellowstone Park are covered with timber. The forests are composed of quaking aspen upon the lower slopes, succeeded at greater elevations by pines and spruces, the upper limit of timber in the State being about 10,000 feet above the sea.

Wyoming has, in common with most of the western States, an arid climate. In the arable regions the rainfall is nowhere sufficient for the needs of agriculture, and irrigation is universally practiced. The rainfall ranges in this part of the State from eight to fifteen inches, being greater in the eastern part and diminishing westward. Upon the mountains it probably reaches, if it does not exceed, thirty inches annually.

The temperature ranges with the elevation. Upon the plains and plateaus and in the valleys (this comprising nearly all the habitable parts of Wyoming), the annual temperature is between 40° and 50° F. Upon the mountains it diminishes until, at an altitude of 10,000 feet, it reaches approximately the freezing point.

At the 1880 census the then Territory contained 20,789 inhabitants. In 1870 there were only 9,118, showing an increase of 128 per cent. The population as a State, as shown by the census of 1900, was 92,531. As in all frontier communities, a large proportion consists of adult males.

The industries of Wyoming mainly relate to the raising of cattle and to mining. The former industry is in proportion to the number of inhabitants very large, and has been until recently extremely profitable. The raising of cattle is carried on at slight expense, the cattle being allowed to range freely over the plains, and little provision is made for feeding and shelter, even in winter, as the loss from exposure and starvation is not sufficiently great to warrant the additional expense. In 1900 the number of cattle was returned as 687,284, and sheep as 3,327,185. In 1900 the industrial establishments (334 in number) had a combined capital of \$2,411,435; the value of the products for the year was \$4,301,240.

Mines of gold and silver have been worked to a limited extent near the east base of the Wind River range and in the northwestern part of the State, and also at the extreme south, in the Park range, but the production is insignificant. On the other hand, the coal mines of Wyoming are very valuable; they are mainly situated in the southern part of the State, at Carbon, Rock Spring, Almy, and Twin Creek, on or near the Union Pacific railroad. The production in 1900 was 4,129,265 tons.

WYON, THOMAS, was born at Birmingham in 1792. He was apprenticed to his father, the chief engraver of His Majesty's seals, and studied in the schools of the Royal Academy, London, where he gained silver medals in both the antique and the life class; he also obtained a gold medal from the Society of Arts. He was appointed probationary engraver to the mint in 1811, and soon after engraved his medal commemorative of the peace, and his Manchester Pitt medal. In 1815 he was appointed chief engraver to the mint; but he died at Hastings on September 22, 1817.

WYON, WILLIAM, cousin of Thomas Wyon, was born at Birmingham in 1795. In 1809 he was apprenticed to his father, a die-sinker. Removing to London, he studied the works of Flaxman, attended the schools of the Royal Academy, and gained a gold medal from the Society of Arts for a copy of the head of Ceres, and a second for an original group. In 1816 he was appointed assistant engraver to the mint, and, in 1828, chief engraver; in 1831 he was elected associate, and, in 1838, full member of the Royal Academy. He executed coinages for George IV., William IV., and Queen Victoria, the Peninsular, Trafalgar, and Cabul medals, the William IV. coronation medal, and others. He died at Brighton on October 29, 1851.

WYTTEBACH, DANIEL ALBERT, a famous classical scholar, was born at Bern, Switzerland, in 1746. About 1775, on the advice of Ruhnken, Wytttenbach began the issue of his *Bibliotheca Critica*, which appeared at intervals for the next thirty years. The methods of criticism employed were in the main those established by Hemsterhuis, and carried on by Valckenaer and Ruhnken, and the publication met with acceptance from the learned all over Europe. In 1787 began the internal commotions in Holland, afterward to be aggravated by foreign interference. Scarcely during the remaining thirty-three years of Wytttenbach's life was there a moment of peace in the land. Wytttenbach received repeated invitations to leave Amsterdam, which were refused. One came from his native city Bern, another from Leyden. But he only left Amsterdam in 1799, when on Ruhnken's death he succeeded him at Leyden. Even then his chief object in removing was to facilitate an arrangement by which the necessities of his old master's family might be relieved. His removal came too late in life, and he was never so happy at Leyden as he had been at Amsterdam. Wytttenbach died of apoplexy in 1820, and was buried in the garde of his country house near Amsterdam.

## X.

**X** represents the Phœnician letter Samekh. This form is familiar to Greek students, because it belonged to the alphabet that superseded the alphabet of the Eubœan type which was first in use at Athens and passed in Italy into the form X, which survives with us. The history of the symbol in Italy, is not, however, perfectly clear. The name (ksi) is clearly Greek, not, like the names of the letters in general, borrowed from the Phœnician. It is obviously modeled upon Psi, just as Psi was itself modeled upon Pi. The value of the sound in Phœnician was probably a strong sibilant, with a weak guttural preceding.

But this same symbol X had another very different value in Greek from *ks*, and by this value, *i.e.*, a guttural aspirate, *kh* or *ch*, it is familiar to Greek students under the name Chi. This value is confined to alphabets of the Ionian type.

There is nothing noteworthy in the history of *x* in English. In French, when medial, it has generally passed into *ss*, as in *laisser* (from *laxare*); and it has the same sound, even when written, as in *soixante*. It is frequently found at the end of words owing to a mis-writing, the contraction for final *us* having been confounded with it, as in the plurals *yeux, animaux*, etc., where the *u* has been added again, also in *époux* (esponsus), *faux* (falsus), *roux* (russus), etc. Not unnaturally the *x* has been substituted still further, as in *prix*; in other cases, like *croix*, we have probably a learned imitation of the Latin. Italian also substitutes *ss* for *x*, as in *massimo* for *maximus*, *lussuria*, etc.

**XALAPA.** See **JALAPA**.

**XANTHUS**, an ancient city of **LYCIA** (*q.v.*), on the river Xanthus, about eight miles above its mouth. It is chiefly memorable in history for its two sieges, and the desperate but unavailing resistance made on both occasions. The first siege was by the Persian general Harpagus, when the acropolis was burned and the inhabitants, with all their possessions, perished. The city was afterward rebuilt; and in 42 B.C. it was besieged by the Romans under Brutus. It was taken by storm and set on fire; and the inhabitants, refusing to surrender, all perished in the flames. During its prosperity, Xanthus contained many fine temples and other buildings.

**XAVIER**, **FRANCISCO**, surnamed the "Apostle of the Indies," was the youngest son of Juan de Jasso, privy counselor to Jean d'Albret, king of Navarre, and his wife Maria Azpilcueta Xavier, sole heiress of two noble Navarrese families. He was born at his mother's castle of Xavero or Xavier, at the foot of the Pyrenees and close to the little town of Sanguesa, on April 7, 1506, according to a family register, though his earlier biographers fix his birth in 1497. His father sent him, in 1524, to the university of Paris, then much frequented by Spaniards, where he entered the College of St. Barbara, and made such rapid progress that he was appointed in 1528 lecturer in Aristotelian philosophy at the Collège de Beauvais. In 1530 he took his degree as master of arts. The same year which saw his nomination as lecturer at the university saw also the arrival there of the man who was to mold his destiny and that of his

chamber-mate Pierre le Fèvre, namely, Ignatius Loyola, even then meditating the foundation of his celebrated institute (see **JESUITS**). Ignatius speedily recognized in Xavier the qualities which made him the first missionary of his time—and set himself to win him as an associate in his vast enterprise. Xavier was one of the little band of seven persons, including Loyola himself, who took the original Jesuit vows and founded the company, on August 15, 1534, in the crypt of Notre Dame de Montmartre. They continued in Paris for two years longer, though there is some uncertainty whether Xavier retained his chair; but on November 15, 1536, they started for Italy, to concert with Ignatius (then in Spain, but purposing to join them) plans for a mission to convert the Moslems of Palestine. About 1537, after a journey attended with much fatigue and some danger, owing to the disturbed posture of political affairs, they arrived in Venice, where they found Ignatius awaiting them. Xavier devoted himself to the care of the patients in the hospital for incurables, and then he set out with eight companions for Rome, where Pope Paul III. received them favorably, sanctioned their enterprise, and gave them facilities for obtaining ordination. Returning to Venice, Xavier was ordained priest on Midsummer Day, 1537; but the outbreak of war between Venice and Turkey put an end to the Palestine expedition. Hereupon the companions agreed to disperse for a twelve-month's home mission work in the Italian cities, and Bobadilla and Xavier betook themselves, first to Monselice, thence to Bologna, where they remained till summoned to Rome by Ignatius at the close of 1538, to consider his plans for erecting the company into a religious order, with a formal constitution under papal sanction. The draft rules were signed by the whole number on April 15, 1539, though it was not till 1540 that the pope's confirmation was given, nor was it published till 1541. While the remaining members dispersed anew for work in various parts of Italy, Ignatius retained Xavier at Rome as secretary to the new institute. Meanwhile John III., king of Portugal, had resolved on sending a mission to his East Indian dominions, and, at the instance of his minister Govea, applied through his envoy Pedro de Mascarenhas to the pope for six Jesuits to undertake the task. Ignatius could spare but two, and chose Rodriguez and Bobadilla for the purpose; and the former set out at once for Lisbon to confer with the king. Bobadilla, sent for to Rome, arrived there just before Mascarenhas was about to depart, but fell too ill to respond to the call made on him. Hereupon Ignatius on March 15, 1540, told Xavier to leave Rome the next day with Mascarenhas, in order to join Rodriguez in the Indian mission.

On April 7, 1541, his thirty-fifth birthday, he sailed from Lisbon with Martin Alphonso de Souza, governor of India, and, refusing all accommodations for the voyage offered him, except a few books and some clothing, lived among the common sailors on board, ministering to their religious and temporal needs, especially during an outbreak of scurvy. After five months' voyage the ship reached Mozambique, where



the captain resolved to winter, and Xavier was prostrated with a severe attack of fever. When the voyage was resumed the ship touched at the Mohammedan town of Melinde, whose sultan told Xavier of the marked decline of Islam. But neither there nor at the island of Socotra, the next point of arrival, where Christianity was equally declining, was the missionary able to remain long enough to attempt any work; and he finally reached Goa on May 6, 1542. He spent five months actively employed in Goa, where he is stated to have effected much reformation in morals, and then turned his attention to the fishery coast, extending from Cape Comorin to the Paumbum Pass, where he had heard that the Paravas, a tribe engaged in the pearl fishery, had elapsed into heathenism after having professed Christianity. He labored assiduously among them for fifteen months, and at the end of 1543 returned to Goa to procure colleagues for the mission. Travancore was his next field of action, and there he is said to have succeeded in founding no fewer than forty-five Christian settlements, each with numerous converts. His next sphere of active work was Malacca, which he reached on September 25, 1545, and where he remained another four months, but had comparatively little success, and abandoned it at last as wholly intractable. While there he addressed a letter to King John of Portugal, urging him to set up the Inquisition in Goa to repress Judaism, and was readily listened to, although the actual erection of the tribunal did not take place till 1560, eight years after his own death, which occurred in December, 1552.

XENIA, the county seat of Greene county, Ohio, is situated in the midst of a rich agricultural region, and on the Pittsburg, Cincinnati and St. Louis, and the Dayton, Fort Wayne and Chicago railways. It is one of the oldest cities of Ohio, having been laid out in 1803. It is the seat of the Methodist Episcopal Xenia college (1850), a Presbyterian theological seminary (1794), and Wilberforce university (1863), this last designed for the education of colored youth of both sexes. The population in 1900 was 8,696.

XENOCRATES of Chalcedon, scholar or rector of the Academy from 339 to 314 B.C., was born in 396. Removing to Athens in early youth, he became the pupil of the Socratic Æschines, but joined himself to Plato, whom he attended to Sicily in 361. Upon his master's death (347 B.C.), in company with Aristotle he paid a visit to Hermias at Atarneus. In 339, Aristotle being then in Macedonia, Xenocrates succeeded Speusippus in the presidency of the school, defeating his competitors Menedemus and Heracleides by a few votes. On three occasions he was member of an Athenian legation, once to Philip, twice to Antipater. Soon after the death of Demosthenes in 322, resenting the Macedonian influence then dominant at Athens, Xenocrates declined the citizenship offered to him at the instance of Phocion, and, being unable to pay the tax levied upon resident aliens, was, it is said, sold, or on the point of being sold, into slavery. He died in 314, and was succeeded as scholar by Polemon, whom he had reclaimed from a life of profligacy.

XENOPHANES of Colophon, the reputed founder of the Eleatic school of philosophy, is supposed to have been born in the third or fourth decade of the sixth century B.C. An exile from his Ionian home, he resided for a time in Sicily, at Zancle and at Catana, and afterward established himself in southern Italy, at Elea, a Phocæan colony founded in the sixty-first Olympiad (536-533). In one of the extant fragments he speaks of himself as having begun his wanderings sixty-seven years before, when he was twenty-five years of age, so that he was not less than ninety-two when he died.

His teaching found expression in poems, which he recited rhapsodically in the course of his travels.

XENOPHON, Greek historian and essayist, was born at Athens about 430 B.C. He was a citizen of good position, belonging to the order of the knights. Early in life he came under the influence of Socrates. In 401 B.C., being invited by his friend Proxenus to join the expedition of the younger Cyrus against his brother, Artaxerxes II. of Persia, he jumped at the offer, for he was a needy man, and his prospects at home may not have been very good, as the knights were at this time out of favor from having supported the Thirty Tyrants. At the suggestion of Socrates Xenophon went to Delphi to consult the oracle; but his mind was already made up, and he at once crossed to Asia, to Sardis, the place of rendezvous. He joined neither as officer nor as soldier; he went simply to see new countries and peoples out of a spirit of curiosity and love of excitement. Of the expedition itself he has given a full and detailed account in his *Anabasis*, or the "Up-Country March." (See PERSIA.) After the battle of Cunaxa the officers in command of the Greeks were treacherously murdered by the Persian satrap Tissaphernes, with whom they were negotiating an armistice with a view to a safe return. The army was now in the heart of an unknown country more than a thousand miles from home, and in the presence of a troublesome enemy. It was decided to march northward up the Tigris valley and make for the shores of the Euxine, on which there were several Greek colonies. Xenophon became the leading spirit of the army; he was elected an officer, and he it was who mainly directed the retreat. To his skill, good temper, and firmness the Greeks seem to have largely owed their safety. After a five months' march they reached Trapezus (Trebizond) on the Black Sea (February, 400 B.C.), having given splendid proof of what Greek discipline and spirit could accomplish.

On his return to Greece Xenophon served under Agesilaus, king of Sparta, which state was at this time at the head of the Greek world. With his native Athens and its general policy and institutions he was not in sympathy. At Coronea he fought with the Spartans against the Athenians and Thebans, for which his fellow-citizens decreed his banishment. The exile found a home at Scillus in Elis, about two miles from Olympia; there he settled down to indulge his tastes for sport and for literature. It was probably at Scillus that he wrote most of his books; there too he built and endowed a temple to Artemis, modeled on the great temple at Ephesus. After Sparta's great defeat at Leuctra in 371 B.C., which fatally shattered its ascendancy, Xenophon was driven from his home by the people of Elis. Meantime Sparta and Athens had become allies, and the Athenians repealed the decree which had condemned Xenophon to exile. There is, however, no evidence that he ever returned to his native city. According to the not very trustworthy authority of his biographer (Diogenes Laertius), he made his home at Corinth. He was still living in 357 B.C.; but how much longer he lived we have no means of knowing.

XENOPHON OF EPHEBUS. See ROMANCE.

XERES. See JEREZ DE LA FRONTERA AND WINE.

XERXES (Old Persian *Khsayārshā*; in the book of Esther, *Ahasuerus*), the name of two Achæmenian kings of Persia. Xerxes I., son of Darius Hystaspis and of Atossa, daughter of Cyrus, reigned from 485 to 464 B.C., and is famous for his unsuccessful expedition against Greece (480 B.C.); see PERSIA. Xerxes II., the son of Artaxerxes I. and grandson of Xerxes I., came to the throne in 424 and was murdered by his brother Secydianus after a reign of a month and a half.

XIMENES. See JIMENES.

## Y.

**Y.** The history of this symbol has already been given under U. The three symbols U, V, Y are only differentiations of one original form.

The sound of *y* in Greek was that of French *u* in "lune" and German *ü* in "übel." In Boeotian and Laconian Greek the old *u*-sound was retained; but it was represented by *ov*, a digraph which had also the value of *u* in other dialects where it arose from phonetic change, e.g., in *rovς* (for *torς*). There is no doubt that *y* (i.e., *ü*) was a sound of Early English (or Anglo-Saxon), as of the other Teutonic languages, in words like "fyr" (fire), "synn" (sin); it was the "umlaut" of *u*, especially when followed in the next syllable by *i* or *e*, so "burg" has for gen. and dat. "byrig," orig. "burges," "burge." Thus in the middle of a word *y* lost its special value; on the other hand, at the beginning of a word it easily passed into the consonant *y*, the value which it has regularly in modern English. This explains the fact that the English language had no symbol for the sound of French *u* when this sound was re-introduced into England after the Norman Conquest. Accordingly the French symbol as well as the sound was taken: it is found in words like "muse," "lute," sounded as "myyz," "lyyte." The *yy* gradually developed into the *iu* sound with which we are familiar in "miüz," "liüt"; but the spelling remained unchanged.

**YACHOW-FU**, a prefectural city in the Chinese province of Sze-ch'uen, is situated in 30° 4' N. latitude and 103° 4' E. longitude, and is a place of some antiquity and note, being first mentioned in history during the Chow dynasty (1122-255 B.C.). It is prettily placed in a valley surrounded by an amphitheatre of hills, on the banks of the river Ya. The town is large, populous, and busy, and owes its importance to the fact that it stands at the parting of the tea and tobacco trade route to Tibet *via* Tatsien-lu and the cotton trade route to western Yunnan *via* Ningyuen-Fu. Yachow-Fu is the seat also of a considerable silk manufacture; and in its immediate neighborhood there exist both coal and iron. The city wall measures two miles in circumference, and is pierced by four gates. The population is estimated at about 40,000.

**YACHTING** is the sport of racing in yachts and boats with sails for money or plate, and also the pastime of cruising for pleasure in sailing or steam vessels. The history of yachting is the history of yacht-racing, inasmuch as competition improved yachts just as horse-racing improved horses. It dates from the beginning of the nineteenth century; for, although there were sailing yachts long before, they were but few.

The first authentic record of a sailing club is in 1720, when the Cork Harbor Water Club, now known as the Royal Cork Yacht Club, was established in Ireland, but the yachts were small. From the middle to the end of the eighteenth century yachting developed very slowly;

although matches were sailed at Cowes as far back as 1780, very few yachts of any size, say thirty-five tons, existed in 1800 there or elsewhere. In 1812 the Royal Yacht Squadron was established by fifty yacht-owners at Cowes and was called the Yacht Club, altered to the Royal Yacht Club in 1820; but no regular regatta was held there until some years later. The yachts of the time were built of heavy materials, like the revenue cutters, full in the fore body and fine aft; but it was soon discovered that their timbers and scantlings were unnecessarily strong, and they were made much lighter. It was also found that the single-masted cutter was more weatherly than the brigs and schooners of the time, and the former rig was adopted for racing, and, as there was no time allowance for difference of size, they were all built of considerable dimensions.

In 1848, after J. Scott Russell had repeatedly drawn attention to the unwisdom of constructing sailing vessels on the "cod's head and mackerel tail" plan, and had enunciated his wave-line theory, *Mare* built at Blackwall an entirely new type of vessel, with a long hollow bow and a short after body of considerable fullness. This was the iron cutter *Mosquito*, of 59 feet 2 inches water line, 15 feet 3 inches beam, and measuring 50 tons. Prejudice against the new type of yacht being as strong as against the introduction of steam, there were no vessels built like the *Mosquito*, with the exception of the *Volante*, 59 tons, by Harvey of Wivenhoe, until the eyes of English yachtsmen were opened by the Americans three years later. About this period yacht-racing had been gradually coming into favor in this country, the first yacht club being founded at New York in 1844 by nine yacht owners; and in 1846 the first match between yachts in the States was sailed, 25 miles to windward and back from Sandy Hook lightship, between J. C. Stevens' new center-board sloop *Maria*, 170 tons, 100 feet water line, and 26 feet 8 inches beam, with a draught of 5 feet 3 inches of water, and the *Coquette*, schooner, 74 tons, belonging to J. H. Perkins, the latter winning; but the appearance of the *Maria*, which had a clipper or schooner bow, like that of the newest racing cutters of 1887-1888, did much for yachting in America. Stevens then commissioned George Steers of New York, builder of the crack pilot schooners, to construct a racing schooner to visit England in the year of the great exhibition, and the result was the *America* of 176 tons. She crossed the Atlantic in the summer of 1851, but failed to compete for the queen's cup at Cowes in August, although the club for that occasion threw the prize open to all the world, as her owner declined to concede the usual time allowance for difference of size. The members of the Yacht Squadron, not wishing to risk the reproach of denying the stranger a fair race, decided that their match for a cup given by the



club, to be sailed round the Isle of Wight later on in the same month, should be without any time allowance. The *America*, thus exceptionally treated, entered and competed against fifteen other vessels. The three most dangerous competitors being put out through accidents, the *America* passed the winning post 18 minutes ahead of the 47-ton cutter *Aurora*, and won the cup; but, even if the time allowance had not been waived, the American schooner yacht would still have won by fully a couple of minutes.

The prize was given to the New York Yacht Club and constituted a challenge cup, called the America cup, for the yachts of all nations, by the deed of gift of the owners of the winner. Not only was the *America* as great a departure from the conventional British type of yacht as the *Mosquito*, but the set of her sails was a decided novelty. In England it had been the practice to make them baggy, whereas those of the *America* were flat, which told materially in working to windward. The revolution in yacht designing and canvassing was complete, and the bows of existing cutters were lengthened, that of the *Arrow* among others. The *Alarm* was also lengthened and turned into a schooner of 248 tons, and the *Wildfire*, cutter, 59 tons, was likewise converted. Indeed there was a complete craze for schooners, the *Flying Cloud*, *Gloriana*, *Lalla Rookh*, *Albertine*, *Aline*, *Egeria*, *Pantomime*, and others being built between 1852 and 1865, during which period the center board, or sliding keel, was applied to schooners as well as sloops in America. The national or cutter rig was nevertheless not neglected in England, for Hatcher of Southampton built the 35-ton cutter *Glance*—the pioneer of the subsequent 40-tonners—in 1855, and the *Vampire*—the pioneer of the 20-tonners—in 1857, in which year Weld also had the *Lulworth*, an 82-ton cutter of comparatively shallow draught, constructed at Lymington. At this time, too, there came into existence a group of cutters, called the "flying fifties" from their tonnage, taking after the *Mosquito*, as their pioneer; such were the *Extravaganza*, *Audax*, and *Vanguard*. In 1866 a large cutter was constructed on the Clyde called the *Condor*, 135 tons, followed by the still larger *Oimara*, 163 tons, in 1867. In 1868 the *Cambria* schooner was built by Ratsey at Cowes for Ashbury of Brighton, and, having proved a successful match-sailer, was taken to the United States in 1870 to compete for the America cup, but was badly beaten, as was also the *Livonia* in 1871.

The decade between 1870 and 1880 may be termed the Golden Age of yachting, inasmuch as the racing fleet had some very notable additions made to it, of which it will suffice to mention the schooners *Gwendolin*, *Cetonia*, *Corinne*, *Miranda*, and *Waterwitch*; the large cutters *Kriemhilda*, *Vol au Vent*, *Formosa*, *Samana*, and *Vanduaara*; the 40-tonners *Foxhound*, *Myosotis*, and *Norman*; the 20-tonners *Vanessa*, (Hatcher's master-piece), *Quickstep*, *Enriqueta*, *Louise*, and *Freda*; and the yawls *Florinda*, *Corisande*, *Jullanar*, and *Latona*. Lead, the use of which commenced in 1846, was entirely used for ballast after 1870 and placed on the keel outside.

In 1884 two large 80-ton cutters of the above type were built for racing, viz., the *Genesta* on the Clyde and the *Irex* at Southampton. Having been successful in her first season, the former went to the United States in 1885 in quest of the America cup; but she was beaten by a new yacht, called the *Puritan*, built for the purpose of defending it, with a moderate draught of eight feet three inches of water, considerable beam, and a deep center-board. The defeat of the *Genesta* is not surprising when it is recollected that she drew thirteen feet of water, had a displacement or

weight of 141, as against the *Puritan's* 106 tons, and a sail area of 7,887 square feet to the American's 7,982—a greater mass with less driving power; but she did not leave the States empty-handed, as she won and brought back the Cape May and Brenton Reef challenge cups, though they were wrested from her by the *Irex* in the following year. The same thing happened to the *Galatea*, which was beaten by the *Mayflower* in 1886. In 1887 a new cutter, called the *Thistle*, was built on the Clyde to try to win back the America cup; but, although built very differently from the *Genesta* and *Galatea*, i.e., of a much greater width than modern English racing yachts generally, the *Thistle*, when matched with the new center-board *Volunteer*, had no better fortune than her predecessors. These new American racing vessels are something very different from the old flat-bottomed sloop *Maria*, with one head-sail and a trivial draught of water, inasmuch as they are lead-ballasted cutters with two head-sails and a draught of nearly ten feet of water, with the additional advantage of a center-board descending as much as eight or ten feet below the keel. In this connection it is noteworthy that a prize, won by a fixed-keel schooner should be defended by a center-board craft with a single mast.

From 1887 an entirely new system of measurement for competitive sailing has been adopted in the United Kingdom, the old plan of measuring the hull having given way to the more rational one of taking the length on the water-line and the sail area of the vessel, as the factors for rating. This leaves naval architects free to adopt a long and narrow or a short and "beamy" hull.

YAK. This animal is the *Bos grunniens* of Linnæus and all subsequent zoölogists, so called on account of the pig-like grunting sound it makes. It is structurally more closely allied to the common ox than to the bison, with which group of the *Bovidae* it has been sometimes erroneously associated. It is only found in the lofty plateau of Asia between the Altai Mountains and the Himalayas, and occurs both wild and as the ordinary domestic animal of the inhabitants of that region, supplying milk, food, and raiment, as well as being used as a beast of burden. The wild yaks inhabit the most inaccessible parts of the mountains, ranging up to an elevation of 20,000 feet—higher, it is said, than any other animal—delighting in extreme cold, and finding their sustenance in the coarse, wiry grass which is almost the only vegetable production of those desolate regions. They cannot live to the south of the Himalayas beyond the immediate neighborhood of the snow. Their size is that of a small ox. The horns are long, nearly cylindrical, smooth, and pointed at the ends, and with a peculiar and characteristic curve, being directed at first outward, then upward, forward, and inward, and finally a little backward. Some of the domestic yaks are hornless. Their most remarkable external characteristic is the excessive growth and peculiar distribution of the hairy covering. The upper parts of the body and sides are clothed with a thick, soft, woolly hair, more fully developed along the middle of the back, especially on the shoulders, where it forms a great bunch; on the sides it is comparatively short. From the upper parts of the limbs and the whole of the lower surface of the body a thick growth of long, straight pendent hair descends, in old animals sweeping the ground and almost concealing the somewhat short legs. The tail is profusely covered with a thick mass of such hairs. The calves are at first covered only with a soft, shortish woolly hair, of nearly uniform length all over. Domestic yaks vary considerably in size and appearance according to their treatment and the purpose for which they are bred. The finest are those used for carrying the native chiefs. Those employed for plow

ing are very inferior-looking animals. They vary also in color. The wild animals are nearly uniformly black; the domestic yaks are often quite white. It is not uncommon to see the long hair on the ridge of the back, that on the tail, and the long flowing hair of the under parts white, while all the rest of the animal is black. The tails of the domestic yaks are used as ornamental standards by the Tartars, and are largely imported into India as chowries or fly-flaps.

YAKUTSK, a province of Eastern Siberia, which includes nearly the whole of the basin of the Lena, and covers an area of 1,533,397 square miles (nearly one-third of Siberia and almost one-fifth of the entire Russian empire). It has the Arctic Ocean on the north, Yeniseik on the west, Irkutsk, Transbaikalia and Amur on the south, and is separated from the Pacific (Sea of Okhotsk) only by the narrow Maritime Province. A line drawn southwest and northeast, from the mouth of the Vitim toward that of the Aldan, separates the mountain tracts from the elevated plains (from 1,500 to 2,000 feet) which fringe the highlands all the way from the upper Lena to Verkhne-Kolymsk, and probably to the mouth of the Kolyma. Immense and sometimes marshy meadows extend over those plains in the southwest; farther north mosses and lichens are the prevalent vegetation. The surface is much furrowed by rivers and diversified by several mountain chains (Verkhoyansk, Tas-karyktakh, Kolymsk, and Alezeja).

The Arctic coast is indented by several bays—Borkhaya and Yana to the east of the wide Lena delta, and Omulakh, Kolyma and Tchauskaya still farther to the east. Islands have been explored as far as 78° N. latitude. These fall into three groups, the Lyakhovskiy, the Anjou or New Siberian, and the De Long Islands. The Medvezhie (Bear) Islands off the Kolyma and the two Ayun Islands in Tchauskaya Bay are merely littoral. Wrangel's Land seems to be the outer island of a great and as yet unknown archipelago. The entire coast of Yakutsk is full of memorials of the courageous explorations made in 1735–41 by Minin, Lapteff and Pronchischeff in small boats, without any of the modern appliances for Arctic explorations, and Tchauskaya Bay recalls the loss of Shalauoff's expedition. The prospects of regular navigation recently raised by Nordenskjöld's bold circumnavigation of Asia seem unlikely to be fully realized, the ice apparently having never again been in so favorable a condition as in 1878–79. Every year, however, a narrow passage close by the coast is left almost free of ice, enabling a ship or two to reach the estuary of the Yenisei, or even the delta of the Lena.

The great artery of Yakutsk, the Lena, rises on the western slope of the Baikal Mountains, its sources being separated only by a narrow ridge from the great Siberian Lake. It soon issues from the mountain valleys, and flows over the elevated plains, where it has carved a deep channel between horizontal layers of Old Red Sandstone, and further on of contorted beds of limestone.

Though there are spots in the North American archipelago and in northern Greenland where the cold is as intense as at Yakutsk, no region can be named which has such extremes of cold and heat or winter temperatures so low, so long continued, or spread over so immense an area. Verkhoyansk on the Yana (67° 34' N. latitude, and 134° 20' E. longitude) is, in respect of cold, the pole of the Old World; nowhere, even in Siberia, do we find such low winter temperatures; from whatever quarter the wind may blow it cannot fail to bring a warmer temperature to Verkhoyansk.

In spite of the rigors of its climate, the province of Yakutsk had 261,731 inhabitants in 1898, and the popu-

lation is supposed to be increasing notwithstanding the infectious diseases which sometimes sweep away whole villages. The Russians constitute but a trifling element in the population; and their villages, numbering scarcely twenty, are chiefly peopled by exiled Nonconformists, belonging to the sects reputed "dangerous." In 1889 there were 5,400 exiles living in the towns or settled in the Yakut encampments, 5,300 peasants (also formerly exiles), 1,800 military, and 4,100 artisans, merchants, and officials. The remainder were chiefly Yakuts (211,000), and partly Tunguses (10,400), with a few Yukaghirs, Lamuts, and Tchuktchis. The Yakuts belong to the Turkish stem and speak a dialect of Turkish, with an admixture of Mongolian words. They call themselves Sokha (pl. Sokhalar), their present name having been borrowed by the Russians from the Tunguses, who call them Yeko or Yekot. Most probably they formerly inhabited southern Siberia, and especially the upper Yenisei, where a Tartar stem calling itself Sakha still remains in Minusinsk. They are middle-sized, have dark and rather narrow eyes, a broad flat nose, thick black hair, and almost no beard. On the whole they are healthy and reach an advanced age, are very laborious and enterprising, and display in schools much more intelligence than the Tunguses or Buriats.

The province is divided into five districts, the chief towns of which are—YAKUTSK (see below), Sredne-Kolymsk (560), Olekminsk (500), Verkhoyansk (290), and Viluisk (390). Except Yakutsk, these "towns" are but miserable villages.

YAKUTSK, capital of the above province, situated in 62° 2' N. latitude and 129° 44' E. longitude; 1,800 miles to the northeast of Irkutsk, was founded by Cossacks in 1622. The population was about 7,290 in 1898.

YAM, a term usually applied to the tubers of various species of *Dioscorea*. *D. sativa* and *D. alata* are the species most widely diffused in tropical and sub-tropical countries. *D. aculeata*, grown in India, Cochin China, and the South Sea Islands, is esteemed one of the best varieties. *D. japonica*, the Chinese yam, is hardy in Great Britain, but the great depth to which its enormous tubers descend renders its cultivation unprofitable; the tubers of *D. alata* sometimes attain a weight of 100 pounds. Most of the yams contain an acrid principle, which is dissipated in cooking. The only European *Dioscorea* is that known as *D. pyrenaica*, found in 1845 in the Pyrenees, a remarkable instance of a species growing at a long distance from all its congeners. True yams must not be confounded with the sweet potato, *Convolvulus Batatas*, as they sometimes are in London markets. The common black briony (*Tamus communis*) of hedges in England is closely allied to the yams of the tropics, and has a similar root-stock, which is reputed to be poisonous.

YAMBO, or YEMBO, more properly YANBO<sup>4</sup>, a town of Arabia on the Red Sea, in 24° 4' N. latitude. Having the best harbor on this coast, it has taken the place of Al-Jār (which lay to the south and is now ruined) as the port of Medina, and is visited by steamships in connection with the pilgrim traffic and for the import of grain. The town is surrounded by dilapidated walls, and the fixed population probably does not exceed 4,000 (Von Maltzan).

YANAON, a French settlement in India, near the mouth of the Godavari on the Orissa coast, in the Godavari district, Madras presidency. It is situated in 16° 44' 10" N. latitude and 82° 12' 5" E. longitude, and has an area of 2,258 acres and a population of 4,759 in 1901.

YANG-CHOW FU, or HANG-CHOW FOO, a prefectural city in the Chinese province of Kiang-su, is



situated on the Grand Canal in  $32^{\circ} 21' N.$  latitude and  $119^{\circ} 15' E.$  longitude. The population of the city and suburbs is estimated at about 360,000.

YANG-TSE KIANG, or YANG-TSZE KEANG. See CHINA.

YANINA. See JANINA.

YANKEE; YANKEE DOODLE. Yankee, the popular name for a New Englander in America, and in Great Britain often applied indiscriminately to the whole population of the United States, was in its origin a corruption of the word English as pronounced by the Indians (Yenghies, Yankees, Yanghies). It seems to have been first applied about 1775 by the British soldiers as a term of reproach to the New Englanders, who themselves afterward adopted it. Since the war of Secession the southern population have applied it to the northern people generally.

The air known as *Yankee Doodle* was originally *Nankee Doodle*, and is as old as the time of Cromwell. It was known in New England before the revolution; it is said to have been played by the English troops in derisive allusion to the then popular nickname of the New Englanders; and afterward the New Englanders, saying that the British troops had been made to dance to *Yankee Doodle*, adopted the air. The citizens of the United States do not now recognize *Yankee Doodle*, but *Hail Columbia* as their national air.

YANKTON, the capital of Yankton county, S. Dak., and one of the most enterprising and promising cities in the new State, is situated on the left bank of the Missouri river near its junction with the Dakota river, and up to 1883 was the capital of Dakota Territory. For many years Yankton has been the depot of supplies for the military posts and Indian agencies of the upper Missouri country, and prior to the advent of railroads was the terminus and headquarters for a large number of stage lines and overland transportation companies. The city is located on the North Iowa division of the Chicago and Northwestern, and on the Chicago and Omaha short line division of the Chicago, Milwaukee and St. Paul roads, 579 miles from Chicago, 140 miles from Omaha, and 60 miles from Sioux City. Lines of steamers also ply between Yankton and all points on the Missouri river from St. Louis to Fort Benton. The city occupies an elevated plateau, and with the advantages and facilities for rapid transit above designated, together with other equally important factors promotive of a city's progress, Yankton has become a leading trade center and shipping point in southeastern Dakota. The city contains one daily and five weekly papers, also one monthly publication, five banks, a court-house and jail, a full complement of religious organizations and a number of church edifices, a high-school building, graded schools, business colleges, being also the location of Yankton college and the site of the State insane asylum; six hotels, five public halls, a large number of handsomely designed and finished private residences, gas and electric-light works, woolen mills, iron works, packing-houses, lumber and planing mills, cement mills, linseed-oil mills, pressed brick works, etc. The population of the city was 3,431 in 1880, and in 1900 was returned at 4,125.

YARKAND, or YARKEND, the chief town of the principal oasis of East Turkestan, is situated on the Yarkand-Daria, in  $38^{\circ} 25' N.$  latitude and  $77^{\circ} 16' E.$  longitude, at an altitude of about 4,100 feet above sea-level. The settlements of the Yarkand oasis occupy the southwestern corner of East Turkestan, and are scattered along the numerous rivers which issue from the steep slopes of the Pamir in the west, and the Karakorum and Kuen-Lun Mountains in the south.

The town of Yarkand, which has a population of

about 60,000, is very favorably situated on the river of the same name, five days' journey southeast from Kashgar. It is surrounded by a thick earthen wall, nearly four miles long, with towers in the Chinese style of architecture, and is well watered by numberless canals, which are drawn from the river and, after having irrigated the rich gardens of the city, lead to cisterns in which water is collected for the winter. The square fortress of Yanghishar, which was built by the Chinese, stands within four hundred yards of the walls of the town. The ten mosques and madrasas of Yarkand, although much poorer than those of Bokhara or Samarcand, enjoy a wide renown in the Moslem world. There is a brisk trade, especially in horses, cotton, leatherware, and all kinds of imported manufactured goods.

YARMOUTH, or GREAT YARMOUTH, a municipal and parliamentary borough, seaport, watering-place, and important fishing station of England. It stands on the Great Eastern and the Eastern and Midland railway lines, 20 miles east of Norwich and 122 northeast of London. The old town of Great Yarmouth was built chiefly along the eastern bank of the Yare, but within recent years the town has extended beyond its ancient walls, of which some remains still exist, to the seashore, where there are a marine drive and three piers—two of them 700 feet long. The principal features of Yarmouth are the north and south quays. The market place of Yarmouth is one of the most spacious in the kingdom, its area being about three acres. The old town of Great Yarmouth is connected with Little Yarmouth by a bridge across the Yare of stone and iron, erected in 1854. The Bure is crossed by a suspension bridge. Among the charitable and benevolent institutions are the royal naval lunatic asylum, originally founded as a lunatic hospital in 1811; the sailors' home (1859), the boys' home (1870), the Walrond memorial smack-boys' home (1875), the fishermen's hospital (1702), and Warne's and various minor charities.

Yarmouth Roads, except in the east or northeast winds, afford excellent anchorage. The present channel to the quays was made in 1567 by Joost Jansen, a Netherlands engineer. It affords a depth of water at the bar of twelve feet, and at high water of eighteen to twenty feet. The town owes its origin to the fisheries, and is now one of the chief fishing stations on the east coast of England, being especially famed for its herring and mackerel fisheries, while cod and other white fish are also caught in great quantities. The number of boats registered under the Fisheries Act in December, 1886, was 439, employing from 4,500 to 6,100 men and boys. The boats engaged in fishing are mostly trawling smacks. The curing of fish is an important industry, Yarmouth bloaters being celebrated throughout the kingdom. A great stimulus was given to the fishing trade by the erection of a fish wharf in 1869, having a length of 2,257 feet. There is a considerable inland trade on the rivers by means of lighters and wherries. Ship-building and boat-building are carried on chiefly in connection with the fisheries, the number built in 1886 being eleven of 781 tons. There are also rope, twine, and trawl-net manufactories, silk-crape works, and extensive maltings. Yarmouth is frequented in summer as a seaside resort. It is governed by a mayor, twelve aldermen, and thirty-six councillors. The corporation act as the urban sanitary authority. Water is obtained from one of the "broads" at Ormesby. The population of the municipal borough (area 3,568 acres) was about 51,250 (1901).

YARMOUTH, the county seat of Yarmouth county in the province of Nova Scotia, and a port of entry, is situated at the entrance to the Bay of Fundy 200 miles southwest of Halifax and 90 miles from St. Johns

N. B. It is the southern terminus of the Western Counties railway, by which the city is connected with Digby, 67 miles distant, also with Halifax and with points in New Brunswick. The country surrounding is fertile and productive, and the fishing interest employs a large amount of capital and a correspondingly large force of men. Yarmouth is the receiving and distributing point for agriculture and fishing. In addition to these, Yarmouth is the base of operations for considerable manufacturing, consisting of woollens, cotton duck, organs, lumber, sash, doors, and blinds, carriages, leather, iron and brass goods, patent medicines, etc., besides which it is provided with gas and electric light works. Two papers, semi-weekly and weekly, are published in the city, and three banks are in operation there, while the churches, schools, hotels and places of public resort are numerous, and occupy handsome and well-appointed structures, the Yarmouth Female Seminary building being one of the largest and finest edifices in the province. Shipbuilding is also carried on extensively. The city is steadily growing and extending its influence throughout Nova Scotia and the adjoining territory. The population in 1901 was estimated at 6,430.

YARN consists of any textile fiber prepared by the process of spinning for being woven into cloth. It is only in a few minor and exceptional cases, such as the weaving of hair-cloth or of wire, that there is any making of woven fabrics without the previous spinning of yarn. As weaving can be shown to be among the earliest and most universal of the industries of mankind, the process of spinning yarn, which of necessity accompanies or rather precedes weaving, can be claimed as one of the primal employments of the race. There is ample evidence obtainable, not only of the great antiquity, but also of the wide—almost universal—diffusion of the art of spinning. Throughout all the changes and developments of modern yarn-spinning the rotating spindle continues to be the essential implement, and all the improvements which have been effected have had for their object—(1) the providing of mechanical means of rotating the spindle, (2) an automatic method of drawing out and attenuating the fiber, and (3) devices for working a large group of spindles together. The first improvement on the simple spindle consisted in mounting it horizontally in bearings, and giving it a rotatory motion by a band from a large wheel, passing round a small pulley or "wharve" fixed on the spindle itself. No strict record of the dates at which various developments of the art of spinning took place are to be found, and it is certain that many appliances were long known and to some extent used before their adoption became general. Thus it is quite clear that the flier, which is fitted around modern spindles for twisting the yarn before it is wound on the bobbin, was known to Leonardo da Vinci and probably invented by him. In hand-spinning the further application of the treadle motion, with connecting-rod and crank-axle to drive the little wheel with the feet alone, was the final development. By this agency both hands of the spinner were free, continuous and uniform motion was secured, and the spinner could work two spindles simultaneously, the one with the right and the other with the left hand. It was in this condition that the most advanced form of yarn-making was carried on in the eighteenth century, when a great series of inventions revolutionized the entire range of textile industries and laid the foundation of the gigantic factory system of spinning and weaving which now prevails.

The problem which lay before inventors was to bring tangled masses of fibrous material into parallel order, and to draw out and twist these fibers into uniform

strands by automatic means, without the continuous application of intelligent attention. The first stage in the evolution of mechanical spinning was effected under the patent of Louis Paul in 1738, in which there was clearly described and foreshadowed what is now one of the most important features of spinning machinery—the drawing rollers. Next, to James Hargreaves of Blackburn is due the first conception of the famous spinning-jenny, which he devised about 1767 and patented in 1770. In his specification Hargreaves describes his invention as a machine or engine to be managed by one person only, and that the wheel or engine will spin, draw, and twist sixteen or more threads at one time by a turn or motion of one hand and a draw of the other. At the same time the humble barber of Preston, Richard Arkwright, was busily engaged in developing the important series of inventions and adaptations which resulted in the modern throstle spinning-frame. Arkwright's principal patents were secured in 1769 and 1775; and in the latter year Samuel Crompton of Bolton brought before the world his mule spinning-frame, in which the drawing rollers of Paul and Arkwright were with happy effect applied to the jenny of Hargreaves. These inventions are at the foundation of all modern systems of yarn-spinning.

YAROSLAVL, a government of central Russia, separated from Moscow by narrow strips of Vladimir and Tver on the south, and having Tver and Novgorod on the west, Vologda on the north, and Kostroma on the east, is one of the smallest, but at the same time one of the most populous and industrial governments of Great Russia. It has an area of 13,751 square miles, and the population was 1,072,478 in 1898. The climate is as continental as that of middle Russia generally. The average temperature at Yaroslavl is 36.7° Fahr. (January 6.5°, July 61.5°); the prevailing southwestern and western winds render it moister than in central Russia; and the average number of days with rain or snow is 114. The rivers remain frozen from 118 to 183 days every year. The population is thoroughly Great Russian. The aboriginal Meryas have been completely Russified; and traces of the Karelians, who immigrated in the seventeenth century, can only be discovered in the names and features of some inhabitants on the Siti river. There are, moreover, some 1,000 Tartars, 2,100 Jews, and about 500 Gipsies. Leaving out of account some 2,700 Catholics and Protestants, the population belongs to the Greek Orthodox Church or is *Raskolnik*.

Although Yaroslavl is one of the chief manufacturing governments of the empire, its inhabitants have by no means abandoned agriculture, 27 per cent. of the total area being under crops (36 per cent. under forests and 8 per cent. unillable); on the lands of the peasantry the percentage is still greater (from 46 to 58 per cent.) Rye, oats, and barley, with some wheat and peas, are the chief crops, and in good seasons Yaroslavl has even a surplus of grain, which is either sent to the distilleries or exported. Nearly 40,000 hundredweights of flax are cropped every year. Market gardening is largely engaged in, and the Yaroslavl gardeners have a wide repute throughout Russia. Chicory, sweet peas, cucumbers, apples, and berries are exported. Although there is no want of meadows, cattle-breeding is not greatly developed. One-third of the peasant households had no horses. Cheese-making on the coöperative principle has spread extensively of late, owing to the efforts of the *zemstvo*. Domestic trades are carried on in great variety in the villages, including the making of linen cloth, boots, gloves, sheepskins, knitted wares, cloths, felts, all kinds of wooden wares, pottery, and a variety of metallic goods. The total production is very considerable, although no details are available. The manu-



factures are growing rapidly. Cotton and linen are the chief items; flour-mills, distilleries, and tobacco works come next; and these are followed by chemical works and workshops for machinery, metallic wares, and so on, which are rapidly developing. The trade of the government is very active both on the Volga and on the two railway lines, one of which connects Rybinsk with the St. Petersburg and Moscow line, and the other connects Yaroslavl with Moscow and Vologda. Rybinsk and Yaroslavl are the chief commercial centers, but Rostoff, Mologa, Romanoff, and Poshekhonie also carry on an active trade in grain, timber, and manufactured wares. The total merchandise shipped or discharged to and from the towns and villages of Yaroslavl is estimated at 1,600,000 tons annually, one-half by rail.

YAROSLAVI, capital of the above government, stands on the right bank of the Volga, at its junction with the Kotorost, 173 miles by rail to the northeast of Moscow, and had a population of 70,610 inhabitants in 1898; but this number is temporarily much increased during the period of navigation. The trade, especially that in grain, is very active, and accounts for one-quarter of the whole traffic of the government. The Yaroslavl merchants also carry on a large import trade in manufactured goods and groceries.

YARRELL, WILLIAM, one of the most popular of British naturalists; was born at Westminster in June, 1784. In 1824 he became a fellow of the Linnean Society, and was a diligent contributor to their *Transactions*; and he was one of the earliest members of the Zoological Society. The greater part of his leisure toward the end of his life was devoted to his two great works, *The History of British Fishes* (2 vols., 1836), and *The History of British Birds* (2 vols., 1843). In 1856 he had an attack of paralysis, of which he died at Yarmouth on September 1st of the same year.

YAW is the name in use in the British West Indies and on the West Coast of Africa for a peculiar disease of the skin in Negroes.

The general course of the disease is as follows. Previous to the eruption there may or may not be any disorder of health; in children (who form a large part of the subjects of yaws) there will probably be rheumatic pains in the limbs and joints, with languor, debility, and upset of the digestion; in adults of ordinary vigor the eruption is often the first sign, and it is attended with few or no constitutional troubles. The eruption begins as small pimples like a pin's head, smooth and nearly level with the surface; they have a little whitish speck on their tops, grow rapidly, and reach the size of a sixpence or a shilling. The pustules then break, and a thick viscid ichor exudes and dries upon them as a whitish slough, and around their base as a yellowish brown crust. Beneath the whitish slough is the raspberry excrescence or yaw proper, a reddish fungous growth with a nodular surface. The favorite seats of the eruption are the forehead, face, neck, armpits, groin, genitals, perinæum, and buttocks. Hairs at the seat of a yaw turn white. In young children or infants the corners of the mouth ulcerate, as in syphilis, and the perineal excrescences resemble condylomata. The pustules and excrescences do not all arise in one crop: some are found mature while others are only starting. If the patient be of sound constitution and good reaction, the yaws may reach the full size of a mulberry in a month, in which case they will probably be few; but in persons of poor health they may take three months to attain the size of a wood-strawberry, in which case they will be numerous inversely to their size. Six weeks is the average time in a good case, from the first of the eruption to the fall of the excrescences; in such regular cases a scar remains, it may be

for many months, darker than the rest of the (Negro) skin. But the disease is often a much more tedious affair, the more protracted type having become common in the West Indies of recent years. In such cases the eruption comes out by degrees and as if with difficulty, crop after crop; foul, excavating, and corroding ulcers may remain, or a limb may be in part seamed and mutilated by the scars of old ulceration. The scars after ulceration are not so dark as the skin around.

YAZD, or YEZD, a city of Persia, capital of the district of Yazd, province of Farsistân, in 31° 50' N. latitude and 54° 25' E. longitude. Yazd stands on a flat, sandy plain, about fifty miles broad and encircled by an amphitheatre of picturesque hills, on the high road between Ispahân and Karmân, 190 miles southeast of the former and 220 northwest of the latter place. The exports are chiefly sugar, silks, opium (4,000 chests in a single year to China), cordage, cotton, felts, and copper; the imports wheat, rice, cotton goods, and henna. This henna, together with rang for dyeing the hair, is brought from the Minâb and Bandar-Abbâs districts to be ground and prepared for the Persian market. From the neighboring villages and the remote province of Ghilân comes the raw material for the silk-ooms. Pop. (1900), 55,000.

YAZOO, a river of Mississippi, formed by the union of the Tallahatchie and Yallobusha, runs south and south-by-west in a very serpentine course, in a deep, narrow, sluggish channel, between fertile cotton plantations, and empties into the Mississippi river, twelve miles above Vicksburg; it is 290 miles long, and navigable at all seasons.

YAZOO CITY, capital of Yazoo county, Miss., is situated on the Yazoo river, forty-eight miles northeast of Vicksburg. It is an important shipping point for cotton and has a population (1900) of 4,944.

YEADON, a manufacturing town in the West Riding of Yorkshire, is situated on a hill north of Airedale, about one and one-half miles from Guiseley station on the Midland railway and eight and one-half miles northwest of Leeds. Yeadon is chiefly of modern growth, although wool-combing and cloth manufacture were carried on to some extent before the establishment of the first woolen mill in 1831. Since 1850 the town has made rapid progress, and now possesses several mills, in which woolen cloths are manufactured, especially materials for ladies' jackets, ulsters, mantles, etc. The township was formed out of Guiseley in 1845. The local board of health was established in 1863. The population of the urban sanitary district (area 1,723 acres) was 5,246 in 1871 and 7,850 in 1901.

YEAR. See CALENDAR.

YEAST, an insoluble substance forming an essential component of all sacchariferous juices when in the state of vinous fermentation. This subject is pretty fully dealt with under FERMENTATION; one important application of yeast, however, viz., that which it finds in the baker's trade, is there only referred to. To produce a spongy loaf, the dough, before being made into loaves, is mixed with a ferment which, if allowed to act for a sufficient time before baking, produces alcohol and carbonic acid from a small portion of the actual or potential sugar present; and the carbonic acid, being liberated from within the dough, causes it to "rise." In former times leaven used to be employed exclusively. For higher classes of bakery yeast is now preferred.

YEDO. See TOKIO.

YEISK, a district town of the Russian province of Kuban (Caucasus), was founded in 1848, at the mouth of the Veia, on a narrow sandbank which separates the shallow Bay of Yeisk from the Sea of Azoff, 108 miles to the southwest of Rostoff-on-the-Don. Notwithstand-

ing its shallow roadstead, which has a depth of fourteen feet only at two miles from the shore, Yeisk has grown with great rapidity, and in 1898 had 35,446 inhabitants. Grain, linseed, and wool are exported to a considerable extent.

**YEKATERINBURG.** For this and similar forms of Russian town-names, see **EKATERINBURG**, etc.

**YELETS**, a district town of the Russian government of Orel, 121 miles by rail to the east of Orel, stands on the great trunk railway which connects Riga with Tsaritsyn on the lower Volga. Owing to its advantageous position Yelets, which had been for a long time an important entrepôt for the grain trade, has rapidly grown of late, and in 1898 had 37,455 inhabitants.

**VELIZAVETGRAD.** See **ELIZABETHGRAD**.

**VELIZAVETPOL.** See **ELIZABETHPOL**.

**YELLOW FEVER** is a typhus-like fever of certain ports, or of ships hailing from them. It differs from all other existing types of fevers and infections.

An attack of yellow fever may follow definite exposure (such as landing at an endemic port) within a few hours, as in corresponding cases of cholera; but the outbreak of symptoms is more often delayed for a few days, the limit of "incubation" being about eight. The few hours' languor, chilliness, headache, and muscular pains, which might be the precursors of any febrile attack, are followed by a peculiar look of the eyes and face, which is characteristic: the face is flushed, and the eyes suffused at first and then congested or ferrety, the nostrils and lips red, and the tongue scarlet—these being the most obvious signs of universal congestion of the skin, mucous membranes, and organs. Meanwhile the temperature has risen to fever heat, and may reach a very high figure (maximum of 110° Fahr., it is said); the pulse is quick, strong, and full, but may not keep up in these characters with the high temperature throughout. There are all the usual accompaniments of high fever, including hot skin, failure of appetite, thirst, nausea, restlessness, and delirium (which may or may not be violent); albumen will nearly always be found in the urine. The fever is a continued one so long as it lasts; but the febrile excitement comes to an end after two or three days. In a certain class of ambulatory or masked cases the febrile reaction may never come out, and the shock of the infection after a brief interval may lead unexpectedly and directly to prostration and death. The cessation of the paroxysm makes the *stadium*, or lull, characteristic of yellow fever. The hitherto militant or violent symptoms cease, and prostration or collapse ensues. The internal heat falls below the normal; the action of the heart (pulse) becomes slow and feeble, the skin cold and of a lemon-yellow tint, the act of vomiting effortless, like that of an infant, the first vomit being clear fluid, but afterwards black from an admixture of blood. It is at this period that the prospect of recovery or of a fatal issue declares itself. The prostration following the paroxysm of fever may be no more than the weakness of commencing recovery, with copious flow of urine, which even then is very dark colored from the presence of blood. The prostration will be all the more profound according to the height reached by the temperature during the acute paroxysm. Much blood in the vomit and in the stools, together with all other hæmorrhagic signs, is of evil omen. Constant hiccough, with loud cries or wailing, is a certain sign of death, which may also be ushered in by suppression of urine, coma, and convulsions, or by fainting from failure at the heart. The proportion of recoveries is usually less than one-half; but it has been now and then very large (as in the New Orleans epidemic of 1878). Convalescence is on the whole rapid, but, if some old disease, such as ague, has been lighted up, or abscesses induced, it may go

on slowly for months. One attack of yellow fever confers a high degree of immunity from a second.

The treatment of yellow fever has been one of the classical subjects of controversy. In the Philadelphia epidemics of the end of the eighteenth century Rush gained much credit for his incessant labors in bleeding the victims during the violence of the paroxysm. Although blood-letting to relieve the congestions has been given up, experience still favors the resort to vigorous measures at the outset. The following practice was adopted with much success by Dr. Joseph Jones during the epidemic of 1878, at New Orleans—an emetic of *pecacuanha* followed by a powder of calomel (ten to twenty grains), with as much quinine added (the latter ingredient of doubtful utility), and that again followed by a full dose of castor oil. Beyond that heroic medication at the outset of the febrile paroxysm, the treatment was directed to assisting the action of the skin and kidneys, by keeping the temperature of the room uniform, by mustard foot-baths, and by copious draughts of lemonade or other aerated water, or of barley water. The diet indicated is fever diet: *i.e.*, it should exclude solid food. For such symptoms as tenderness over the stomach a mustard poultice is applied; for diminished secretion of urine dry cupping over the loins. When the lull occurs, the patient should on no account be allowed to get up, as sudden failure of the heart is apt to follow exertion. Iced champagne and beef-tea are found to be the best supports for this stage. The only thing to do when black vomit threatens, is to give the patient ice to suck, or (more questionably) to place an ice bag on the abdomen. When the stage of prostration assumes a "typhoid" character, an enema of ice cold water, with a little turpentine in it, helps to get rid of the flatus and stimulate the kidneys. Recovery is in all cases more probable where there is abundant cubic space and good ventilation.

In the harbors of the American colonies (United States) the history of yellow fever has been as follows. It begins to be heard of at Charleston in 1693, and at Philadelphia the same year. The South Carolina port has the fullest record of it, next in order in the earlier period being Philadelphia, New York, and Norfolk (Va.) Toward the end of the eighteenth century the ports of New England, as far north as New Hampshire, have visitations, and it begins to be quite common at Baltimore, Wilmington, Savannah, and New Orleans. At a still later period (within the nineteenth century) we find the center of incidence shifting so as to include Mobile, Memphis, Natchez, St. Francisville, and Baton Rouge; and in the most recent periods outbreaks are recorded at Galveston and other parts of Texas, and at Pensacola, Vicksburg, and Key West. The Atlantic ports gradually lost it and the Gulf ports took up the inheritance, several of them keeping it still. Some of the epidemics were very disastrous, one of the Philadelphia outbreaks corresponding to the pestilence which figures in the last section of Longfellow's *Evangeline*: "Wealth had no power to bribe, nor beauty to charm the oppressor." In the New Orleans epidemic of 1878 the deaths numbered 4,056. The American ports mentioned have been only its principal seats, many other smaller harbors having had outbreaks now and then, such as New Haven (Conn.), Providence (R. I.), Swedesborough (N. J.), Alexandria (Va.), Augusta (Ga.), St. Augustine (Fla.), Opelousas (La.), and Houston (Tex.)

Along with the harbors and anchorages of the West Indies and Spanish Main, the three chief harbors of Guiana (Cayenne, Surinam, and Demerara) have had an equal share, and for almost the same period. But for Brazilian ports there is no record of yellow fever



until 1849, when it appeared for the first time at Rio de Janeiro, Bahia, and other places. These ports became endemic seats of the infection from that year, and are now more distinctively the headquarters of the disease than its old West Indian and Mexican Gulf centers. Monte Video had a disastrous epidemic in 1857, and Buenos Ayres a visitation in 1858; but the shipping places of the river Plate are not in the same class of endemic foci as the harbors of Brazil.

There have been a few epidemics at trading places on the west coast of Africa, most of them subsequent to 1820, and all of them confined generally to white residents. During the great period of yellow fever (1793-1805), and for some years afterward, the disease found its way time after time to various ports of Spain. Cadiz, indeed, suffered five epidemics in the eighteenth century, Malaga one, and Lisbon one; but from 1800 down to 1821 the disease assumed much more alarming proportions, Cadiz being still its chief seat, while Seville, Malaga, Cartagena, Barcelona, Palma, Gibraltar, and other shipping places suffered severely, as well as some of the country districts nearest to the ports. These Spanish outbreaks were clearly connected with the arrivals of ships, but for the most part there had not been cases of yellow fever on board the ships. The last severe epidemic on Spanish soil was at Barcelona in the summer of 1821, when 5,000 persons died. The most recent disastrous epidemic in Europe was at Lisbon in 1857, when upward of 6,000 died in a few weeks.

YELLOW RIVER. See CHINA.

YELLOWSTONE NATIONAL PARK, an area situated mainly in northwestern Wyoming, which has been withdrawn from settlement by the United States Government and dedicated to the purposes of a public park. It is a region of hot springs and geysers, mountains and cañons, lakes and waterfalls. While it is almost entirely comprised in Wyoming, a narrow strip two miles wide projects on the north into Montana, and on the west a strip about five miles in width projects into the same State and into Idaho. Its boundaries, which were defined at a time when the country was little known, are as follows: The northern boundary is a parallel of latitude running through the mouth of Gardiner river, a branch of the Yellowstone, two miles north of 45° N. The eastern boundary is a meridian ten miles east of the most easterly point of Yellowstone Lake, which places it almost on the 110th meridian. The southern boundary is a parallel ten miles south of the most southerly portion of the same body of water, in latitude 44° 10' N. The western boundary is a meridian fifteen miles west of the most westerly portion of Madison (now Shoshone) Lake, this meridian being approximately that of 111° 6'. The Park is, therefore, very nearly a rectangle in shape, its length north and south being 61.8 miles and its breadth 53.6. Its area is 3,312 square miles.

Its surface is mainly an undulating plateau, with a mean elevation above the sea of about 8,000 feet, upon the surface of which the minor streams flow, while the larger ones have cut cañons for themselves, several of them being of great depth. The eastern portion, however, is occupied by an extremely rugged mountain chain, known as the Absaroka Range, peaks of which rise to heights exceeding 11,000 feet. These mountains, which separate the waters of the Yellowstone from those of the Big Horn, are unsurpassed in the United States for sublimity and grandeur of scenery. The Gallatin Range, which separates the Yellowstone from the Gallatin river, enters the Park near the northwestern corner and extends southward some twenty miles within it.

The Park has an abundant rainfall, and its streams are numerous and bold. It contains many beautiful

lakes and ponds. Within its area are the sources of the Yellowstone and the Madison, which go to make up the Missouri, and of the Snake, one of the forks of the Columbia. This last stream, which drains the southwestern part, takes its rise in several branches, among them being Lewis Fork, which has its origin in the beautiful Shoshone Lake, and Heart river, which rises in Heart Lake, under the shadow of Mount Sheridan. The Yellowstone drains the eastern part. Rising just beyond its southern limits, it flows into and through Yellowstone Lake, a magnificent sheet of water, of very irregular shape, having an area of 150 square miles. A few miles below the lake, the river, after a succession of rapids, leaps over a cliff, making the Upper Fall, 112 feet in height. Half a mile lower down it rolls over the Lower Fall, which has a clear descent of 300 feet. The river at this point carries, at the average stage of water, about 1,200 cubic feet per second. With this fall the river enters the Grand Cañon, which in many scenic effects has not its equal on the globe. Its depth is not great, at least as compared with the cañons upon the Colorado river system, ranging from 600 feet at its head to 1,200 near the middle, where it passes the Washburne Mountains. Its length to the mouth of Lamar river is twenty-four miles. It is cut in a volcanic plateau, and its ragged broken walls, which are inclined at very steep angles, are of a barbaric richness of coloring that almost defies description. Reds, yellows, and purples predominate, and are set off very effectively against the dark green of the forests upon the plateau, and the white foam of the rushing river which fills the bottom of the chasm. Near the foot of the Grand Cañon, Tower creek, which drains the concavity of the horseshoe formed by the Washburne Mountains, enters the Yellowstone. Just above its mouth this stream makes a beautiful fall of 132 feet into the gorge in which it joins the river. A few miles farther down, the Yellowstone is joined by an eastern branch, Lamar river, which drains a large part of the Absaroka Range. Then it enters the Third Cañon, from which it emerges at the mouth of Gardiner river. The latter stream drains an area of elevated land by means of its three forks, and upon each of them occurs a fine fall in its descent toward the Yellowstone. The Madison rises in the western part of the Park and flows in a generally northward and westward course out of the park. Its waters are mainly collected from the rainfall upon the plateaus, and from the hot springs and geysers, most of which are within its drainage area. Upon this river and its affluents are several fine falls. Indeed, all the streams of this region show evidence, in the character of their courses, of a recent change of level in the surface of the country.

The native fauna is abundant and varied. The policy of the government, which protects game within this reservation, has induced it to take shelter here against the sportsman and pot-hunter, so that elk, deer, antelope, mountain sheep, bear, and numerous smaller game animals are very abundant and tame. The only herd of wild bison left in the United States is upon this reservation; and in some parts moose are occasionally seen.

The flora is very varied. With the exception of a few limited areas in the northern part, the region is covered with forests, generally so dense that landmarks are invisible and the traveler is forced to guide himself by the sun or by compass. The trees are mainly the Douglas spruce and the yellow pine, and are not of large size or great commercial value.

The park is accessible by means of the Northern Pacific railroad, by a branch which extends up the valley of the Yellowstone within a few miles of the northern boundary; and with this a line of stage coaches is connected.

The most stringent laws have been enacted in regard to the killing of game, the starting of forest fires, and the removal of the deposits of the springs.

Although exploring parties had at various times passed on all sides of this strange region, its wonders remained undiscovered until so late a period as 1870. This fact is all the more remarkable because at that time the frontier of settlement was in the Gallatin valley, not a hundred miles from the great geyser region. Some rumors of hot springs and geysers, coming from stray trappers and Indians, had been received, however, and these were sufficient to start a party from the Montana settlements in 1870, to investigate the strange tales. The discoveries made by this, the Washburne party, induced Dr. F. V. Hayden, then in charge of a government survey, to turn his explorations in this direction. The reports brought back by him induced Congress to reserve this area from settlement, which was done in the spring of 1872. In that year further explorations were made, and in subsequent years army expeditions carried the work of exploration still farther. In 1878 a map of the park, based upon triangulation, was drawn up by the Hayden survey, and in 1883-85 a more detailed map was made by the United States Geological Survey, and a systematic study of its geological phenomena was instituted.

**YELLOW-TAIL.** This name is given by seafaring men to a variety of marine fishes; chiefly of the family of Horse-Mackerels, which have this in common, that they are edible and have a yellow caudal fin. As the latter peculiarity, which has found expression in the specific names of *chrysurus*, *xanthurus*, etc., of systematic ichthyology, is not confined to that family, very different kinds of fishes bear the same name; thus, for instance, the fishermen of the United States apply it to species of the Meagre family (*Scianida*) and to others. Economically the most important kinds of these fishes, the yellow-tail of the south Atlantic and the southern Indo-Pacific ocean, are species of the genera *Seriola*, *Seriolichthys*, and *Micropteryx*, some of which, like *Seriola lalandii* and *S. gigas*, attain to the size of a cod or a coal-fish, and are preserved in a similar manner either salted or dried. They abound in many localities, and are valued as food fish everywhere.

**YEMEN**, in Arabia, literally the land "on the right hand" of one who faces east, meant originally all the land southward from Syria (Shám). In its narrowest limitation Yemen comprises, not the whole south of the peninsula, but only the southwest as far as Hadramaut, which was viewed as a dependency of Yemen. The physical conformation of the southwestern portion of the peninsula differs greatly from that of Arabia proper, being similar to that of Ethiopia. A range of mountains, which rises into peaks of considerable elevation, and descends with a steep slope toward the shore of the Red Sea, stretches from the southern extremity northward as far as Táif. This range is pierced by several streams and wadies, which flow into the Red Sea.

The accounts of the wealth of the Sabeans, brought back by traders and travelers, excited the cupidity of Rome, and Augustus intrusted Ælius Gallus with an expedition to South Arabia, of which we have an authentic account in Strabo. Nautical improvements, and the discovery that the southwest monsoon (Hippalus) gave sure navigation at certain seasons, increased the connection of the west with South Arabia, but also wrought such a change in the trade as involved a revolution in the state of that country.

Sabæan colonies in Africa have been already mentioned. That Abyssinia was peopled from South Arabia is proved by its language and writing; but the difference between the two languages is such as to im-

ply that the settlement was very early and that there were many centuries of separation, during which the Abyssinians were exposed to foreign influences. New colonies, however, seem to have followed from time to time, and some parts of the African coast were under the suzerainty of the Sabæan kings as late as the Sabæo-Himyaritic period; the district of Azania was held for the Sabæan monarch by the governor of Maphorit (Ma'áfir), and was exploited by a Sabæan company.

With the exception of what the South-Arabian Hamdání relates of his own observation or from authentic tradition, the Mohammedan Arabic accounts of South Arabia and Sabæa are of little worth.

**YENISEI.** See **SIBERIA** and **YENISEISK**.

**YENISEISK**, a province of Eastern Siberia, which extends from the Chinese frontier to the shores of the Arctic Ocean, with an area of 992,870 square miles—as large as one-half of European Russia—has Tobolsk and Tomsk on the west, Yakutsk and Irkutsk on the east, northwestern Mongolia on the south, and the Arctic Ocean on the north. Its southern extremity being in 51° 45' N. latitude and its northern (Cape Tcheluskin) in 77° 38', it combines a great variety of orographical types, from the Sayan alpine regions in the south to the tundras of the Arctic littoral.

Yeniseisk is exceedingly rich in all kinds of metals and minerals. Gold dust appears in three different regions—the northern Yeniseisk Taiga, where 100,740 ounces of gold were extracted in 1884; the region of the Kuznetskiy Alatau and its spurs, with the basins of the Tuba, Sisim, and Black and White Yus (25,860 ounces in 1884); and the upper parts of the tributaries of the Kan and Agul (12,540 ounces), where the gold-washings merge into those of the Nijne-Udinsk district of Irkutsk. Silver ore is found at several places in the basin of the Abakan, but the mines have been abandoned. Iron ore occurs almost everywhere in south Yeniseisk, but there is only one iron-work on the Abakan (25,000 hundredweights in 1884). Salt lakes are very common, and about 50,000 hundredweights of salt are extracted every year. The whole of Yeniseisk is watered by the Yenisei and its affluents.

The climate, though very severe throughout, offers, as might be expected, great varieties. The Minusinsk steppes have a dry and relatively mild climate, so that they are sometimes called the Italy of Siberia. At Krasnoyarsk (55° 1' N. latitude) the climate is more severe, and the winds are exceedingly disagreeable. The yearly fall of snow is so small that the winds blow it away in the neighborhood of the town; hence a circuit has to be made by the convoys of sledges to avoid it, or the sledges changed for wheeled carriages. Yeniseisk (58° 27' N. latitude) has an average temperature below freezing-point, and at Turukhansk the coldest month (February) has an average temperature of -24° Fahr. On the Taimyr peninsula the average summer temperature hardly reaches 45°.

The highlands of Sayan and Alatau are thickly clothed with forests of cedar, pitch-pine, larch, elder, and birch, with a rich undergrowth of rhododendrons, *Berberis*, and *Ribes*; the Scotch fir appears only in the lower and drier parts of the valleys. The summits and slopes of the mountains are strewn with débris and boulders, and thickly sheeted with lichens and mosses; but there are also patches of meadow land covered with flowers, most of which are known in Europe. Still, the flora is poor as a rule.

The steppes of the upper Yenisei have been inhabited from a very remote antiquity, and numberless *kurgans*, graves, rock inscriptions, and smelting furnaces of the successive inhabitants are scattered all over the prairies



of Abakan and Minusinsk. The present population exhibits traces of all these predecessors (see **SIBERIA** and **TARTARS**). Numerous survivals of Turkish and Samoyedic stems are found in the steppe land and in the Sayans; but some of them are greatly reduced in numbers (only a few hundreds). The Kaibals, the Katcha Tartars, the Sagais, the Kyzyl and Milet Tartars, and the Kamasins have settlements of their own, and maintain their national features; but the Karagasses, the Kotts, and the Arintses have almost entirely disappeared, and are represented only by a few families in the spurs of the Sayans. The Tunguses are scattered in the least accessible tracts, and may number about 2,000, or less. Several hundreds of Yakuts inhabit the Turukhansk district; and in the tundras between the Taz and the Yenisei there are a few hundred **OSTIAKS** (*o.v.*) and Yuraks of the Samoyedic stem. The remainder of the population, which numbered in all 559,902 in 1898, consists of Russians—partly exiles, but mostly voluntary settlers. Nearly 50,000 belong to the unfortunate category of "settled" exiles. The "indigenes"—Tartars, Tunguses, Ostiaks, etc.—number about 50,000.

The manufactures of Yeniseisk are hardly worth mentioning, all capital being engaged in gold-washing or in commerce. The chief trade is in furs (exported), and in groceries and manufactured goods (imported). The gold-fields of the Yeniseisk Taiga are supplied with grain and cattle by river from the Minusinsk region, and with salt, spirits, and iron by the Angara. Attempts have recently been made to stimulate the trade in tea with northwest Mongolia.

Yeniseisk is divided into five districts, the chief towns of which are **KRASNOYARSK** (*o.v.*), the capital, which had 20,155 inhabitants in 1898; Atchinsk (7,100) and Kansk (4,050), two small towns on the great Siberian highway, of which the latter is an entrepôt for the gold-mines; Minusinsk (8,270) on the Tuba, close by its junction with the Yenisei, which has now a small but excellent natural history and ethnographical museum; and Yeniseisk (7,050), the chief entrepôt for the gold-mines, having a public library and a natural history museum, created of late by exiles. Turukhansk (139) is the chief town of a vast "region" (*krai*).

**YEOLA**, a municipal town of India, in the Násik district, Bombay presidency, with a population (1901) of 17,685 (males 8,975, females 8,710). It is situated in 20° 4' 10" N. latitude and 74° 30' 30" E. longitude, forty-four miles east of Násik town, thirteen miles south of Manwar station on the northeast line of the Great Indian Peninsular railway, and nearly twelve miles from the frontier of the Nizam's dominions. Yeola is a flourishing commercial town, trading in silk and cotton goods, which it weaves, and in gold-twist, which it also manufactures.

**YEOMANRY CAVALRY**. See **VOLUNTEERS**.

**YEOVIL**, a market town and municipal borough of Somerset, England, is situated on the river Yeo or Ivel, which here separates Somerset from Dorset, and on branch lines of the London and South-Western and the Great Western railways, 40 miles south of Bristol and 124 west-southwest of London. The staple industry is the manufacture of gloves, for which the town has long been celebrated. Brewing and brickmaking are also carried on. The agricultural trade of Yeovil is of some importance, large grain markets and cattle and horse fairs being held. The population of the municipal borough and urban sanitary district (area about 700 acres) in 1871 was 8,527, and in 1901 it was 10,479.

**YEW**. This tree (*Taxus*) belongs to a genus of *Conifera* in which the ordinarily woody cone is represented by a fleshy cup surrounding a single seed.

Usually it forms a low-growing tree of very diverse habit, but generally with dense spreading branches, thickly covered with very dark green linear leaves, which are given off from all sides of the branch, but which, owing to a twist in the base of the leaf, become arranged in a single series on each side of it.

The poisonous properties, referred to by classical writers such as Caesar, Virgil, and Livy, reside chiefly if not entirely in the foliage. This, if eaten by horses or cattle, especially when it has been cut and thrown in heaps so as to undergo a process of fermentation, is very injurious. The leaves have also been used for various medicinal purposes, but are seldom employed now. The succulent portion of the yew berry is quite harmless; but it is probable that some noxious principle is contained in the seed. As, however, it is hard and disagreeable to the taste, the danger from this source is not great. As a timber tree the yew is used for cabinet-work, axle-trees, bows, and the like, where strength and durability are required.

The yew occurs wild over a very large area of the northern hemisphere. In northeastern America and in Japan trees are found of a character so similar that by some botanists they are all ranged under one species. The varieties grown in Great Britain are very numerous, one of the most striking being that known as the Irish yew, a shrub with the pyramidal or columnar habit of a cypress, in which the leaves spread from all sides of the branches, not being twisted, as they usually are, out of their original position. In the ordinary yew the main branches spread more or less horizontally, and the leaves are so arranged as to be conveniently exposed to the influence of the light; but in the variety in question the branches are mostly vertical, and the leaves assume a direction in accordance with the ascending direction of the branches.

The yew is a favorite evergreen tree, either for planting separately or for hedges, for which its dense foliage renders it well suited. The wood is very hard, close-grained, and of a deep red brown color internally. Its younger branches, owing to their toughness, were formerly used for bows.

**YEZD**. See **YAZD**.

**YEZO**. See **JAPAN**.

**YOH-CHOW FU**, a prefectural city in the Chinese province of Hoo-nan ("south of the lakes"), stands on high ground on the east side of the outlet of Tung-ting Lake, in 29° 18' N. latitude, and 113° 2' E. longitude. Situated between Tung-ting Lake and the Yang-tze-kiang, Yoh-chow Fu forms a depot for the native products of the province which are destined for export, and for foreign goods on their way inland. The city is 4,250 Chinese miles from Peking, and contains a population of about 60,000.

**YOKOHAMA**, situated in 35° 26' 53" N. latitude, and 139° 28' 39" E. longitude, is the most important of the five ports in Japan open by treaty to foreign commerce and residence, both on account of its proximity to Tokio, the capital, and of the extent of its trade. It stands on a plain, extending along the Bay of Tokio, and shut in by hills, one of which, toward the southeast, terminates in a promontory called Honmokusaki. Its area extends over .873 of a square mile, of which .26 is occupied by the foreign settlement. The climate is variable, the range in temperature being from 95° to 43° Fahr., and the mean temperature 57.7°. In 1859, when the neighboring town of Kanagawa was opened to foreigners under the treaty with the United States, Yokohama was an insignificant fishing village; and, notwithstanding the protests of the foreign representatives, the Japanese government shortly afterward chose the latter place as the settlement instead of Kanagawa.

The town has since increased so rapidly that, in 1898, the population was 193,762 (3,904 foreigners, including 2,573 Chinese, 256 Americans, and 625 British). The Japanese government has constructed various public buildings, a granite breakwater, and a causeway two miles long, connecting the town with Kanagawa. Waterworks on the most improved principle have been completed recently, the water being supplied from the Sagami-gawa. The foreign settlement consists of well-constructed streets with business establishments. The wealthier portion of the foreigners reside, however, on a hilly locality to the south of the town, called the Bluff. The land occupied by foreigners has been leased to them by the Japanese government, 20 per cent. of the annual rent being set aside for municipal expenses.

**YOKOSUKA**, a seaport and naval station of Japan, is situated in the province of Sagami and on the Bay of Tokio, twelve miles south of Yokohama. The population was 5,800 in 1898.

**YONKERS**, a city of Westchester county, N. Y., is situated upon the east bank of the Hudson river, about eighteen miles from its mouth, and on the New York Central and Hudson River and the New York City and Northern railroads. The site is very hilly, consisting of ridges forming terraces parallel to the river. The city had in 1880 a population of 8,892 (12,733 in 1876) and of 32,033 in 1890. Yonkers has important manufacturing industries, principally of carpets, hats, silk, brass goods, elevators (lifts), steam engines, and machinery; but it is chiefly as a residence suburb, being within an hour of the business center of the metropolis, that it has acquired its population and importance.

Yonkers was settled by the Dutch of New Amsterdam about the middle of the seventeenth century, and was held as a manor until 1779. In 1788 it was organized as a township, and in 1872 it received a city charter.

**YONNE**, a department of central France, was formed in 1790 partly from the province of Champagne proper (with its dependencies, Sénonais and Tonnerrois), partly from Burgundy proper (with its dependencies, the county of Auxerre and Avallonnais), and partly from Gâtinais (Orléanais and Ile-de-France). It lies between 47° 18' and 48° 25' N. latitude and 2° 50' and 4° 20' E. longitude, and is bounded by Aube on the northeast, Côte-d'Or on the east, Nièvre on the south, Loiret on the west, and Seine-et-Marne on the northwest.

Of a total area of 1,835,475 acres, 1,125,412 acres are arable, 426,757 are under wood, 91,309 under vines, 79,366 under grass, and 39,316 are returned as occupied by heaths, pasture lands, and marshes. The live stock in 1880 included 41,295 horses, 1,280 mules, 8,438 asses, 126,636 cattle, 238,522 sheep of native and 58,416 of superior breed (wool-clip in 1880, 566 tons), 30,561 pigs, and 6,516 goats. There were also 21,411 beehives (61 tons of honey). Oxen are fattened and the well-known St. Florentin cheeses made. The wines of Tonnerre and Auxerrois are the finest red wines of Lower Burgundy, and those of Chablis are the finest white. The principal crops in 1884 were—wine 22,486,420 gallons (average of ten preceding years 28,607,370 gallons), wheat 5,500,000 bushels, meslin 192,600, rye 680,625, barley 948,750, oats 4,677,750, buckwheat 35,200, potatoes 3,410,088, beetroot for fodder 25,060 tons, hops 79 tons, colza seed 206, hemp seed 138, hemp 99, linseed 40, flax 22, tobacco 33, hay 386,650, clover 34,245, lucerne 30,189, and sainfoin 6,297 tons. The forests consist of oak, beech, elm, hornbeam, ash, and birch, and re-plantations are being made with different kinds of pine and with larch; chestnut trees are not uncommon. In 1880 700 tons of peat were ex-

tracted; and there are fine quarries of Oolitic limestone, and of cement, ocher, fossil, phosphates, china clay, and chalk. The chief industrial establishments are tanneries, forges, paper-mills, saw-mills, and breweries; files and other articles of steel, boots and shoes, hosiery, and champagne are also manufactured. Cereals, wines, firewood, charcoal, ocher, and bark are exported; southern wines and building materials are among the imports. There are 286 miles of railway, 318 of national and 6,755 of other roads, and 295 of waterway. The population was 357,029 in 1881, and 316,047 in 1901. About 217,000 are engaged in agricultural pursuits. The department constitutes the archiepiscopal diocese of Sens, has its court of appeal at Paris, its academy at Dijon, and belongs to the district of Orleans army corps. It is divided for administrative purposes into five arrondissements. Places of note are the chef-lieu Auxerre (18,754 inhabitants in 1901), the picturesque Avallon (5,768), Joigny (6,189), famous for its wines, and Tonnerre (4,650), for its wines and building stones.

**YORK**, a cathedral city and archbishop's see, the county town of Yorkshire, a county in itself, and a municipal and parliamentary borough, situated on the river Ouse at its junction with the Foss, and on the main joint line of the North Eastern and Great Northern railways, 188 miles north of London. While the special feature of York is the cathedral, the city generally has an antique appearance, with narrow picturesque streets, the remains of ancient walls, and many churches and other buildings of considerable architectural interest.

In modern times York has ceased to retain its commercial importance; but it possesses several iron foundries, railway engineering works, a large glass factory, breweries, flour-mills, tanneries, glove manufactories, and confectionery and other minor establishments. Within its municipal limits the city of York constitutes a separate division of the county of York; the municipal city and the ainsty are for parliamentary purposes included in the North Riding, for registration purposes in the East Riding, and for all other purposes in the West Riding. The parliamentary city of York, which formerly extended beyond the municipal limits, is partly in the North and partly in the East Riding. The corporation consists of a lord mayor, twelve aldermen, and thirty-six councillors. The city returns two members to parliament. In 1884 the boundaries of the city were extended to include the townships of Holgate and St. Olave, and part of the townships of Clifton, Dringhouses, Fulford, Heworth, and Middlethorpe. The population of the municipal borough (area 1,979 acres) was 43,796 in 1871 and 49,530 in 1881, and that of the parliamentary borough (area 2,789 acres) 50,765 in 1871 and 60,343 in 1881. The new area is about 3,721 acres, with a population estimated at 77,793 in 1901.

**YORK**, the capital of York county, Neb., and the center of a section of country that has experienced an almost phenomenal growth, is situated on a branch of the Big Blue river, and on the Burlington and Missouri River road, at its junction with the St. Joseph and Grand Island and the Fremont, Elkhorn and Missouri Valley railways. It is about fifty miles west of Lincoln, the capital of the State, in the midst of a highly cultivated agricultural region, and is a thriving and prospering business city. Three weekly papers and two monthly periodicals are regularly published, and one State and two national banks are operated. It has also several churches, an academy and high-school, court-house, six hotels, an opera house, two public halls, many stores, and is the location of the Methodist Episcopal college of Nebraska. Butter and cheese are extensively manu-



factured for eastern depots of supply, and other lines of productive industry add to the prominence and importance the place has acquired. Among the leading of these are lumber, sash and blinds, fruit and vegetable canning, wire fences, agricultural implements, brooms, foundry and machine work, including engines, boilers, etc. The city is lighted by gas and electricity, and an efficient system of street railways is employed. The population in 1900 was 5,132.

**YORK, HENRY BENEDICT MARY, DUKE OF**, cardinal and bishop of Frascati, the last male descendant of the royal House of Stuart, was the second son of James III. of England, commonly known as the Pretender. He was born at Rome, March 26, 1725; and after the failure of the attempt of his elder brother, Charles Edward, in 1745, resolved to enter the church. He was admitted to the tonsure and minor orders by Benedict XIV., and created cardinal in 1747. Clement XIII. consecrated him bishop of Corinth, in *partibus infidelium*, and afterward of the suburban see of Frascati, where he took up his residence. He also enjoyed, through the favor of the crown of France, the revenues of two abbeys, which he held *in commendam*, as well as a pension from the Spanish court; and the liberal charity with which he dispensed his income among the poor, and for the other charitable and religious necessities of his diocese, endeared him to his flock. These resources were lost at the Revolution; but, nevertheless, in the distresses of the Holy See which ensued, Cardinal York sold his family jewels for the purpose of relieving Pius VI. in his necessities.

On the occupation of Rome, he withdrew to Venice; but he returned in 1801, on the restoration of the papal authority under Pius VII. George III. having become aware of the failure of his former means of income granted him a pension of \$20,000 a year, which he accepted and enjoyed until his death. He was appointed by Pius VII. dean of the Sacred College, and held several other dignities, and was much respected, as well by the Italians as by foreigners visiting Rome. He died at Frascati, July 17, 1817, at the advanced age of ninety-two.

**YORK**, a borough and the county seat of York county, Penn., is situated upon Codorus creek, a branch of the Susquehanna river, and upon three railway lines—the Pennsylvania, the Northern Central, and the Peachbottom. The surrounding country is undulating and is devoted to agriculture. The city is regularly laid out, with streets running diagonally to the cardinal points. It contains some manufactories of agricultural implements, paper-mills, car-shops, etc. The population in 1900 was 33,708.

The settlement of York dates from 1741. For nearly a year (1777-78) it was the place of meeting of the Continental Congress.

**YORK, HOUSE OF**. Richard, duke of York, who claimed the crown of England in opposition to Henry VI., though he never succeeded to the throne himself, was, nevertheless, the founder of a royal line. It may be said, indeed, that his claim, at the time it was advanced, was rightly barred by prescription, the House of Lancaster having then occupied the throne for three generations, and that it was really owing to the misgovernment of Margaret of Anjou and her favorites that it was advanced at all. Yet it was founded upon strict principles of lineal descent, and was certainly a strong one, if it could only be maintained that hereditary right did not suffer from interruption; for the duke was descended from Lionel, duke of Clarence, the third son of Edward III., while the House of Lancaster came of John of Gaunt, a younger brother of Lionel. The House of Lancaster, therefore, had been clearly in

wrongful possession of the throne, and Richard, duke of York, claimed it as the true heir. One thing which might possibly have been considered an element of weakness in his claim was that it was derived through females—an objection actually brought against it by Chief-Justice Fortescue. For Lionel, duke of Clarence, left only a daughter, Philippa, who married Edmund Mortimer, third earl of March; and the male line of the Mortimers also failed on the death of Edmund, the fifth earl, whose sister, and ultimately his sole heir, Anne, married Richard, earl of Cambridge, and became by him the duke of York's mother. But a succession through females could not reasonably have been objected to after Edward III.'s claim to the crown of France; and, apart from strict legality, the duke's claim was probably supported in the popular estimation by the fact that he was descended from Edward III. through his father no less than through his mother. For his father, Richard, earl of Cambridge, was the grandson of Edmund, duke of York, fifth son of Edward III.; and he himself was the direct lineal heir of this Edmund, just as much as he was of Lionel, duke of Clarence. His claim was also favored by the accumulation of hereditary titles and estates. The earldom of Ulster, the old inheritance of the De Burghs, had descended to him from Lionel, duke of Clarence; the earldom of March came from the Mortimers, and the dukedom of York and the earldom of Cambridge from his paternal ancestry. And in addition to all this his own marriage with Cecily Neville, though she was but the youngest daughter of Ralph, first earl of Westmoreland, allied him to a powerful family in the north of England, to whose support both he and his son were greatly indebted.

The reasons why the claims of the line of Clarence had been so long forborne are not difficult to explain. Roger Mortimer, fourth earl of March, was actually designated by Richard II. as his successor; but he died the year before Richard was dethroned, and his son Edmund, the fifth earl, was but a child at Henry IV.'s usurpation. Henry took care to secure his person; but the claims of the family troubled the whole of his own and the beginning of his son's reign. It was an uncle of this Edmund who took part with Owen Glendower and the Percies; and for advocating the cause of Edmund Archbishop Scrope was put to death. And it was to put the crown on Edmund's head that his brother-in-law, Richard, earl of Cambridge, conspired against Henry V. soon after his accession. But this was the last attempt made in favor of the family for a long time. The plot was detected, being revealed, it is said, by the earl of March himself, who does not appear to have given it any encouragement; the earl of Cambridge was beheaded. The popularity gained by Henry V. in his French campaigns secured the weak title of the House of Lancaster against further attack for forty years.

Richard, duke of York, seems to have taken warning by his father's fate; but, after seeking for many years to correct by other means the deplorable weakness of Henry VI.'s government, he first took up arms against the ill advisers who were his own personal enemies, and at length claimed the crown in parliament as his right. The Lords, or such of them as did not purposely stay away from the House, admitted that his claim was unimpeachable, but suggested as a compromise that Henry should retain the crown for life, and the duke and his heirs succeed after Henry's death. This was accepted by the duke and an Act to that effect received Henry's own assent. But the Act was repudiated by Margaret of Anjou and her followers, and the duke was slain at Wakefield fighting against them. In little more than two months, however, his son was proclaimed king at London by the title of Edward IV., and the bloody vic-

tory of Towton immediately after drove his enemies into exile and paved the way for his coronation.

We need not follow the vicissitudes of Edward's reign, of which a brief account will be found under EDWARD IV. After his recovery of the throne in 1471 he had little more to fear from the rivalry of the House of Lancaster. But the seeds of distrust had already been sown among the members of his own family, and in 1478 his brother Clarence was put to death—secretly indeed, within the Tower, but still by his authority and that of parliament—as a traitor. In 1483 Edward himself died; and his eldest son, Edward V., after a nominal reign of two months and a half, was put aside by his uncle, the duke of Gloucester, who became Richard III., and then caused him and his brother Richard, duke of York, to be murdered. But in little more than two years the usurper was defeated and slain at Bosworth by the earl of Richmond, who, being then proclaimed king as Henry VII., shortly afterward fulfilled his pledge to marry the eldest daughter of Edward IV., and so unite the Houses of York and Lancaster.

Here the dynastic history of the House of York ends, for its claims were henceforth merged in those of the House of Tudor. But the family history has still much to do with the story of those reigns.

**YORKSHIRE**, a northern county of England, is bounded east by the North Sea, north by Durham (the boundary line being formed by the Tees), south by Lincoln, Nottingham, Derby, and Chester, and west by Lancaster and Westmorland. It is much the largest county in England, being more than double the size of Lincolnshire, which ranks next to it. The area is 3,882,851 acres, or nearly 6,067 square miles, almost one-eighth of the surface of England. Of the total area 750,828 acres or about 1,173 square miles are in the East Riding, 1,361,664 acres or about 2,127½ square miles in the North Riding, and 1,768,380 acres or about 2,763 square miles in the West Riding. The city of York, which forms an administrative division separate from the Ridings, embraces an area of 1,979 acres or about three square miles.

The coast is not deeply indented at any part, the inlets scarcely deserving the name of bays. Except in the Holderness region, the shore as far north as Saltburn is bold and rocky, and presents a great variety of picturesque cliff scenery, while below the cliffs there are in many cases long stretches of beautiful sands.

Yorkshire is famed for the beauty of its river scenery, in which respect it is scarcely surpassed by Scotland. The great majority of the rivers issue from the higher western regions and flow eastward.

The county is almost destitute of lakes, the only sheets of water of size sufficient to lay claim to that title being Semmer Water at the upper end of Wensleydale, Malham Tarn at the head of Airedale, and Hornsea Mere near the sea-coast at Hornsea.

One of the chief sources of the mineral wealth of Yorkshire is the coalfield in the West Riding, the most valuable seams being the Silkstone, which is bituminous and of the very highest reputation as a house coal, and the Barnsley thick coal, the great seam of the Yorkshire coalfield, which is of special value, on account of its semi-anthracitic quality, for use in iron-smelting and in engine furnaces. The average yearly production of the Yorkshire coalfield is nearly 20,000,000 tons, the number of persons employed above and below ground at the coal-pits being over 60,000. Associated with the Upper Coal Measures there is a valuable iron ore, occurring in the form of nodules. Large quantities of fire-clay are also raised, as well as of gannister and oil-shale. Yorkshire is noted for the number of its mineral springs, chiefly sulphureous and chalybeate, the

principal, besides those at Harrogate, being Askern, Aldfield, Boston Spa, Croft, Filey, Guisbrough, Hovingham, and Scarborough.

**Agriculture.**—The hilly country in the west of Yorkshire, embracing the northwestern corner of the North Riding and a great part of the West Riding, is chiefly pasture land, sheep being grazed on the higher grounds and cattle on the rich pastures where the limestone rock prevails. The Vale of York, with an area of about 1,000 square miles, includes much fertile land occupied by all kinds of crops. The Chalk downs by careful cultivation now form one of the best soils for grain crops, the rotation being grasses, wheat, turnips, and barley. The till or boulder clay of Holderness is the richest soil in Yorkshire. A great part of the land in this district has been reclaimed from the sea, from 20,000 to 30,000 acres being protected by embankments. The Vale of Cleveland in the North Riding is well cultivated, the higher grounds in the district being chiefly pastoral. The smallest proportional area under cultivation is in the North Riding, 860,820 acres out of 1,361,664 in 1887, while in the East Riding there were 666,291 acres out of 804,798, and in the West Riding 1,210,639 acres out of 1,716,380. The proportion of permanent pasture is largest in the West Riding, 803,514 acres or about two-thirds of the area under cultivation, while in North Riding it was 488,958 acres or rather more than one-half, and in the East Riding only 191,519 acres or considerably less than a third. On the other hand, the area under grain crops in the West Riding was 208,890 acres, in the North Riding 197,846 acres, and in the East Riding 254,162 acres.

**Manufactures and Trade.**—For many years an extensive district in the West Riding has been famed for its woolen and worsted manufactures. The early development of the industry was due partly to the abundance of water power supplied by the numerous streams in the valleys by which the district is indented; and in recent times the happy accident of the proximity of coal and iron has enabled the industry to keep pace with modern requirements. The West Riding is now the chief seat of the woolen manufacture in the United Kingdom, and has almost a monopoly in the manufacture of worsted cloths. In this industry nearly all the important towns in the Riding are engaged, Leeds having for its specialty almost every variety of woolen and worsted cloth, Bradford yarns and mixed worsted goods, Dewsbury, Batley, and the neighboring districts shoddy, Huddersfield both plain goods and fancy trousers and coatings, and Halifax, to the neighborhood of which the cotton industry of Lancashire has also penetrated, worsted and carpets. Next to the woolen industry comes the manufacture of iron and steel machinery and implements of every variety, Leeds being one of the principal seats of all kinds of mechanical engineering, and Sheffield of iron work and cutlery. For the minor manufactures in the district, and for more specific details, reference must be made to the separate articles on the different towns. Until comparatively recently agriculture was the chief calling of the North Riding; but the discovery of iron ore in the Cleveland region has led to the formation of another great manufacturing center, mainly devoted to the production of pig-iron, the manufacturing of steel by the basic process, and iron shipbuilding. The industrial activity of the East Riding is mostly centered in Hull, the chief port of the county, although the Lancashire ports must be regarded as the principal ports for the trade, especially of the West Riding. In the North Riding Middlesbrough is rising into importance as a shipping port, and Whitby, though not progressing as a port, has a considerable coasting trade. The fishing industry, which is of minor impor-



tance, is carried on at Hull, Filey, Whitchy, and Scarborough, and a considerable number of villages.

**Administration and Population.**—Yorkshire has from an early period been divided into three ridings, each of which has a lord lieutenant. The East Riding has a separate court of quarter sessions and a commission of the peace. The city of York within the municipal limits constitutes a separate division of the county. The municipal city and the ainsty are for parliamentary purposes included in the North Riding, for registration purposes in the East Riding, and for all other purposes in the West Riding. The parliamentary city of York, which formerly extended beyond the municipal limits, is partly in the North and partly in the East Riding. The following table gives the population of the county and of the three ridings in 1801, 1821, 1871, and 1901:—

	1801.	1821.	1871.	1901.
East Riding.....	139,433	190,449	268,466	145,194
North Riding (with the municipal city of York)	155,506	183,381	346,518	285,671
West Riding.....	363,953	799,357	1,821,371	1,460,861
Yorkshire.....	658,892	1,173,187	2,436,355	1,891,726

**YORUBA, or YARIBA,** a country of West Africa, occupying the eastern half of the Slave Coast region in 6°–9° N. latitude and 3°–7° E. longitude. Taken in its widest sense, so as to include the whole domain of the Yoruba race and speech, the Yoruba country stretches from the Bight of Benin northward in the direction of the unexplored region of Borgu, and from the ill-defined eastern frontier of Dahomey to the Niger and its delta, which inclose it on the northeast, east, and southeast. Within these limits it covers an area of at least 40,000 square miles, with a population roughly estimated at over 2,000,000.

Notwithstanding their political feuds, the Yoruba people are distinguished above all the surrounding races for their generally peaceful disposition, love of industry, friendliness, and hospitality toward strangers. Physically they resemble closely their Ewe and Dahomey neighbors, but are of somewhat lighter complexion, taller, and of less pronounced Negro features. Their superior intelligence is shown in their greater susceptibility to Christian and Mohammedan influences, their capacity for trade, and their remarkable progress in the industrial arts. Although the bulk of the nation is still pagan, Islam has made great advancement since the cessation of the Fulah wars, while Protestant and Roman Catholic missions have been at work for many years at Abeokuta, Oyo, Ibadan, and other large towns. Samuel Crowther, the first Negro bishop, who was distinguished as an explorer, geographer, and linguist, was a native of Yoruba, rescued by the English from slavery and educated at Sierra Leone.

Although agriculture is the chief industry, such useful arts as pottery, weaving, tanning, dyeing, and forging are practiced in all the towns. The people make their own agricultural implements, extract a palatable wine from the *Raphia vinifera*, and weave a stout cotton fabric, which was formerly exported to Brazil, but which can now scarcely stand the competition of cheaper Manchester goods even in the home market. But as builders the Yorubas know no rivals in Negroland. The houses of the chiefs, often containing as many as fifty rooms, are constructed with rare skill, and tastefully decorated with carvings representing symbolic devices, fabulous animals, and even scenes of war or the chase.

Before the introduction of letters the Yorubas are said to have employed knotted strings, like the Peruvian

quipus, for recording events of historic interest. Their language, which has been reduced to writing and carefully studied by Crowther, Bouché, Bowen, and other missionaries, is spoken with considerable uniformity throughout the whole of the Yoruba domain, and has even penetrated with the enterprising native traders as far east as Kano in the Hausa country beyond the Niger. The best known dialectic varieties are those of Egba, Jebu, Ondo, Ife, Iorin, and Oyo (Yoruba proper called also Nago); but the discrepancies are slight, while the divergence from the conterminous linguistic groups (Ewe in the west Ibo, Nupe, and others in the east) appears to be fundamental.

**YOSEMITE VALLEY AND FALLS.** At a distance of 140 miles as the crow flies, but 220 by the usual route in an easterly direction from San Francisco, the traveler gains entrance to the Yosemite Valley, a stretch of scenery the most varied, the grandest, and most magnificent in the world. At an early day it was the retreat of Indians, and its discovery was the result of a "chase" undertaken by a company of national soldiers in pursuit of a predatory band of aborigines. The latter were traced to the Yosemite, whence they disappeared, and the troopers yielded the object of their campaign to feelings of admiration which the exquisite scenery inspired. This was during the fifties, but as reports of this revelation of nature became part of the history of the Pacific slope, tourists and travelers journeyed thitherward to learn if all that had been told them concerning the valley and its beauties was true. The Yosemite Valley is situated in Mariposa county, Cal., on the direct route of the Merced river, to the west of the Sierra Nevada mountains. It is eight miles in length, from half to three quarters of a mile in width, and is inclosed by stupendous walls of granite, rising to a height of from three to six thousand feet. The interior of the valley has been described as a "carpet of flowers;" of flowers that dot the landscape with colors of never-ending fascination, and shed their fragrance out on every passing breeze. Purling brooks spring from their shady hiding places, and go loitering along, murmuring sweet music as they flow, on every hand waterfalls bubble from unseen sources in the mountain sides and sparkle in the sun-light as they mingle with the verdure of the valley, while merry birds, hidden amid the foliage of trees, pour out their sweetest notes and baptize the world with melody.

Upon entering the narrow limits of the valley the eye is first attracted to "Sentinel Rock," 2,270 feet high, standing alone. In sight of this is "El Capitan," rising perpendicularly 3,300 feet from base to summit, and by many regarded as the most prominent attraction of the valley. "Cathedral Rock" obscures from view the "Spires," a pair of granite columns suggestive of Grecian art, and below "Cathedral Rock," "Bridal Veil Falls," from a height of 900 feet scatters its spray in volume so thin and intangible that the outlines of the peaks in the distance are revealed to view. Opposite these, falls known by the romantic name "Virgin's Tears," descend from a precipice 1,000 feet above the valley, and opposite the latter are the "Three Brothers," the loftiest of this "Triple Alliance" being 3,830 feet, while beyond are "Clouds' Rest" and the "North" and "South Dome." "Yosemite Falls," dropping 2,660 feet are opposite Sentinel Rock. They consist of a number of falls, the first being 1,500 feet high, and the last 400 feet in the clear. The total descent from their summit is stated to represent a distance of more than half a mile. The falls of Yosemite are said to be the loftiest in the world, in comparison with which the height of all other known falls, save perhaps Niagara, sinks into insignificance, as also does the amount of

water which passes over their summit. There are many other wonderfully attractive features that challenge admiration, including "Indian Cañon," "Teneya Cañon," "The Royal Arches," "Mirror Lake," "Nevada Falls," together with numberless gorges and cañons, to which no names have yet been given and whose mysteries have never yet been explored.

At a distance of about two miles above Yosemite Falls the valley separates, and two routes pursue their way—one of these rushes through the cañon which furnishes the bed of the Merced river, terminating in a fall of 400 feet, known as Vernal Fall, beyond which it continues in the forms of cascades and cataracts, until it reaches the Cap of Liberty, a peak 2,000 feet high, and materially contributing to the general scenic effects. The remaining stream is of lesser size and traverses South Fork Cañon to Illilouet Fall, said to be 600 feet high.

The valley is the property of the State of California, it having been donated to that commonwealth by an act of Congress in 1864, upon the condition that it should be preserved for "public use, resort, and recreation," and "inalienable for all time." The Mariposa forest of trees was granted to the same State by the same congressional enactment upon the same conditions. In accordance with the provisions of the act the Yosemite is under the superintendency of a government official. He resides in the valley during the tourist season, and has exclusive jurisdiction over its maintenance as also over the various agencies connected with its management. A number of improvements have been completed since it was opened to the public, consisting of hotels, post-office, church, cottages, stables, etc., but so constructed as to in no way obstruct or interfere with the beauty of the scenery and its surroundings. The proper season to visit the valley is during the months of May, June, July, August, and September, and the most desirable localities from which to view the scenery to its best advantage are Inspiration Point at the valley entrance, Morans Point opposite the mouth of Teneya Cañon, and Glacier Point, an elevation 3,000 feet high, east of Morans Point.

The causes of this remarkable development of nature have been the subject of speculative inquiry and scientific investigation for more than a quarter of a century. The problem, however, has not been solved to the satisfaction of any who have sought to formulate conclusions in the premises. By some it is thought to have been due to "glacial action," while others insist that it is the result of a series of seismic disturbances, which have also left their effects throughout the Sierras. However correct either of such opinions may be, the valley will always remain an object of special interest and admiration to scientists and laymen.

YOUGHAL, a seaport, borough, and market town, in the county of Cork, Ireland, is situated on the west side of the estuary of the Blackwater, and on the Cork and Youghal branch of the Great Southern and Western railway, 157 miles southwest of Dublin and 28 east of Cork. The principal exports are grain and other agricultural produce; the imports are coal, culm, timber, and slate. Coarse earthenware and bricks are manufactured. There is a salmon fishery in the Blackwater. Youghal is of some repute as a watering-place. The population of the town (area 345 acres) in 1871 was 6,081, and in 1901 it was 5,326.

YOUNG, ARTHUR, writer on agriculture and social economy, the third son of Rev. Arthur Young, rector of Beddingfield, in Suffolk, was born on September 7, 1741. He gave early evidence of literary inclinations by publishing, when only seventeen years old, a pamphlet *On the War in North America* and by beginning a

periodical work, entitled *The Universal Museum*, which, however, was soon dropped by the advice of Dr. Samuel Johnson.

After his father's death in 1759, his mother gave him the direction of Bradfield Hall; and in 1767 he undertook on his own account the management of a farm in Essex. Possessing no practical acquaintance with agriculture, but being active-minded and of an inquiring turn, he engaged in experiments of various kinds, and embodied the results of them in *A Course of Experimental Agriculture*, which appeared in 1770. He had already commenced a series of journeys through different parts of England and Wales, and gave an account of his observations in books which appeared from 1768 to 1770—*A Six Weeks' Tour through the Southern Counties of England and Wales*, *A Six months' Tour through the North of England*, and the *Farmer's Tour through the East of England*.

In 1768 he published the *Farmer's Letters to the People of England*, in 1771 the *Farmer's Calendar*, which has gone through a great number of editions, and in 1774 his *Political Arithmetic*, which was soon translated into several foreign languages. In 1784 he commenced the publication of the *Annals of Agriculture*, which was continued for forty-five volumes; this work had contributions from many authors, among whom was George III., writing under the *nom de plume* of Ralph Robinson. Young's first visit to France was made in 1787. The *Travels in France* appeared in two volumes 4to in 1792. On his return home he was appointed secretary of the Board of Agriculture, then just formed under the presidency of Sir John Sinclair. In this capacity he gave the most valuable assistance in the collection and preparation of agricultural surveys of the English counties. In 1765 he had married a Miss Allen; but the union is said not to have been a very happy one, though he was of domestic habits and a most affectionate father. His sight failed and he submitted to an operation for cataract, which proved unsuccessful. He suffered also in his last years from stone. He died in February, 1820.

YOUNG, EDWARD, author of *Night Thoughts*, was born at Upham, near Winchester, in 1681. The minute facts of his life are to be found in the biography contributed to Johnson's *Lives of the Poets* by Herbert Croft. The son of the dean of Sarum, educated at Winchester and Oxford (New College and Corpus), Young obtained a law fellowship at All Souls in 1708. He seems to have been for a time in the family of the earl of Exeter as tutor; but the notorious marquis of Wharton (see WHARTON) took a fancy to him, bribed him away from this post with liberal promises of maintenance and patronage, settled two annuities on him, and tried to get him into parliament. Meantime Young began to publish and to dedicate, the poems and the dedications taken together (*The Last Day*, 1713, and *The Force of Religion*, 1714) showing the simple mixture of piety and worldliness that is one of the notes of his character. He essayed tragedy, writing at mid-day with closed shutters, by the light of a candle fixed in a human skull. *Busiris* was performed at Drury Lane in 1719, *The Revenge* in 1721. The *Night Thoughts* were published in separate "Nights" between 1742 and 1744. In the preface Young said that "the occasion of this poem was real, not fictitious, and that the facts mentioned did naturally force these moral reflections on the mind of the writer." Croft has shown that this statement, though justifiable in the main, has to be taken with some qualifications, and that a common belief that Lorenzo was meant for the author's own son was undoubtedly a mistake. Still, it is true that Young's wife, her daughter,



and her daughter's husband died in rapid succession, and the poem—a great work in spite of all its inequalities—was, like *In Memoriam*, the expression of a real sorrow and search for consolation. Young continued to write occasionally even after he had passed his eightieth year. His death took place on April 12, 1765.

YOUNG, THOMAS, one of the most remarkable figures alike in literature and science in the beginning of the nineteenth century in Great Britain. He belonged to a Quaker family of Milverton, Somerset, and was the youngest of ten children, having been born on June 13, 1773. His precocity, especially in the acquirement of languages, was remarkable. His thirst for knowledge was unlimited in its range. He was not content with languages, mathematics, and physical science; natural science, medicine, and even ancient philosophy were eagerly studied by him, and he was passionately devoted to athletic exercises. His medical studies were pursued successively in London, Edinburgh, Göttingen, and finally at Emmanuel College, Cambridge, where he took his doctor's degree. The death of a maternal uncle put him in a position of comfortable independence, and he did not heartily enter upon practice. He was secured in 1802 by the Royal Institution, as a colleague of Davy and professor of natural philosophy. Here his special talents found ample occupation, and the chief result was the publication in 1807 of his celebrated *Course of Lectures on Natural Philosophy*, a work which is even now regarded as a valuable authority. His death, on May 10, 1829, was probably hastened by the extraordinary amount and variety of the labors he undertook, and the self-sacrificing zeal with which he devoted himself to them.

YOUNGSTOWN, the capital of Mahoning county, Ohio, and one of the most important manufacturing centers in the State, is situated on the Mahoning river sixty-five miles from Cleveland, and sixty-eight miles from Pittsburgh, Penn. The city is surrounded by a region of country possessing mineral resources consisting chiefly of iron ore and bituminous coal in almost unlimited quantities, its railroad facilities are unsurpassed in number and efficiency by those of any city of equal size in Ohio, and the line of metal industries in successful operation is varied and numerous. The city is located on the New York, Lake Erie and Western, Pittsburgh and Lake Erie, Pittsburgh and Western, Pittsburgh, Ft. Wayne and Chicago, and Lake Shore and Michigan Southern railways, by which and their several branches direct communication is afforded with all portions of the country. The city is handsomely built, containing a court house, a jail, an opera house, theater, and number of public halls, a high school, college, and graded schools, twenty churches, and very many ornate and elegant private residences. There are one savings, one private, and four national banks with a total capital, surplus and undivided profits approximating \$1,800,000; three daily and three weekly papers, besides a monthly magazine, are published, and other evidences of the enterprise and public spirit of the inhabitants are everywhere apparent. Youngstown also contains seven foundries, five rolling mills, several furnaces, boiler and tube works, brass and electric light works, etc., the output including pig and hoop iron, engines and machinery, metal finishings, etc. In addition to these, the manufactures embrace gunpowder, cars, bridge materials, stoves and furnaces, stamped and japanned tinware, lumber, carriages, wall brackets and moldings, patent medicines, refined petroleum, spices, soap, brooms, and other articles. Gas and electric lights are employed, as also other agencies for the promotion of prosperity in the various municipal departments and private enterprises. The city's popu-

lation for 1900 was returned at 44,885, being an increase of 11,665 over that of 1890.

YOUNG MEN'S CHRISTIAN ASSOCIATION, THE. An organization of men, and latterly of women, established for the purpose of promoting evangelical work and the preaching of the gospel to all, in the home and fields throughout the United States and in many portions of Europe and the East. Active membership is held only by members of evangelical churches; associate and honorary members are, however, admitted, but prohibited from holding office and from voting upon constitutional questions. The first of these associations was formed during 1845 in London. Six years later a Young Men's Christian Association was established in Boston, and subsequently in Montreal, Buffalo, and New York city, respectively. Since that date they have been organized in nearly every city, town, and village of the United States and Canada, many of them occupying buildings of the most substantial character, and owning real estate and personal property representing hundreds of thousands of dollars in value. The objects of the association, in addition to those stated, are the improvement of young men, by the conversion of their souls and the consecration of their lives to the love and service of Jesus Christ, to unite Christians of the various churches in this and other work that will be promoted by united action, to carry the gospel among the railroad and other employes of the country, to unite college students for active Christian work, cooperate with foreign Christian young men for the salvation of their fellows, bring together in sympathy and companionship for Christian work the young men of every section of the country and Canada, secure the services of, and financial aid from, Christian laymen in spreading the gospel, and generally to promote the common cause and extend religion among all orders and conditions of men.

In pursuit of the accomplishment of these objects, the association has founded missions, secured positions for young men, strangers and penniless in cities and in the country, acted in capacities of nurses and humanitarians, secured legislation against the publication and circulation of obscene literature, officiated as almoners for the distribution of funds, food, and clothing among the deserving poor, established schools, libraries, and lectures, and exerted a powerful influence for the general good.

Many of the associations have become incorporated under the laws of the several States wherein they are domiciled, and are clothed with powers and privileges of corporate bodies. In 1883 the international committee, composed of twenty-seven members, was incorporated under the laws of the State of New York, and in 1888 delegates from the United States were in attendance upon the international convention held at Stockholm, Sweden. The headquarters of the central international committee are at Geneva, Switzerland, and the committee is composed of representatives from America, Australia, Austria, Hungary, Belgium, Denmark, England, France, Germany, Italy, Netherlands, Norway, Russia, Spain, Sweden, and Switzerland.

From the last annual report, dated 1889, it appears that there is a total of 3,788 associations in the world, of which 1,194 were in the United States, 79 in Canada, and 11 in South America, Mexico, etc. The aggregate membership of the association is stated at 195,500; they occupy 173 buildings of their own, valued at \$7,500,000, and have a total net property of over \$9,500,000, including 522 libraries containing 384,000 volumes. They employ 875 general secretaries and other paid officials, and expended during the year, for current expenses, local, State, and national, \$1,600,000. The Young Women's Christian Associations in the world

number 1,500, with a total membership of 10,000. The office of the international committee of the Women's Association is at Chicago, Ill.

**YPRES** (Flem. *Yperen*), a town of Belgium, capital of an arrondissement in the province of West Flanders, stands in a fertile plain on the Yperlee, twenty-one miles north-northwest of Lille. In the fourteenth century it is said to have contained 200,000 inhabitants; and it was long famous for its woolen and linen manufactures, though the once current derivation of the word "diaper" from the name of this town can no longer be maintained. The chief manufactures are those of linen thread and lace and of woolen and linen cloth; dyeing, bleaching, and tanning are also carried on. The population in 1901 was 18,515.

**YPSILANTI**, a handsome city of Michigan, is situated on the Huron river in Washtenaw county, and has enjoyed a steady growth and substantial prosperity from its organization. It is also located on the Michigan Central and Lake Shore and Michigan Southern railways, and is prominent as an educational and trade center, being also in the immediate vicinity of Ann Arbor, the location of the State University. Considerable manufacturing is carried on and a large number of expert operatives are constantly employed. The city contains ten churches, a public library, a high-school and graded schools, and is the site of the Michigan State normal school, with a faculty of fourteen preceptors and from 325 to 350 students. Three weekly papers and a monthly magazine are published, and two banks are conducted. The improvements in the city include, in addition to the above, an opera house, public halls, four hotels, and many private residences of graceful appearance and pleasant surroundings. The productive industries include manufactures of mill machinery, agricultural implements, windmills, buggy gearing, gasoline furnaces, silk, woolen, cotton, and lisle thread goods, rubber pumps, paper and paper boxes, lumber, carriages, tables, cigar boxes, flour, etc. The population of the city, 4,984 in 1880, was increased to 7,378 in 1900.

**YRIARTE**. See **IRIARTE**.

**YTTRIUM**, the name of a rare element which in its character is closely allied to, and in nature is always associated with, cerium lanthanum, didymium, and erbium. (See **LANTHANUM**.)

Metallic yttrium is obtained by reducing the chloride with potassium; but this operation has never been carried out with pure chloride. Yttria,  $Y_2O_3$ , is a yellowish white powder, which at high temperatures radiates out a most brilliant white light. It is soluble, slowly but completely, in mineral acids. It is recognized most surely by its very characteristic spark spectrum. Solutions of yttria salts in their behavior to reagents are not unlike those of zirconia. The atomic weight of yttrium, according to the latest researches, is 89.02, if  $O = 16$ .

**YUCATAN**, a peninsular region of Central America, forming the southeastern extremity of Mexico, of which, since 1861, it constitutes the two confederate States of Campeche (Campechy) in the west and Yucatan in the east. At its neck the peninsula is conterminous on the southeast with British Honduras, on the southwest with the State of Tabasco (Mexico), and on the south with the republic of Guatemala, the boundaries toward these territories being largely of a purely conventional character. From this base the land projects in a compact rectangular mass between the Gulf of Mexico and the Caribbean Sea, west and east, for 280 miles northward, across nearly four degrees of latitude ( $18^\circ$  to  $21^\circ 40'$  N.) and three of longitude ( $87^\circ 30'$  to  $90^\circ 30'$  W.) to within 100 miles of Cuba, from which it is separated by the

Yucatan Channel. It has a mean breadth of about 200 miles, a coast-line of 700 miles, and a total area of 55,400 square miles, with a population in 1882 of 393,000 (Yucatan, 35,203 square miles, population [1900] 312,264; Campeche, 18,087 square miles, population 84,281).

There are no elevations sufficiently high to intercept the moisture-bearing clouds from the Atlantic, while those from the Pacific are cut off by the Sierra Madre. Hence the climate is necessarily dry, with a deficient and uncertain rainfall, especially in the central and northern districts. Here also the tropical heats are intensified by the neighborhood of the Gulf Stream, which in its passage through the Yucatan Channel flows much nearer to the coast of the peninsula than to that of Cuba. Still, the climate, although "hot of the hottest" (Ober), with a temperature ranging from  $75^\circ$  to  $98^\circ$  Fahr. in the shade, is comparatively healthy, owing to its great dryness and to the cool breezes which prevail night and day throughout a great part of the year.

All the northern districts, as well as the greater part of the Sierra Alta, are destitute of large trees; but the coast lands on both sides toward Tabasco and British Honduras enjoy a sufficient rainfall to support large forest growths, including the mahogany tree, several valuable cabinet woods, vanilla, logwood, and other dyewoods. Logwood forests fringe all the lagoons and many parts of the seaboard, which are flooded during the rainy season. The chief cultivated plants are maize, the sugar-cane, tobacco, cotton, coffee, and especially henequen, the so-called Yucatan hemp or Sisal hemp, which, however, is not a hemp at all, but a true fiber. It is yielded by *Agave sisalensis*, which grows everywhere, and is used chiefly for the manufacture of coarse sackcloth, cordage, and hammocks. The yearly maize crop is estimated to be worth over \$5,000,000, and the whole of the agricultural produce about \$10,000,000. But a comparatively small area is under tillage, owing largely to the prevailing system of vast haciendas (estates), which the owners have neither the necessary capital nor the energy to administer. Hence symptoms of decay are everywhere visible; the whole country is "mainly a wilderness" (Ober); and there is probably much less land under cultivation than at the time of the Spanish conquest.

Of the state of Yucatan the capital is Merida (37,000 inhabitants), which is connected with its port of Progreso, on the northwest coast, by a railway twenty-five miles long, the only line in the country. The state of Campeche has for its capital the town and seaport of the same name (18,087), on the west coast. Other towns in the peninsula are Tikul, Ixmal, and Valladolid in Yucatan, and the port of El Carmen on an island in Lake Terminos in Campeche. According to the official returns, there are at present (1900) in Yucatan altogether 7 "cities," 13 towns, and 143 villages, besides 15 abandoned settlements and 333 haciendas. But scarcely any of these places have as many as 10,000 inhabitants, while the population of the great majority falls below 1,000.

Yucatan is still almost entirely inhabited by the same Maya race that was found in possession of the land at the time of discovery. About five-sixths of the population are of nearly pure Maya stock and speech, the Spanish and mestizo elements being mostly confined to the large towns. The mestizos are said to be the handsomest on the continent, while the full-blood natives are perhaps the least characteristic of all the aboriginal populations. They have the coarse black and straight hair, the arched nose, and the reddish-brown complexion common to most of the primitive inhabitants of America. But they can be readily distinguished from



all of them by their regular features, low cheek-bones, small mouth and ears, straight jaws, frank expression and a certain air of refinement betraying descent from a highly cultured people. "It would be difficult," says Charnay, "to find among the rural classes of Europe men of a better build, or with more intelligence and open countenances." Although generally peaceful, patient under oppression, and even somewhat indolent, their history since the conquest (1547), has not been wholly uneventful. After more than two centuries of passive resistance, there was a general revolt in 1761, brought about by the intolerable misrule of the Spanish administration. The declaration of independence (1821) was followed in 1824 by the union with the Mexican confederacy, which continued without interruption till 1840. In that year an independent republic was set up in Yucatan, which, however, was suppressed in 1843. Then came the general uprising of the natives in 1846, when Mexico was engaged in a disastrous war with the United States. To quell the revolt, the ruling classes were obliged to call in the aid of the Mexicans (1847-53) whereby the peninsula again lost its autonomy, and was divided (1861) into the two federal states of Yucatan and Campeche. But the rebellion was not entirely suppressed, and many of the natives, withdrawing eastward to the coast-lands beyond the Sierra Alta, have hitherto defied all the efforts of the authorities to reduce them.

YUCCA, a genus of the order *Liliaceae*, the species of which are remarkable for their stately appearance and generally magnificent inflorescence. They occur in

greatest frequency in Mexico and the southwestern States of the American Union, extending also into Central America, and occurring in such numbers in some places as to form "straggling forests."

A coarse fiber is obtained by the Mexicans from the stem and foliage, which they utilize for cordage. The succulent fruits, which resemble small bananas, are cooked as an article of diet; and the roots contain a saponaceous matter used instead of soap.

YUN-NAN. See CHINA.

YUN-NAN FU, the capital of the Chinese province of Yun-nan, is situated in 25° 6' N. latitude and 102° 52' E. longitude. Yun-nan Fu has a prosperous and busy aspect; the shops are large and well supplied with native silken goods, saddlery, etc., while English cotton, Russian cloths, and raw cotton from Burmah constitute the main foreign merchandise. Employment for large numbers of workpeople is found in the copper factories. A local mint at Yun-nan Fu issued annually 101,000,000 cash before the outbreak of the rebellion in 1855. The population of the city is estimated at about 200,000.

YVETOT, a town in France, chef-lieu of an arrondissement in the department of Seine-Inférieure, stands on the plateau of Caux, twenty-four miles northwest of Rouen, on the railway to Havre, and is chiefly known from Béranger's famous song. Calicoes, ticking, Siamese, *rouennerie* cotton, reps, and handkerchiefs are made here, as in most places in the department, and a trade is carried on in wool. The population was 8,333 in 1901.

## Z.

**Z**, the last letter of our alphabet, has fallen away from its old place in the Phœnician and Greek alphabets. In these it stood seventh, probably with the value of *dz* or *ed*. In shape it was **I** in all the older writings both of the Ionian and Eubœan type. Later it became **Z**, as we have it, by a natural and convenient change. But **I** is the older Italian, as well as the Greek form; it remained so in Oscan; in Etruscan and Umbrian the cross strokes were brought near together, but the upright line remained. The Latin alphabet, however, dropped the symbol, having apparently no need of it. It appears on an old coin of Cosa, unless the letter there be only a modified *s*. Later, in the first century B.C., the letter in the form **Z** was re-introduced, where we have it, to represent more accurately the sound of *z* in words borrowed from the Greek, in which alone it appears; *ss* (or initial *s*) had previously been employed for this purpose. The original place of the letter had been occupied in the meantime by *G*, the Latin modified form of *C* (see under *G*), so **Z** had to take the lowest place together with *Y*, which had been also borrowed from Greece for a similar purpose.

The exact value of zeta in Greek has been much discussed. That it is a double sound—not French *z* (the voiced sibilant corresponding to the voiceless *s*)—seems clear from Aristotle's statement that ξ, ψ, and ζ were all *διπλαῖαι*, and from its power of lengthening a previous short vowel in scanning. The arguments, however, for the *dz* or *ed* value are about evenly balanced, and it is not improbable that it may have had both. In Latin the value was doubtless that of the Greek *z*.

In Old English *z* hardly occurs; when it does it is in borrowed names with the value of *ts*, as in *Betzaida*, *Zabulon*. It was introduced in order to represent French *z* in words borrowed from France, as *zeal*, *zone*. But it is used in only a very small number of the words where the sound occurs; we still adhere to the usage of our forefathers and employ *s* for the *s*-sound and the *z*-sound alike, indeed rather inclining to use *s* for *z*, and to differentiate *s* by doubling the symbol; compare *his* (i.e., *hiz*) and *hiss* (i.e., *his*). In German *z* represents *ts*, the sound into which Teutonic *t* passed in High German—e.g., in *herz*, our "heart." It was also used formerly, either alone or in combination with *s*, to denote the voiceless sibilant when final; thus the conjunction *dass*, which is nothing but the neuter pronoun *das*, was formerly written *daz*, and is sometimes even now written *dassz*. In French the Latin *z* became the voiced sibilant; and a similar process has taken place in modern Greek. In French, however, the final sound must once have been stronger—e.g., in *fiſ* (*filius*), later *fiſz*, and still later *fiſ* (as it is still pronounced), which passed into England in the form *Fitz* in proper names. Still plainer is the evidence of verbal forms like *aves* = *avets* = *habetis*.

For the history of the English variant *z* for *s*, see article *Y*.

**ZAANDAM**, **ZAANREDAM**, or **SAARDAM**, a village of Holland, in the province of North Holland, five miles by rail to the northwest of Amsterdam, at the confluence of the Zaan with the *Y*. Peter the Great of Russia wrought at Zaandam as a ship-carpenter for a short time in 1697, and the hut in which he is said to have lived is still shown and much visited. Some ship-building is still carried on. The population in 1889 was 14,351.

**ZACATECAS**, a city of Mexico, capital of the state of the same name, lies 340 miles by rail northwest of Mexico, in 22° 46' N. latitude and 102° W. longitude. Zacatecas, which has a population of 40,000, is the center of one of the oldest and most productive silver-mining districts in the republic, and the town itself stands on the rich vein discovered here by Juan de Tolosa in 1546. Since the completion of the Central Mexican railway to this place in 1884 it has increased in population and prosperity.

The state of Zacatecas lies between Coahuila and Jalisco north and south respectively, and is elsewhere conterminous with Guanajuato, Durango, and San Luis Potosi. It has an area of 24,757 square miles and a population of 462,886, of whom a preponderating proportion are Indians or mestizos. It stands at a mean altitude of over 7,000 feet above sea-level, and is traversed by the Mazapil, Norillos, Guadalupe, and other metalliferous ranges, this state ranking among the first in the republic for mineral wealth. Next to the Veta Madre of Guanajuato and the famous Comstock lode, Nevada, the Veta Grande of Zacatecas is held to be the most remarkable silver vein in North America. The chief mining districts are Zacatecas, Espiritu Santo, Chapala, Los Arcos, Norias, Ipala, Santa Lucia, Naranjal, and Santo Martino; and in 1886 about 324 mines were open (21 gold, 67 gold and silver, 167 silver alone, 15 copper, 37 lead, and 16 quicksilver). Besides its minerals the state possesses considerable agricultural resources, the southeastern parts especially being very fertile and well watered by the rivers Tlaltenango and Juchipila. Maize, wheat, fruits—such as peaches, apricots, grapes—and all kinds of vegetables are extensively cultivated, the annual maize crop being valued at over \$5,000,000, wheat at about \$1,000,000, and the remaining crops at about \$3,000,000. Even in the bleak and arid northern districts there are some extensive grazing grounds, where cattle, horses, mules, sheep, and goats thrive well. Some of the slopes are well timbered, the chief species being the mountain cedar, oak, elm, ash, and cotton-wood. Besides the capital, the chief mining towns are Fresnillo (population 15,000), Garcia (8,000), Villanteva (7,000), Linos (7,000), Sombrares (6,000), and Nieves (3,000).

**ZACH, FRANZ XAVER, BARON VON**, astronomer, was



born at Pesth in June, 1754. He served for some time in the Austrian army, and afterward lived in London from 1783 to 1786 as tutor in the house of the Saxon minister, Count Brühl. In 1786 he was appointed by Ernest II. of Saxe-Coburg-Gotha, director of a new observatory on the Seeberg at Gotha, which was finished in 1791. From 1806 Zach accompanied the duke's widow on her travels in the south of Europe. He died in Paris on September 2, 1832.

ZACHARIAE VON LINGENTHAL, KARL SALOMO, German jurist, was born on September 14, 1769, at Meissen in Saxony. In 1807 he went to Heidelberg, then beginning its period of splendor as a school of law. There, resisting many calls to Göttingen, Berlin, and other universities, he remained until his death. In 1820 he was elected representative of the university in the first Baden chamber, and four years later was made a member of the second. From 1825 to 1829 he devoted much time to political affairs and to the preparation of a code. In 1842 he was ennobled with the title of Von Lingenthal. To the last days of his life he toiled with the ardor of a young student. He died on March 27, 1843, leaving a son who has worthily continued his father's labors in jurisprudence.

ZACHARIAS, ST., pope from 741 to 752, was a Greek by birth, and appears to have been on intimate terms with Gregory III., whom he succeeded (November, 741). He died March 14, 752, and was succeeded by Stephen II.

ZAIRE, or CONGO, designations of the river now generally known under the latter name. This river system occupies a large part of equatorial Africa—1,540,000 square miles according to a probable estimate; and in the length of its course (some 2,900 miles) and the volume of its discharge (1,500,000 or at least 1,200,000 cubic feet per second) the river ranks among the most important in the world. The history of the exploration of the Congo basin is a matter of yesterday and to-day; and in several directions the exact limits, with the relations of the affluents to the system, have still to be determined. The mouth of the river lies on the west coast of the continent in 6° S. latitude and 12° 25' E. longitude. The head-waters of its most eastern stream (Malagarazi) rise only 370 miles from the Indian Ocean. The course of the main river describes a vast bow, the central portion of which lies as far north as 2° N. latitude.

The exploration of the Congo system has been accompanied and followed by one of the most remarkable political movements of modern times. On September 15, 1876, the International African Association was constituted, under the presidency of Leopold II., king of the Belgians, for the purpose of devising the best means of opening up equatorial Africa to civilization. Later (on November 25, 1878), was founded under the same auspices a Comité d'Études du Haut Congo, which afterward became known as the International Association of the Congo. It was as an agent of this association that Mr. Stanley undertook his epoch-making ascent of the river in 1879. In September the first permanent station of the association was founded at Vivi; in December the second at Jangila; and in May, 1881, the third at Man-  
yanga. The association was recognized as an independent territorial government by the United States in April, 1884, and by Germany in November of the same year. An international conference for the regulation of the relations of the new state and the various European Governments was held at Berlin under the presidency of Prince Bismarck (November 15, 1884–February 26, 1885). The permanent neutrality of the Congo State territory, freedom of commerce in the Congo basin, and the abolition of the slave trade were among the main

points established by the plenipotentiaries. In the close of 1884 and the early part of 1885 the association was recognized by England (December 16, 1884), Italy, Austria-Hungary, the Netherlands, France, etc. In April, 1885, the Belgian chamber of representatives authorized King Leopold to become sovereign of the new state—the union between Belgium and the Congo to be purely personal. The total area of the Independent State of the Congo, as it is officially designated, is estimated at 807,125 square miles, and its population may be about 40,000,000. It has a very limited coast-line, being hemmed in by French territory on the north and by Portuguese territory on the south. The southern limit is a conventional line from Nokki (on the south bank of the river below Vivi) across the continent to Langi Lake; the northern limit follows the fourth parallel of N. latitude from 17° to 30° E. longitude. French territory occupies all the north bank of the river from Ngombi (15° E. longitude) up to Lukolela. In 1888 the state maintained 146 white officials, and had a force of upward of 1,000 native soldiers (Zanzibaris, Haussas, and Bangalas). It has four steamers on the lower Congo and five on the upper. The value of the commerce is as yet only \$2,800,000, the principal exports being india-rubber, ivory, coffee, palm nuts and oil, copal, and wax. As to the possibility of developing the country into a great consumer of European goods, there has been much and bitter discussion; at the present stage it is admitted that it has no native product of value in sufficient quantity to pay for a large importation. The river, however, has recently been proved navigable for sea-going vessels as far as the capital, Boma, and no serious difficulties have been met by the engineers engaged in surveying a railroad from the lower Congo up to Stanley Pool.

ZAMBESI, the most important river on the East Coast of Africa, and the fourth largest on the continent, drains during its course of about 1,200 miles an area of 600,000 square miles. Its head-streams, which have not yet been fully explored, are the Leeambye or Iambaji, rising in Cazembe's country; the Lungebungo, which descends from the Mossamba Mountains; and the Leeba river, from the marshy Lake Dilolo (4,740 feet), situated between 10° and 12° S. latitude and 22° and 23° E. longitude. These three rivers, reinforced by the Nhengo, unite to form the upper Zambesi (Leeambye), which flows at first southward and slightly eastward through the Barotse valley, then turns prominently to the east near its junction with the Chobe (Chuando or Linianti), and passes over the Victoria Falls. Thence, as the middle reach of the Zambesi, the river sweeps northeast towards Zumbo and the Kebrabassa rapids above Tete, and finally forms the lower Zambesi, which curves southward until it reaches the Indian Ocean at 18° 50' S. latitude. Fed chiefly from the highland country which stretches from Lake Nyassa to inner Angola, its chief tributaries are the Loangwa and the Shiré, the last an important river draining out of Lake Nyassa, and which in the dry season contains probably as great a volume of water as the Zambesi, and is much more navigable. Except for an interruption of seventy miles at the Murchison cataracts, the Shiré is open throughout its entire length to the lake.

On the whole the Zambesi has a gentle current, and flows through a succession of wide fertile valleys and richly wooded plains; but owing to the terrace-like structure of the continent, the course of the river is interrupted from point to point by cataracts and rapids. These form serious, and in some cases insurmountable, hindrances to navigation.

ZAMORA, an inland province of Spain, one of the

three into which the former province of Leon has since 1833 been divided, is bounded on the west by Tras-os-Montes (Portugal) and Orense, on the north by Leon, on the east by Valladolid, and on the south by Salamanca; its area is 4,135 square miles. There are eight partidos judiciales and 300 ayuntamientos; besides ZAMORA (see below), the capital, there is only one town, the historic city of Toro (7,754), with a population exceeding 5,000. The total population of the province in 1897 was 275,354.

ZAMORA, capital of the above province, is situated 2,000 feet above sea-level, on the right bank of the Douro (here crossed by a bridge of seventeen pointed arches) a little below its junction with the Valderaduey, fifty-seven miles by rail west by north from Medina del Campo and 182 miles northwest from Madrid. The population in 1897 was 16,632.

ZANESVILLE, the capital of Muskingum county, Ohio, is the site of one of the earliest settlements made in the Northwestern Territory. In 1804 it became the capital of that portion of the present State, and the State legislature convened there from 1810 to 1812. In 1855 the present city was incorporated. It is situated on both banks of the Muskingum river at the mouth of the Licking, and has been for years a prominent point on the national road. It is the only interior town in the State upon a navigable river, making the city accessible by steamers from cities on the Ohio and Mississippi; also from the east and west by a perfect system of railways which embraces the Pittsburgh, Cincinnati and St. Louis; Bellaire, Zanesville and Cincinnati; Columbus and Eastern; Zanesville and Ohio River; Cleveland and Canton; Cincinnati and Muskingum Valley; Baltimore and Ohio; and Cleveland, Akron and Columbus; and is connected with Lake Erie by the Ohio canal. The city is noted for its beauty of location and handsome surroundings, as also for the intelligence and enterprise of the inhabitants, which find expression in the improvements both of a public and private character almost constantly in progress. It is 170 miles northeast of Cincinnati, fifty-nine miles east of Columbus, and seventy-eight miles west of Bellaire. It contains a court-house, city hall, twenty churches, a high school, one savings, two private, and two national banks, one bi-weekly, six weekly, and three daily papers, besides two monthly magazines, an opera-house, a music hall; also several public halls, hotels, and many stores. The prosperity of Zanesville is materially promoted by the extensive line of manufactures there conducted, including steam engines, boilers, stoves, hardware specialties, files, wire fencing, twine and cordage, saw-mill machinery, brass works, plows and agricultural implements, glue, woolen and cotton goods, paper, paints, soap, paper boxes, pottery, and other articles of necessity and luxury. The city is connected by bridges with Putnam and West Zanesville suburbs on the opposite side of the river, and is provided with all the latest improvements in the way of electric lights, street railways, etc. The population in 1900 was 23,538.

ZANTE, the ancient ZACYNTHUS, an island of Greece, one of the Ionian group, in the Ionian Sea, in 37° 40' N. latitude and 21° E. longitude, is 25 miles long, about 12 broad, and 64 miles round, with an area of 277 square miles, and a population in 1897 of 45,032. Zante lies eight miles south of Cephalonia, forming with it, Leucas, and Ithaca a crescent-shaped insular group, which represents the crests of a submerged limestone ridge facing the Gulf of Patras.

The island enjoys a healthy climate; and, although there are no perennial streams, an abundant supply of good water is obtained from the numerous springs, occurring especially in the eastern and central dis-

tricts. But earthquakes are frequent and at times disastrous.

Zante, capital of the island, is a considerable seaport on the east side, with a population of 16,250. It occupies the site of the ancient city of Zacynthus, said to have been founded by Zacynthus, son of a legendary Arcadian chief, Dardanus, to whom was also attributed the neighboring citadel of Psophis. But of this as well as of the temple of Diana that formerly crowned the summit of Mount Scopus, no vestiges can now be discovered. Traditionally the island formed part of the territory of Ulysses, king of Ithaca, and at one time it appears to have also received a colony of Achæans from Peloponnesus. Later it joined the Athenian hegemony; but after the fall of Athens the democratic party was replaced by an oligarchy, which ruled in the interests of Sparta. Under the Romans, Zacynthus was included in the province of Epirus, and passed in mediæval times successively from Byzantium to the Normans (eleventh century), the Orsini, counts of Cephalonia (after the fourth crusade), and the Tocco family, who held it with Cephalonia as vassals of the Neapolitan Angevine dynasty. In the fifteenth century it was occupied by the Venetians, and was held by them till the fall of the republic in 1797. Wrested in 1799 by the Russians from the French, it was soon after seized by the English, and in 1815 constituted with the other Ionian Islands a "septsinular republic" under British protection, till the union with Greece in 1864.

ZANZIBAR, or more correctly, ZANGUEBAR, a sultanate of east central Africa, which till recently comprised the four islands of Zanzibar, Pemba, Lamu, and Mafia (Monfia), together with the adjacent seaboard from about 3° N. to 10° S. latitude, with undefined limits toward the interior. But by the Anglo-German convention, signed in London on October 29, 1886, the territory on the mainland was restricted to the strip of coast lands ten nautical miles broad, stretching from the mouth of the Miningani river at the bay of Tunghi, just south of Cape Delgado, northward to Kipini at the mouth of the Tana, together with the isolated stations of Kisimayu (Kismayu), Brava, Merka, and Magdoshu (Magdoxo) on the Somal coast, each with a land circuit of ten nautical miles, and Warsheikh on the same coast, with a land circuit of five nautical miles. Since then, however, further changes have taken place. The sultan's officers have been replaced in the seaports of Dar-es-Salaam and Pangani on the Zanzibar coast proper by commissioners of the German East African Association, to whom the customs of those places have been farmed; the port of Tunghi below Cape Delgado has been claimed and forcibly occupied (1887) by the Portuguese; the island of Pemba appears to have been ceded (May, 1888) to the recently chartered British East African Company; lastly, the station of Kisimayu on the Somal coast is claimed (June, 1888) by Italy in reparation of an affront offered to the Italian consul at Zanzibar. But, as defined by the above-mentioned convention, the reduced dominions of the sultan have areas (in square miles) and estimated populations (1897) as under:—

	Area.	Population.
Island of Zanzibar.....	640	150,000
" " Pemba.....	380	50,000
" " Mafia.....	200	7,000
" " Lamu.....	50	20,000
Zanzibar coastlands.....	6,000	500,000
Stations on Somal coast.....	150	8,000
Total .....	7,420	735,000

The political and commercial, as well as the geo



graphical, center of the state is the fertile and densely peopled island of Zanzibar, which lies at a mean distance of twenty miles from the Swahili coast, between 5° 40' and 6° 30' S. latitude.

Mafia itself is low and fertile, and extensively planted with cocoa-nut palms. It is continued southward by an extensive reef, on which stands the chief village, Chobe, the residence of the governor and of a few Arab and Hindu (Banyan) traders. Chobe stands on a shallow creek inaccessible to shipping.

Zanzibar, the Unguya of the natives, is not exclusively of coralline formation, but also presents several heights of a reddish ferruginous clay, rising in gentle slopes above the central plains. In the south these heights nowhere exceed 400 or 450 feet; but on the northwest coast they develop a chain of hills disposed parallel to the shore and attaining an elevation of a little over 1,000 feet. The forests by which the island was formerly covered have mostly disappeared, and the greater part of the rich soil is carefully cultivated, yielding two annual crops of grain, and four of manioc, the staple food of the people. There are extensive cocoa-nut groves, and from India and Malaysia have been introduced the mangosteen, guava, durian, cinnamon, nutmeg, and cloves, all of which thrive well. The soil seems specially suited for the clove, which, although nearly destroyed by the terrific cyclone of 1872, has already recovered from that disaster, and the annual export of this spice now exceeds \$50,000 in value. Although the fauna is almost exclusively continental, Zanzibar till recently possessed a distinct variety of *Colobus* (*C. kirikiri*), which appears to be now extinct. Some years ago a hippopotamus visited the island from the mainland; but no carnivora are now found larger than the serval and wild cat.

The neighboring island of Pemba, intersected by 5° S. latitude, is even more fertile, but much less cultivated, than Zanzibar. From the luxuriant vegetation which everywhere clothes the cliffs to their summits it takes the name of the "Green." The land is exclusively owned by great Arab proprietors, who work their plantations with scarcely disguised slave labor and export considerable quantities of cloves, which here also find a congenial home. The capital, Shaki-Shaki, which lies at the head of a shallow creek on the west side, is inaccessible to shipping. But at Kishi-Kashi, at the northwest extremity, there is a deep and well-sheltered harbor, though of somewhat difficult approach. Here resides the chief of the Arab landed aristocracy, who has hitherto been more of a vassal than a subject of the sultan, and whose allegiance has lately been transferred to the British East African Association.

Lamu also, the fourth member of the sultan's former insular possessions, has ceased to fly the Zanzibar flag. It is a small flat island lying close to the mainland above the mouth of the Ozi branch of the Tana delta, and appears to be now incorporated in the adjacent German territory of Vitu land. Lamu, its capital, with a reported population of 15,000, has a fine harbor, formed by a long deep channel separating it from the neighboring island of Manda.

The Zanzibar seaboard (now generally known as the Swahili coast) is a low-lying, swampy and alluvial region, rising gently from the sea toward the first terraced escarpments of the continental plateau. Owing to the numerous streams reaching the coast along this seaboard—Rovuma, Ukeredi, Umbi-Kuru, Rufiji, Rufu, Wami, Umba, and others—a great part of the surface consists of rich alluvial soil, densely covered with a tropical vegetation. Here the warm currents setting landward from the Indian Ocean bring both moisture and heat, so that this coast has a higher temperature and heavier

rainfall than the Atlantic seaboard under the same parallels of latitude. Thanks to these conditions, while the climate is oppressive and malarious, the vegetation is extremely luxuriant, assuming about the marshy deltas the aspect of an impenetrable jungle of mangroves, reeds, and tall grasses, growing to a height of twelve or fourteen feet.

Besides Dar-es-Salaam and Pangani, surrendered to the Germans, the chief stations and seaports, going northward, are Lindi, Kilwa (Quilwa), Bagamoyo, Mombasa (Mombas), and Malindi (Melinda). Of these Bagamoyo is at present the most important, as the starting-point of travelers and traders for the interior. Here are also the headquarters of the French Roman Catholic missions in east equatorial Africa, with training schools, extensive plantations, and gardens of acclimatization. Kilwa, Mombasa, and Malindi, great and flourishing emporiums under the Zanj empire, are now almost abandoned. This remark applies also to Magdoshu, the chief isolated station on the Somali coast belonging to Zanzibar.

ZANZIBAR, capital of the island and state of the same name, is the largest city on the African seaboard next to Alexandria and Tunis. It lies in sheltered waters, from thirty to forty feet deep, on the west side of the island, in 6° 10' S. latitude, about twenty-five miles northeast of Bagamoyo, its port on the mainland. It comprises two distinct quarters—Shangani, the center of trade and residence of the sultan, and the eastern suburb, occupied by the lowest classes (fishermen, porters, slaves, etc.), with a total joint population estimated in 1897 at about 60,000.

ZARA (Slav. *Zadar*), an Austrian seaport, the capital of Dalmatia, and the seat of a Roman Catholic archbishop and of a Greek bishop, lies on the Adriatic, 130 miles southeast of Trieste, opposite the islands of Ugliano and Pasman, from which it is separated by the narrow Channel of Zara. The harbor, to the northeast of the town, is safe and spacious, and it is annually entered by about 1,200 vessels, of 185,000 tons, mainly engaged in the coasting trade. The chief industry is the preparation of maraschino, made from the marasco, or wild cherry, which covers the hills of Dalmatia. About 340,000 bottles of this liqueur are exported annually. Glass-making and fishing are also carried on. The population of the town in 1898 was 13,861, of the commune 24,536. Almost all of these are of Italian descent, and Italian is practically the only language spoken in the town.

ZARAGOZA, or SARAGOSSA, an inland province of Spain, one of the three into which Aragon is now divided, is bounded on the northeast and east by Huesca, Lerida, and Tarragona, on the south by Teruel and Guadalajara, and on the west by Soria and Navarre; the area is 6,607 square miles. The soil is in its level portions comparatively fertile, the chief productions being wheat, rye, barley, oats, hemp, flax, oil, and wine. Silkworms are bred; and on the higher grounds sheep are reared. There are considerable forests on the lower mountain slopes. Zaragoza has no manufactures of importance. There are 13 partidos judiciales, and 312 ayuntamientos; of these only Calatayud (11,512) and ZARAGOZA (see below) have more than 10,000 inhabitants. The total population of the province in 1897 was 413,480.

ZARAGOZA, capital of the above province, formerly capital of the kingdom of Aragon, lies at a height of 600 feet above sea level, on a rich plain on the right bank of the Ebro, just above its confluence with the Huerva, 212 miles by rail to the northeast of Madrid. The chief manufactures of Zaragoza are silk, woolen cloth, leather, saltpeter, soap, and chocolate; and there

is considerable trade in agricultural produce, and in wine and spirits. The population of the town in 1898 was 98,188.

**ZARLINO**, GIOSEFFE or GIUSEPPE, musical theorist, surnamed from his birthplace, **ZARLINUS CLODIENSIS**, was born at Chioggia, Venetia, in 1517. He died at Venice on February 14, 1590.

**ZEAL**. See **CEOS**.

**ZEALAND**, or **SJÆLLAND**, the largest and most easterly island of **DENMARK** (*q.v.*), is separated from **Fün**en on the west by the Great Belt and from **Sweden** on the east by the Sound; its greatest length from north to south is 81 miles, its breadth 65, and its area 2,636 square miles. The soil is fertile and produces grain, especially rye and barley, in great abundance, as well as potatoes and other vegetables, and fruit. Agriculture and cattle-raising, along with some fishing, are the leading occupations of the inhabitants; linen is almost the only article of domestic industry. The population in 1899 was 610,000. The principal towns, besides **COPENHAGEN** (*q.v.*), the capital (378,235), are **Roeskilde** (5,803), formerly the capital and still the see of the primate; **Elsinore** (8,978); **Slagelse** (6,076), a great agricultural center; **Sorö** (1,464), formerly the seat of a university and still educationally important; and **Korsör** (3,954), the port for mail steamers to the mainland, connected by rail with **Sorö**, **Roeskilde**, and **Copenhagen**.

**ZEALAND**, the most westerly province of **Holland**, is bounded on the north by **South Holland**, on the east by **North Brabant** and **Belgium**, on the southeast and south by **Belgium**, and on the west by the **North Sea**. Its area is 689 square miles, the greater part of which consists of the islands **Schouwen**, **Duiveland**, **St. Philipsland**, **Tholen**, **North, South**, and **East Beveland**, **Wolfaartsdyk**, and **Walcheren**. The greater part of the surface is below sea-level. The westward coasts of **Schouwen** and **Walcheren** are partly sheltered by dunes; but the province is mainly dependent for protection from the sea on its artificial dykes, which have a total length of 300 miles. The soil consists of a fertile sea clay which specially favors the production of wheat; much rye is also cultivated, as well as barley (for malting), beans and peas, flax, and madder. Cattle and swine are reared, and dairy produce is largely exported; but the sheep of the province are small and their wool indifferent. The industries (linen, yarn-spinning, distilling, brewing, salt-refining, shipbuilding) are comparatively unimportant. The inhabitants, who still retain many quaint and archaic peculiarities of manner and dress, speak the variety of Dutch known as **Low Frankish**. The capital is **Middelburg** (population 18,378 in 1901), in **Walcheren**, where also is **Flushing** (14,005). The total population of the province in 1901 was 217,329.

**ZEBRA**. In the article **HORSE** the general zoölogical and anatomical characteristics of the genus *Equus*, and its relationship to other animals, were fully described. Among the existing species mention was made of certain forms distinguished from the rest by the peculiar coloration, being marked by conspicuous dark stripes on a lighter ground, and by their exclusively African habitat. These are the **QUAGGA**, and two, if not three, distinct species to which the name **zebra** is commonly applied. The animal of this group which was first known to Europeans, and was formerly considered the most common, is the **True Zebra** (*Equus zebra* Linn.), sometimes called the **Mountain Zebra**. It inhabits the mountainous regions of the **Cape Colony**; but now, owing to the advances of civilized man into its somewhat restricted range, it has become very scarce, and is even, like its ally the quagga, threatened with extermination at no distant date. The second species, **Burchell's Zebra**

(*Equus burchelli*, Gray), still roams in large herds over the plains to the north of the **Orange river**, but in yearly diminishing numbers. Both species are subject to considerable individual variations in marking, but the following are the principal characteristics by which they can be distinguished.

*Equus zebra* is the smaller of the two (about four feet high at the shoulders), and has longer ears, a tail more scantily clothed with hair, and a shorter mane. The general ground color is white, and the stripes are black; the lower part of the face is bright brown. With the exception of the abdomen and the inside of the thighs, the whole of the surface is covered with stripes, the legs having narrow transverse bars reaching quite to the hoofs, and the base of the tail being also barred. The outsides of the ears have a white tip and a broad black mark occupying the greater part of the surface, but are white at the base. Perhaps the most constant and obvious distinction between this species and the next is the arrangement of the stripes on the hinder part of the back, where there are a number of short transverse bands reaching to the median longitudinal dorsal stripe, and unconnected with the uppermost of the broad stripes which pass obliquely across the haunch from the flanks toward the root of the tail. There is often a median longitudinal stripe under the chest.

*Equus burchelli* is a rather larger and more robust animal, with smaller ears, a longer mane, and fuller tail. The general ground color of the body is pale yellowish brown, the limbs nearly white, the stripes dark brown or black. In the typical form they do not extend on to the limbs or the tail; but there is a great variation in this respect, even in animals of the same herd, some being striped quite down to the hoofs (this form has been named *E. chapmanni*). There is a strongly marked median longitudinal ventral black stripe, to which the lower ends of the transverse side stripes are usually united, but the dorsal stripe (also strongly marked) is completely isolated in its posterior half, and the uppermost of the broad haunch stripes runs nearly parallel to it. A much larger proportion of the ears is white than in the other species. In the middle of the wide intervals between the broad black stripes of the flanks and haunches, fainter stripes are generally seen.

*Equus grevyi*.—Under this name a zebra has lately been described which was sent in 1882 to Paris from the **Galla country**, lying to the south of **Abyssinia**, the most northern locality in which zebras have hitherto been met with. In most of its characteristics it resembles *E. zebra*, but the stripes are finer and more numerous than in the typical examples of that species, and it has a strong, black, and isolated dorsal stripe.

**ZEBULUN** (זְבֻלֹן), one of the twelve tribes of **Israel**, derived, according to **Gen. xxx. 20**, from the sixth son of **Leah**. The verse offers two etymologies of the name, from the roots **ZBD**, "give," and **ZBL**, "inhabit." The form *Zαβουλων* (**LXX.**), with *δ* in the last syllable, agrees with the vocalization of the adjective זְבֻלִּי, "**Zebulonite**." The country of **Zebulun** lay in the fertile hilly country to the north of the plain of **Jezeel**, which forms the first step toward the mountains of **Asher** and **Naphtali**, and included the goodly upland plain of **Battaul**.

**ZECHARIAH**, son of **Berechiah**, son of **Iddo**, or by contraction son of **Iddo**, appeared as a prophet in **Jerusalem** along with **HAGGAI** (*q.v.*), in the second year of **Darius Hystaspes** (520 B.C.), to warn and encourage the Jews to address themselves at length to the restoration of the temple, which, since their return from exile eighteen years before, had lain unaccom-



plished, less through want of zeal than through the pressure of unfavorable circumstances. Supported by the prophets, Zerubabel and Joshua set about the work, and the elders of Judah built and the work went forward (Ezra v. I. *seq.*, vi. 14). The first eight chapters of the book of Zechariah exactly fit into this historical setting. They are divided by precise chronological headings into three sections—(a) chap. i. 1–6, in the eighth month of the second year of Darius; (b) chap. i. 7–vi. 15, on the twenty-fourth day of the eleventh month of the same year; (c) chap. vii.–viii., on the fourth day of the ninth month of the fourth year of Darius. The first section is a preface containing exhortation in general terms. The main section is the second, containing a series of night visions, the significant features of which are pointed out by an angel who stands by the prophet and answers his questions.

How so late a piece was admitted among the prophetic writings while Daniel, written about the same time, is placed only among the hagiographa, is a question not yet answered. We know too little about the history of the canon. A similar case is that of Isa. xxiv.–xxvii. But it is not less difficult to explain how a prophecy of the eighth century could have turned up in post-exile times and been appended to the book of Zechariah.

ZEITZ, an ancient manufacturing town in the extreme south of the province of Saxony, Prussia, is pleasantly situated on a hill on the White Elster, twenty-two miles south-southwest of Leipsic and twenty-nine south-southeast of Halle. Zeitz has manufactures of cottons and woolens, machinery, waxcloth, musical instruments, vinegar, cigars, etc.; and wood-carving, dyeing, and calico-printing are carried on. In the neighborhood there are considerable deposits of lignite, and mineral-oil works. In 1901 the population was 26,261.

ZELLE, or more usually CELLE, an industrial and commercial town in the district of Lüneburg in Prussia, is situated on the left bank of the navigable Aller, near its junction with the Fuse, and the Lachte, twenty-three miles to the northeast of Hanover. The industries of the place include the manufacture of woolen yarn, cigars, glue, printers' ink, philosophical instruments, stoves, bricks, etc.; and it carries on trade in wood, wool, honey, wax, cranberries, and other articles. Nursery-gardening flourishes in the fertile environs, where there are also a large paper-mill and a government stud farm. The population in 1900 was 23,782, almost entirely Protestant.

ZEND-AVESTA, the original document of the religion of ZOROASTER (*q.v.*), and still used by the PARSEES (*q.v.*), as their bible and prayer-book. The name "Zend-Avesta" has been current in Europe since the time of Anquetil Duperron (*c.* 1771), but the Parsees themselves called it simply *Avesta*, *Zend* (*i.e.*, "interpretation") being specially employed to denote the translation and exposition of a great part of the Avesta which exists in PAHLAVI, (*q.v.*) Text and translation are often spoken of together in Pahlavi books as *Avistāk va Zand* ("Avesta and Zend"), whence (through a misunderstanding) our word Zend-Avesta. The origin and meaning of the word "Avesta" (or in its older form *Avistāk*) are alike obscure; it cannot be traced further back than the Sasanian period. The language of the Avesta is still frequently called *Zend*; but, as already implied, this is a mistake. We possess no other document written in it, and on this account modern Parsee scholars, as well as the older Pahlavi books, speak of the language and the writing indifferently as *Avesta*. As the original home of the language can only be very doubtfully conjectured, we shall do well to follow the usage sanctioned by old custom and apply the

word to both. Although the Avesta is a work of but moderate compass (comparable, say, to the *Iliad* and *Odyssey* taken together), there nevertheless exists no single MS. which gives it in its entirety. This circumstance alone is enough to reveal the true nature of the book; it is a composite whole, a collection of writings as the Old Testament is. It consists of the last remains of the extensive sacred literature in which the Zoroastrian faith was formerly set forth.

In its present form, however, the Avesta is only a fragmentary remnant of the old priestly literature of Zoroastrianism, a fact confessed by the learned tradition of the Parsees themselves, according to which the number of Yashts was originally thirty. The truth is that we possess but a trifling portion of a very much larger original Avesta, if we are to believe native tradition, carrying us back to the Sasanian period, which tells of an original Avesta in twenty-one books called *nasks* or *nosks*, as to the names, contents, and chapters of which we have several more or less detailed accounts, particularly in the Pahlavi Dinkard and in the Rivayats. The large part perished under the devastating wave of persecution which broke over Iran with the Mohammedan invasion, or under the still more fatal influences of the apathy and forgetfulness of its proper guardians. The understanding of the older Avesta texts was far from perfect even at the time when they were being edited and revised. The need for a translation and interpretation became evident; and under the later Sasanians the majority of the books, if not the whole of them, were rendered into the current Pahlavi. A thorough use of this translation will not be possible until we have it in good critical editions, and acquaintance with its language ceases to be the monopoly of a few privileged individuals. For the interpretation of the older texts it is of great value. The Parsee priest Neryosangh subsequently translated a portion of the Pahlavi version into Sanskrit.

ZENO, emperor of the East from 474 to 491, was an Isaurian of noble birth, and originally bore the name of Trascalissæus, which he exchanged for that of Zeno or his marriage with Ariadne, daughter of Leo I., in 468. Of his early life nothing is known; after his marriage (which was designed by Leo to secure the Isaurian support against his ambitious minister Aspar) he became patrician and commander of the imperial guard and of the armies in the East. While on a campaign in Thrace he narrowly escaped assassination; and on his return to the capital he avenged himself by compassing the murder of Aspar, who had instigated the attempt. In 474 Leo I. died after appointing as his successor Leo the son of Zeno and Ariadne; Zeno, however, with the help of his mother-in-law Verina, succeeded in getting himself crowned also, and on the death of his son before the end of the year became sole emperor.

ZENO OF CITIUM. See STOICS.

ZENO OF ELEA, son of Teleutagoras, is supposed to have been born toward the beginning of the fifth century B.C. The pupil and the friend of Parmenides, he sought to recommend his master's doctrine of the existence of the One by controverting the popular belief in the existence of the Many. In virtue of this method of indirect argumentation he is regarded as the inventor of "dialectic," that is to say, disputation having for its end not victory but the discovery or the transmission of truth. He is said to have been concerned in a plot against a tyrant, and on its detection to have borne with exemplary constancy the tortures to which he was subjected; but authorities differ both as to the name and the residence of the tyrant and as to the circumstances and the issue of the enterprise.

In Plato's *Parmenides*, Socrates, "then very young," meets Parmenides, "an old man some sixty-five years

of age," and Zeno, "a man of about forty, tall and personable," and engages them in philosophical discussion. But it may be doubted whether such a meeting was chronologically possible. Plato's account of Zeno's teaching is, however, presumably as accurate as it is precise. In reply to those who thought that Parmenides' theory of the existence of the One involved inconsistencies and absurdities, Zeno tried to show that the assumption of the existence of the Many carried with it inconsistencies and absurdities grosser and more numerous. In early youth he collected his arguments in a book, which, according to Plato, was put into circulation without his knowledge.

In all probability Zeno did not observe that in his controversial defense of Eleaticism he was interpreting Parmenides' teaching anew. But so it was. For, while Parmenides had recognized, together with the One, which is, and is the object of knowledge, a Many, which is not, and therefore is not known, but nevertheless becomes, and is the object of opinion, Zeno plainly affirmed that plurality, becoming, and opinion are one and all inconceivable. In a word, the fundamental dogma, "The Ent is, the Non-ent is not," which with Parmenides had been an assertion of the necessity of distinguishing between the Ent, which is, and the Non-ent, which is not, but becomes, was with Zeno a declaration of the Non-ent's absolute nullity. Thus, just as Empedocles developed Parmenides' theory of the Many to the neglect of his theory of the One, so Zeno developed the theory of the One to the neglect of the theory of the Many. With the severance of its two members Eleaticism proper, the Eleaticism of Parmenides, ceased to exist.

The first effect of Zeno's teaching was to complete the discomfiture of philosophy. For the paradox of predication, which he had used to disprove the existence of plurality, was virtually a denial of all speech and all thought, and thus led to a more comprehensive skepticism than that which sprang from the contemporary theories of sensation. Nevertheless, he left an enduring mark upon Greek speculation, inasmuch as he not only recognized the need of a logic, and grappled, however unsuccessfully, with one of the most obvious of logical problems, but also by the invention of dialectic provided a new and powerful instrument against the time when the One and the Many should be reunited in the philosophy of Plato.

ZENOBIÀ. See PALMYRA.

ZENTA, a market town of Hungary in the county of Bács-Bodrog, on the right bank of the river Theiss, twenty miles south of Szegedin, is historically known for the decisive victory won in its vicinity by Prince Eugene over the Turks in 1696. The population, which is purely agricultural, numbered 18,500 in 1900.

ZEPHANIAH (*Sophonia* Σοφνίας, Heb. צפניה,

"whom Jehovah hides" or "protects;" compare the Phœnician man's or woman's name צפנבעל, *C.I.S.*, No. 207, Euting, *Pun. Steine*, p. 16), son of Cushi, the ninth, according to the order of his book, among the twelve minor prophets, flourished in the reign of Josiah of Judah, and apparently before the great reformation in the eighteenth year of that king, (621 B.C.) For various forms of idolatry put down in that year are spoken of by Zephaniah as still prevalent in Judah (chap. i. 4 *seq.*), and are specified in such a connection as to imply that they were not the secret sins of individuals, but held the first place among the national backslidings that could, as the prophet teaches, be removed only by a sweeping judgment on the state. Of the person of Zephaniah nothing is known; but it has been conjectured that his great-great-grandfather, Hezekiah

(chap. i. 1), is the king of that name, and if so he belonged to the highest class of Judæan society.

The genuineness and integrity of the short prophecy ascribed to Zephaniah do not seem to be open to reasonable doubt. Stade raises a question about chap. iii., and if this were a distinct oracle there would be no cogent reason to ascribe it to the author of the two chapters that precede; for the book of the minor prophets is made up of a number of short pieces, some bearing a name and some anonymous, and it is only old usage that ascribes the anonymous pieces to the last preceding prophet whose name is prefixed to his prophecy. But, though the sequence of thought in the book of Zephaniah is not so smooth as a Western reader may desire, a single leading motive runs through the whole, and the first two chapters would be incomplete without the third, which, moreover, is certainly pre-exilic (verses 1-4), and presents specific points of contact with what precedes as well as a general agreement in style and idea.

ZEPHYRINUS, St., bishop of Rome from about 202 to August 26, 217, succeeded Victor I. He is described as a man of little intelligence or strength of character, and the somewhat important controversies on doctrine and discipline that marked his pontificate are more appropriately associated with the name of HIPPOLYTUS (*q.v.*) and of Calixtus, his principal adviser and afterward his successor.

ZEPHYRUS, the west wind, brother of Boreas, the north wind, was the son of the Titan Astræus and Eos, the dawn, and had his palace in Thrace. He was married to Chloris, the goddess of flowers, by whom he had a son, Carpus; by the harpy Podarge he was also the father of Xanthus and Balius, the horses of Achilles.

ZERAFSHAN, an independent "circle" or province of Russian Turkestan, includes the valley of the river Zerafshan from its sources to Katty-Kurgan, as well as the mountains which bound the valley to the north and south. It is the SOGDIANA (*q.v.*) of the ancients, famed for its fertility, which is due to the waters of the Polytimetus. The present Russian province of Zerafshan, which is densely peopled along the course of the river, has a length of nearly 250 miles from west to east, a width of from 50 to 100 miles, and an area of 19,665 square miles. It is bounded on the west by Bokhara, on the north by the Kizilkum Desert of Syr-Daria and the Russian province of Ferghana, on the east by the Alai plateau, on the south by the vassal khanates of Bokhara—Karategin, Hissar, Shahr-i-Syabs, and Karshi.

The population of Zerafshan was reckoned at 351,900 in 1898. The bulk of the inhabitants are Uzbeks and Tajiks, the remainder consisting of a few thousand Persians, Hindus, and Jews respectively; the Russians are mainly military, civil functionaries, merchants, and a few peasant settlers. Wheat, barley, rice, and other cereals, as also lucerne, are widely cultivated, and the gardens of Zerafshan are beautiful. A variety of petty trades are carried on in the towns and villages.

ZERBST, a manufacturing town in the duchy of Anhalt, Germany, is situated on the Nuthe, eleven miles northwest of Dessau and twenty-one southeast of Magdeburg. Gold and silver articles, silk, plush, cloth, leather, soap, starch, chemicals, and carriages are among the chief manufactures. Iron-founding is carried on; and several breweries are engaged in the preparation of Zerbster bitter beer, which enjoys considerable repute. Market-gardening is also a profitable industry in Zerbst. The population was 17,094 in 1900. Zerbst is an ancient town, mentioned in 949. In 1307 it came into the possession of the Anhalt family, and from 1603 till



1793 was the capital of the collateral branch of Anhalt-Zerbst. In 1793 it passed to Anhalt-Dessau.

ZEUS, the chief deity of ancient Greek religion, bears a name which almost certainly means "sky." His title is identified by etymologists with Sanscrit *Dyaus*, the "bright one," "sky," though his legend and place in religion are not closely akin to those of the Vedic deity.

Coming to historical and documentary evidence, our earliest knowledge of Zeus is derived from the Homeric and Hesiodic poems. It is very probable that in the legend and ritual of remote towns and temples in Greece, we have traces of a conception of Zeus much older than that which meets us in Homer. But Homer and Hesiod are the most ancient literary testimonies; next to these come the speculations of the early philosophers and the writings of the lyric poets, Pindar, Herodotus, and the tragedians. Finally, we have the Zeus of the philosophers of the central period—Plato and Aristotle—and the Zeus of the later philosophic periods down to the prevalence of Christianity. The poet represents him as anthropomorphic—a powerful, humorous, amorous ruler, sometimes troubled by disputes among his younger brethren—Hades and Poseidon—his wife, and his children. His claim to supreme authority is based on primogeniture, whereas in Hesiod Zeus is the successful youngest son of Cronus. Both poets agree that he has overthrown the paternal dynasty, and established his own power after violent struggles. While among the gods Zeus is a father, brother, and emperor, Homeric men sometimes use his name as we might use that of God, in a religious rather than a mythological sense. In Homer Zeus does not assume the form of the lower animals, and in the strange passage where he recounts his loves, the Leporello of his own Don Juan, he says nothing of those well-known disguises. In Hesiod the old wild tales revive, and we learn, for example, that Zeus swallowed his own wife, Metis, after inducing her to take the shape of a fly, just as Puss-in-Boots got rid of the ogre who turned himself into a mouse. In Hesiod, too, we have the tale of Prometheus and Pandora, a tale which afforded such an admirable theme for moral handling by Æschylus. Zeus tempted Epimetheus by the aid of the woman Pandora; hence came death into the world and all our woes. Then Prometheus pitied and aided men, whom Zeus had intended to destroy, and the hero was fixed to a rock in Caucasus by order of the god.

The Zeus of pure religion and of speculation is very different from the Zeus of ritual and of local myth. To ritual, and to the local myths treasured by priests, which often tried to explain the ritual, we owe the unbecoming anecdotes of Zeus as the god who, in the form of ant, snake, bull, eagle, and so forth, made love to the daughters of men. We must regard Zeus as an extremely difficult complex, in which elemental myths, myths of savage fancy, myths of perverted history, theories of early natural philosophy, and the ideas of pantheistic speculation are all confusedly mingled. He is the sum of the religious thought of Hellas, formed in the numberless ages between savagery and complete civilization. He received human sacrifices even after the Christian era; yet long before it he all but corresponded to the Unknown Substance of Spencerian philosophy. A summary of the Zeus myths will be found in Dr. William Smith's *Dictionary of Classical Mythology*. For a comparison between the character and attributes of Jupiter and Zeus, see the article JUPITER.

ZEUXIS, a Greek painter, who flourished about 420–390 B.C., and described himself as a native of Heraclea, meaning probably the town in Magna Græcia. To this neighborhood seem to point the facts of his

having painted a figure of Helena for a temple in Croton, of his presenting a picture of Alcmena to the people of Agrigentum, and of his having been, in one account, a pupil of Damophilus of Himera in Sicily, the other statement being that he was a pupil of Neseus of Thasos. Afterward he appears to have resided in Ephesus. In ancient records we are told that Zeuxis, following the initiative of Apollodorus, had introduced into the art of painting a method of representing his figures in light and shadow, as opposed to the older method of outline, with large flat masses of color for draperies, and other details, such as had been practiced by Polygnotus and others of the great fresco painters. The new method led to smaller compositions, and often to pictures consisting of only a single figure, on which it was the more easy for the painter to demonstrate the combined effect of the various means by which he obtained perfect roundness of form. The effect would appear strongly realistic, as compared with the older method, and to this was probably due the origin of such stories as the contest in which Zeuxis painted a bunch of grapes so like reality that birds flew toward it, while Parrhasius painted a curtain which even Zeuxis mistook for real.

ZHITOMIR, or JITOMIR, a town of western Russia, capital of the government of Volhynia, is situated on the Teteriff river, 646 miles to the southwest of Moscow. The railway which connects Riga and Königsberg with Odessa via Berditcheff, passes within twenty-seven miles of the old Lithuanian city. Its population reached 65,452 in 1898—Jews constituting more than one-third of the total. Two large printing offices in Zhitomir issue nearly one-half of all the Hebrew books printed in Russia. The Jewish merchants carry on a considerable export trade in the agricultural produce of the plains surrounding the city, as also in timber and wooden wares from the forests to the north.

ZIMMERMANN, JOHANN GEORG, RITTER VON, a Swiss philosophical writer and physician, was born at Brugg, in the canton of Aargau, on December 8, 1728. He studied at Göttingen, where he took the degree of doctor of medicine. Afterward he practiced as a physician in his native place, and here he wrote *Ueber die Einsamkeit* (1755) and *Vom Nationalstolz* (1758). Another book by him, written at Brugg, *Von der Erfahrung in der Arzneiwissenschaft* (1764), also attracted much attention. He attended Frederick the Great during that monarch's last illness, and afterward issued various books about him, of which the chief were *Ueber Frederick den Grossen und meine Unterredung mit ihm kurz vor seinem Tode* (1788) and *Fragmente über Friedrich den Grossen* (1790). Zimmermann died at Hanover, October 7, 1795.

ZINC, the name both of an important useful metal and of the element of which the metal consists. Zinc as a component of brass had currency in metallurgy long before it became known as an individual metal. In 1597 Libavius described a "peculiar kind of tin" which was prepared in India, and of which a friend had given him a quantity. From his account it is quite clear that that metal was zinc, but he did not recognize it as the metal of calamine. It is not known to whom the discovery of isolated zinc is due; but we do know that the art of zinc-smelting was practiced in England from about 1730. The first Continental zinc-works were erected at Liège in 1807. The atomic weight of zinc is 65.37 (the mean of the results obtained by Marignac and Baubigny), O = 16.

*Zinc Ores*.—The following may be named as important:

(1) *Red Zinc Ore* (impure ZnO) occurs in quartz-like crystals, but more frequently presents itself in large

grained and lamellar masses. **Color**, hyacinth-red to brown. **Luster**, adamantine.

(2) *Franklinite*.—The zinc averages about 10 per cent. It crystallizes in regular octahedra, with rounded-off edges and angles. Sp. gr. 5.1. **Color**, black; streak, reddish-brown. **Luster**, sub-metallic. This and the preceding occur in association with each other and other things in New Jersey.

(3) *Calamine*.—The pure mineral (zinc spar) forms well-defined, though small, rhombohedra. It is found in association with silicates of zinc, zinc-blende, and lead ores, chiefly in limestone and dolomitic strata, at the Kelmisberg or Vieille Montagne in Belgium, in Derbyshire and Northumberland, and in Silesia. Irregular deposits occur near Santander and Cartagena in Spain, and in Sardinia.

(4) *Electric Calamine*, the German *Kieselzinkerz*, is also called *hemimorphite* on account of the marked hemimorphism in its (ortho-rhombic) crystals. It occurs with willemite and calamine at the Altenberg near Aix-la-Chapelle, with blende and lead ore at Raibell and Bleiberg in Carinthia, near Iserlohn in Westphalia, at Matlock in Derbyshire, near Tarnowitz in Silesia, at Olbucs, Rezbanya in Hungary, and Nertschinsk in Siberia. American sources are at Phoenixville and Friedensville in Pennsylvania and in the Austin mine in Virginia.

(5) *Willemite*, anhydrous, occurs in New Jersey and elsewhere; it is a comparatively rare ore.

(6) *Zinc-Blende*, or shortly *Blende* ( $\text{ZnS}$ ).—The five ores mentioned above, as indeed all oxidized zinc ores, having become scarce, most of the zinc which now occurs in commerce is derived from zinc-blende. This ore crystallizes in combinations of the two tetrahedra and other forms of the regular system. The finest crystals are found in Franklin, N. J., and in the Peñas de Europa, Asturias (Spain), in which liquid inclosures are often met with. The darker varieties, which always include more or less of foreign sulphides, are found in a great number of places. To English miners blende is known as "black Jack," to the South Americans as "chumbe." The principal American deposits are in Missouri.

**Metallurgy**.—Oxide of zinc, like most heavy metallic oxides, is easily reduced to the metallic state by heating it to redness with charcoal; but, as zinc has the exceptional property of being readily volatile at the temperature of its reduction, the operation must be carried out in some kind of retort, and the zinc be recovered as a distillate. Zinc-blende, however, being sulphide of zinc, is not directly reducible by charcoal; but it is easy to convert it into oxide by roasting; the sulphur goes off as sulphurous acid, while the zinc remains in the (infusible) form of oxide  $\text{ZnO}$ . If the zinc is present as blende, this operation offers considerable difficulties, because in the roasting process the sulphide of zinc passes in the first instance into sulphate, which demands a high temperature for its conversion into oxide.

**Properties of Pure Zinc**.—Zinc, a bluish-white metal, fuses at  $415^\circ\text{C}$ . and under ordinary atmospheric pressure boils at  $1040^\circ\text{C}$ . (Deville and Troost). The molten metal on cooling deposits crystals, and at last freezes into a compact crystalline solid, which may be brittle or ductile according to circumstances. According to Bolley, if zinc be cast into a mold at a red heat, the ingot produced is laminar and brittle; if cast at just the fusing-point, it is granular and sufficiently ductile to be rolled into sheet at the ordinary temperature. According to some authorities, pure zinc always yields ductile ingots. Commercial "spelter" always breaks under the hammer; but at  $100^\circ$  to  $150^\circ\text{C}$ . it is susceptible of being rolled out into even a very thin sheet. Such a sheet, if once

produced, remains flexible when cold. At about  $200^\circ\text{C}$ ., again, the metal becomes so brittle that it can be pounded in a mortar. The specific gravity of zinc cannot be expected to be perfectly constant; according to Karsten, that of pure ingot is 6.915, and rises to 7.191 after rolling. The coefficient of linear expansion is 0.002,905 for  $100^\circ$  from  $0^\circ$  upward (Fizeau). The specific heat is 0.093,93 (Schüller and Wartha). It is pretty soft, and clogs the file. If zinc be heated up to near its boiling-point, it catches fire and burns with a brilliant light into its powdery white oxide, which forms a reek in the air (*lana philosophica*). Boiling water attacks it appreciably, but no more, with evolution of hydrogen and formation of hydroxide,  $\text{Zn(OH)}_2$ . A rod of perfectly pure zinc, when immersed in dilute sulphuric acid, is so very slowly attacked that there is no visible evolution of gas; but, if a piece of platinum or other less basilius metal is brought into contact with the zinc, it dissolves readily, with evolution of hydrogen and formation of sulphate. The ordinary impure metal dissolves at once, the more readily the less pure it is. Cold dilute nitric acid dissolves zinc as nitrate, with evolution of nitrous oxide,  $\text{N}_2\text{O}$ , and formation of nitrate of ammonia. At higher temperatures, or with stronger acid, nitric oxide,  $\text{NO}$ , is produced besides or instead of nitrous.

**Oxide of Zinc**,  $\text{ZnO}$ .—There is only this one oxide. It is prepared chiefly in two ways—(1) by burning the metal, a method now being carried out industrially, the zinc vapor being sometimes produced *extempore* from a mixture of roasted ore and carbon, and (2) by heating the basic carbonate. Oxide of zinc is insoluble in water, and does not combine directly with it; it dissolves readily in all aqueous acids, with formation of "zinc salts." It also dissolves in aqueous caustic alkalies, including ammonia, forming "zincates" (e.g.,  $\text{ZnO.KHO}$ ). Oxide of zinc is used in the arts as a white pigment. It is used also in medicine, chiefly externally.

The *hydrate*,  $\text{Zn(OH)}_2$ , is prepared by precipitating a solution of any zinc salt with caustic potash. The alkali must be free from carbonate and an excess of it must be avoided, otherwise the hydrate re-dissolves. It is a white powder, and is insoluble in water. To acids and to alkalies it behaves like the oxide, but dissolves more readily.

The *basic carbonate*,  $\text{ZnCO}_3 \cdot x\text{Zn(OH)}_2$ , where  $x$  is variable, is prepared by precipitation of a solution of the sulphate or chloride with carbonate of soda.

The *sulphate*,  $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$ , white vitriol, is prepared by dissolving the ordinary metal in dilute sulphuric acid. An impure form of the salt is prepared by roasting zinc-blende at a low temperature. Sulphate of zinc is used in medicine, chiefly externally. In the arts it is employed in the preparation of varnishes, and as a mordant for the production of colors on calico.

The *chloride*,  $\text{ZnCl}_2$ , is produced by heating the metal in dry chlorine gas, when it distills over as a white translucent mass, easily fusible, and boiling sufficiently low to be distillable from out a retort of hard Bohemian glass. A concentrated solution of chloride of zinc converts starch, cellulose, and a great many other organic bodies into soluble compounds; hence the application of the fused salt as a caustic in surgery, and the impossibility of filtering a strong  $\text{ZnCl}_2$  lye through paper. At a boiling heat chloride of zinc dissolves in any proportion of water, and highly concentrated solutions, of course, boil at high temperatures; hence they afford a convenient medium for the maintenance of high temperatures.

Oxid. of zinc unites with the chloride in a great number of proportions, forming oxy-chlorides. For other zinc compounds, the reader is referred to the handbooks of chemistry.



**Analysis.**—From neutral solutions of its salts zinc is precipitated by sulphuretted hydrogen as sulphide  $ZnS$ —a white precipitate, soluble, but by no means readily, in dilute mineral acids, but insoluble in acetic acid. The precipitate, when roasted at the end of an asbestos stick over a "bunsen," passes into oxide, which is yellow in the heat, and white after cooling; and, if it be moistened with cobalt solution and reheated, it exhibits a green color after cooling. By these tests the precipitate is easily identified with certainty. For further information, see handbooks of analysis.

**ZINCKEN, or ZINKEN**, the German name of a family of wind instruments now obsolete, known in Italy as *cornetti*, in France as *cornets à bouquin*, and in England as "cornets," but differing entirely from the modern *cornets à pistons*; these last will also be noticed here, as bearing the same name.

The old cornets were of two kinds—the straight and the curved. The straight (Germ. *gerade Zincken*, *stille Zincken*; Ital. *cornetti diritti*, *cornetti muti*) were usually made with the mouthpiece (a cupped mouthpiece analogous to that of the trumpet) forming part of the tube. The curved (Germ. *krumme Zincken*; Ital. *cornetti curvi*) are formed of two pieces of wood of different lengths, each having half the channel in which the column of air is to vibrate hollowed out, the diameter increasing from the mouthpiece toward the lower end. The two pieces of wood, when thus prepared, are joined together with glue; they are then finished off so as to form a pipe with eight sides, and are finally covered with leather. The mouthpieces are made of wood, horn, or ivory, and are fixed by a tenon to the upper extremity of the pipe. The primitive instrument was an animal's horn. Pipes of such small length give only, besides the first or fundamental, the second and sometimes the third note of the harmonic series. The *serpent* is another instrument of the cornet family, though not usually classed with it. Its construction and its acoustic principle are the same as those of the old cornet. It is, properly speaking, an enlarged cornet with one hole less, that which is stopped with the thumb. The mouthpiece is fixed to the instrument by means of a long brass crook.

**Cornet, Cornet à Pistons.**—At present the names of cornet, cornet à pistons, and corneopene are given to an instrument that has no analogy whatever to the mediæval cornet. It is a transformation of the old post horn, with a shorter tube than that of the trumpet, and improved to such a degree that its quality of tone is intermediate between the brightness of the trumpet and the softness of the flügel-horn bugle with pistons. The extent of the modern cornet without pistons is comprised within the second and eighth of the harmonic scale. It was introduced into Great Britain and France about 1830. There were at first only two pistons—that of the whole tone and that of the half tone—from which there naturally resulted gaps in the chromatic scale of the instrument. The history of the cornet is that of the improvement brought about by pistons apart from their successive transformations, and it has remained to the present time what it was when first invented. The great favor the cornet meets with is due to the facility with which it speaks, to the little fatigue it causes, and to the simplicity of its mechanism.

**ZINZENDORF, NICOLAUS LUDWIG, COUNT OF ZINZENDORF and POTTENDORF**, religious reformer, descended from an ancient family belonging to Lower Austria, was born May 26, 1700, at Dresden. His school days were spent at the *pædagogium* at Halle amid Pietist surroundings, and in 1716 he went to the university of Wittenberg, to study law and fit himself for a diplomatic career. Three years later he was sent

to travel in Holland, in France, and in various parts of Germany. These two years of wandering were employed by him in making the personal acquaintance of men distinguished for practical piety and belonging to a variety of churches. On his return he resolved to settle down as a Christian landowner, spending his life on behalf of a pious tenantry. He bought Berthelsdorf from his grandmother, married Erdmute Dorothea, sister of Count Henry of Reuss, and began living on his estate. His intention was to carry out into practice the pietist ideas of Spener. He did not mean to found a new church or religious organization distinct from the Lutheranism of the land. He meant to create a Christian association, the members of which, by preaching, by tract and book distribution, and by practical benevolence, might awaken the somewhat torpid religion of the Lutheran Church.

He was able to establish a common order of worship in 1727, and soon afterward a common organization, which has been described in the article MORAVIAN BRETHREN. He traveled widely in its interests, visiting America in 1741–42 and spending a long time in London in 1750. Missionary colonies had by this time been settled in the West Indies (1732), in Greenland (1733), among the North American Indians (1735); and before Zinzendorf's death the Brethren had sent from Herrnhut missionary colonies to Livonia and the northern shores of the Baltic, to the slaves of North Carolina, to Surinam, to the Negro slaves in several parts of South America, to Travancore in the East Indies, to the Copts in Egypt, and to the west coast of South Africa. In 1752 Zinzendorf lost his only son, Christian Renatus, whom he had hoped to make his successor; and four years later he lost his wife Erdmute. He remained a widower for one year, and then (June, 1757) contracted a second marriage with Anna Nitschmann, on the ground that a man in his official position ought to be married. Three years later, overcome with his labors, he fell ill and died (on May 9th), leaving John de Watterville, who had married his eldest daughter Benigna, to take his place at the head of the community.

**ZION.** See JERUSALEM and TEMPLE.

**ZIRCONIUM**, a rare element, closely allied to titanium. Klaproth in 1789 analyzed zircon and found it to contain a new earth, which he called "zirconia." Zircon is essentially a silicate of zirconia  $ZrO_2SiO_2$ . For the extraction from it of zirconia the mineral is first of all heated and quenched in water to render it brittle, and then reduced to a fine powder, which is fused up with three to four parts of acid fluoride of potassium at a gentle heat in a platinum crucible. When the mass fuses tranquilly and all the water is expelled, the platinum crucible is placed in a Hessian crucible; the two crucibles are then covered and kept for two hours at the highest temperature producible by means of a wind furnace. The porcelain-like fuse is powdered, boiled in water, and acidified with hydrofluoric acid, and the residual fluosilicate of potassium is filtered off. The filtrate on cooling deposits crystals of fluozirconate of potassium,  $ZrF_6K_2$ , which are purified by re-crystallization from hot water. The double fluoride is decomposed with hot, concentrated sulphuric acid; the mixed sulphate is dissolved in water; and the zirconia is precipitated with ammonia in the cold. The precipitate, being difficult to wash, is (after a preliminary washing) re-dissolved in hydrochloric acid and re-precipitated with ammonia. Zirconia, when heated to whiteness, remains unfused, and radiates out abundance of white light. This property has been utilized for the construction of a new kind of gas lamp, in which a colorless flame, produced by the combustion of a mixture of gas and air, serves to heat

a hollow cylinder of zirconia suspended over it by means of platinum gauze. Zirconia, like oxide of tin and oxide of titanium, unites not only with acids, but also with basic oxides.

*Zirconic chloriae*,  $ZrCl_4$ , is prepared by igniting a mixture of zirconia and charcoal in a current of chlorine, as a white sublimate. It has the exact vapor-density corresponding to the formula. It dissolves in water with evolution of heat.

*Metallic zirconium* is obtainable by heating the double fluoride of zirconium and potassium with metallic potassium, as an iron-gray powder. Troost produced crystallized zirconium by fusing the double fluoride with aluminium in a graphite crucible at the temperature of melting iron, and extracting the aluminium from the fuse with hydrochloric acid. The crystals look like antimony, and are brittle; their specific gravity is 4.15. The powdery metal burns readily in air; the crystalline metal requires to be heated in an oxyhydrogen flame if it is to catch fire. Mineral acids generally attack the crystallized metal very little even in the heat; aqua regia, however, dissolves it readily, and so does hydrofluoric acid. The spark spectrum of zirconium is characterized by five lines, whose wave-lengths are as follows: 6,127 in the red, and 4,815, 4,771, 4,738, 4,709, and 4,686 in the blue. The atomic weight is not known exactly; according to Marignac and Deville, it lies near 90, if  $O = 16$ .

**ZITHER**, the cithern, the modern representative of the ancient cithara, is a popular and common instrument in Tyrol, and of late years has become more widely known. It is a flat, stringed instrument, having a wooden frame and flat sounding board, with brass strings. When to be used it is placed on a table or on the knees, and the strings are played with the right hand, the thumb being armed with a metallic plectrum to bring out the melody more prominently. Latterly a good deal of music has been composed expressly for the zither, the tone of which is clear, keen, but melodious.

**ZITTAU**, the center of the Saxon linen trade and the most populous town in the district of Bautzen, in the kingdom of Saxony, is situated on the left bank of the Mandau, near its confluence with the Neisse, twenty-five miles southeast of Bautzen and forty-eight east-southeast of Dresden. Zittau is well equipped with schools, including a gymnasium (founded in 1586) and a commercial school, both accommodated in the Johanneum, and several technical institutions. The leading branch of industry is linen and damask weaving; but woollen stuffs, trimmings, etc., are also produced in the factories of the town, and in the surrounding weaving villages, thirty-seven of which, with 70,000 inhabitants, are included in the municipal jurisdiction. The town, which is one of the best endowed in Saxony, also owns valuable forests on the mountains of Upper Lusatia. There are various steam mills, iron foundries, brick fields, and potteries near the town, and extensive deposits of lignite, employing over 1,000 hands. Zittau is situated near the border of Bohemia, with which it carries on some trade. In 1900 the population was 26,215.

**ZIZKA**, or **ZISKA**, **JOHN**, leader of the **HUSSITES** (q.v.) from 1419, was born at Trocnow in the neighborhood of Budweis in Bohemia about the year 1360. In 1410 he fought as a volunteer, on the losing side, in the great battle of Grünwald, near Tannenberg in Prussia. He afterward took part in the Hungarian wars against the Turks, and is also said to have fought on the English side in the battle of Agincourt. In the discontents which followed the martyrdom of Huss and Jerome in Bohemia he sided with the liberal party. At an early period of the war—at the siege of Raby in 1421—Zizka, who from boyhood had been blind of an

eye, completely lost his sight; but his strength of will enabled him almost wholly to overcome this formidable disadvantage, and continued to mark him out as the leader in the cause he had espoused, until his death, which was caused by an infectious disorder while he was besieging Przidislav, October 11, 1424.

**ZLATOUST**, in the Russian government of Ufa, is one of the chief towns and iron-works of the Urals. It is situated on the Ai, a tributary of the Ufa, in a picturesque valley of middle Urals, at a height of 1,200 feet above sea-level. The 270 miles which stretch between Zlatoust and Ufa in the west is covered by rail, while a branch line is projected to connect it with Ekaterinburg in the north. Its merchants carry on a brisk trade in agricultural produce and cattle, as well as in manufactured wares, imported for the use of the mining villages of the neighborhood. The Ai and several ponds supply the crown iron-works with motive power, and in 1884 the iron furnaces of Zlatoust yielded 90,800 hundredweights of pig-iron, which were used almost entirely for the manufacture of swords, bayonets, and artillery munition. The population of Zlatoust in 1898 was 23,000.

**ZNAIM**, or **ZNAYM** (Czech *Znojmo*), an interesting old town of Moravia, is picturesquely situated on the left bank of the Thaya, forty-five miles north-northwest of Vienna. The town is well equipped with technical and other schools, and carries on manufactures of earthenware, leather, chocolate, vinegar, and other articles. Large quantities of cucumbers, grain, and wine are produced in the fertile environs. In 1890 the population, chiefly of German origin, was 12,254.

**ZODIAC** (ὁ ζωδιακὸς κύκλος, from *ζῳδιον*, "a little animal"), an imaginary zone of the heavens within which lie the paths of the sun, moon, and principal planets. It is bounded by two circles equidistant from the ecliptic, about eighteen degrees apart; and it is divided into twelve signs, and marked by twelve constellations. The signs—the Greek *δωδεκατημόρια*—are geometrical divisions thirty degrees in extent, counted from the spring equinox in the direction of the sun's progress through them. The whole series accordingly shifts westward through the effect of precession by about one degree in seventy-two years. At the moment of crossing the equator toward the north the sun is said to be at the first point of Aries; some thirty days later it enters Taurus, and so on through Gemini, Cancer, Leo, Virgo, Libra, Scorpio, Sagittarius, Capricornus, Aquarius, and Pisces (see **ASTRONOMY**).

So far as positive records go, Aries was always the first sign. But the arrangement is, on the face of it, a comparatively modern one. None of the brighter stars of the constellation could be said even roughly to mark the equinox much before 1800 B.C.; during a long stretch of previous time the leading position belonged to the stars of Taurus. Numerous indications accordingly point to a corresponding primitive zodiac.

In the Chaldean signs fragments of several distinct strata of thought appear to be embedded. From one point of view, they shadow out the great epic of the destinies of the human race; again, the universal solar myth claims a share in them; hoary traditions were brought into *ex post facto* connection with them; or they served to commemorate simple meteorological and astronomical facts.

The first Babylonian month Nisan, dedicated to Anu and Bel, was that of "sacrifice," and its association with the Ram as the chief primitive object of sacrifice is thus intelligible. The human race was supposed to have come into being under Taurus. The solar interpretation of the sign goes back to the far-off time when the year began with Taurus, and the sun was conceived



of as a bull entering upon the great furrow of heaven as he plowed his way among the stars. The appropriate symbol of the third sign was at first indifferently a pile of bricks or two male children, always on early monuments placed feet to feet. The retrograde movement of a crab typified, by an easy association of ideas, the retreat of the sun from his farthest northern excursion, and Cancer was constituted the sign of the summer solstice. The Lion, as the symbol of fire, represented the culmination of the solar heat. In the sixth month, the descent of Ishtar to Hades in search of her lost husband Tam-muz was celebrated, and the sign of the Virgin had thus a purely mythological signification.

The history of the seventh sign is somewhat complicated. The earlier Greek writers—Eudoxus, Eratosthenes, Hipparchus—knew of only eleven zodiacal symbols, but made one do double duty, extending the Scorpio across the seventh and eighth divisions. The Balance, obviously indicating the equality of day and night, is first mentioned as the sign of the autumnal equinox by Geminus and Varro, and obtained, through Sosigenes of Alexandria, official recognition in the Julian calendar. No representation of the seventh sign has yet been discovered on any Euphratean monument; but it is noticeable that the eighth is frequently doubled, and it is difficult to avoid seeing in the pair of zodiacal scorpions carved on Assyrian cylinders the prototype of the Greek scorpion and claws.

The definitive decline of the sun's power, after the autumnal equinox was typified by placing a scorpion as the symbol of darkness in the eighth sign. Sagittarius, figured later as a Centaur, stood for the Babylonian Mars. Capricornus, the sign of the winter solstice, is plausibly connected with the caprine nurse of the young solar god in Oriental legends, of which that of Zeus and Amalthea is a variant. The fish-tailed Goat of the zodiac presents a close analogy with the Mexican calendar sign Cipactli, a kind of marine monster resembling a norwhal. Aquarius is a still more exclusively meteorological sign than Leo. The eleventh month was known in Euphratean regions as that of "want and rain." It was represented in zodiacal symbolism by the god Ramman, crowned with a tiara and pouring water from a vase, or more generally by the vase and water without the god. The resumption of agricultural labors after the deluge was commemorated in the twelfth month, and a mystical association of the fishes, which were its sign, with the life after death is evident in a monument of Assyrian origin described by M. Clermont-Ganneau, showing a corpse guarded by a pair of fish-gods.

The cyclical meaning of the succession of zodiacal signs, though now obscured by interpolations and substitutions, was probably once clear and entire. It is curiously reflected in the adventures of the Babylonian Hercules, the solar hero Izdubar. Izdubar's conquest of the winged bull Heabani was placed under Taurus; his slaying of the tyrant Houmbaba (the prototype of Geryon) in the fifth month typified the victory of light over darkness, represented in plastic art by the group of a lion killing a bull, which is the form ordinarily given to the sign Leo on Ninevite cylinders. The wooing of Ishtar by the hero of the epic falls under Virgo, and his encounter with two scorpion men, guardians of the rising and the setting sun, under Scorpio. The eleventh tablet narrates the deluge; the twelfth associates the apotheosis of Heabani (the Babylonian Chiron) with the zodiacal emblems of the resurrection. In the formation of the constellations of the zodiac very little regard was paid to stellar configurations. The Chaldeans chose three stars in each sign to be the "councilor gods" of the planets. These

were called by the Greeks "decans," because ten degrees of the ecliptic and ten days of the year were presided over by each.

The Egyptians adopted from the Greeks, with considerable modifications of its attendant symbolism, the twelve-fold division of the zodiac. Aries became the Fleece; two Sprouting Plants, typifying equality or resemblance, stood for Gemini; Cancer was re-named Scarabæus; Leo was converted, from the ax-like configuration of its chief stars, into the Knife; Libra into the Mountain of the Sun. Serpent was the Egyptian equivalent of Scorpio; the Arrow only of Sagittarius was retained; Capricornus became "Life," or a Mirror as an image of life; Aquarius survived as Water; Taurus, Virgo, and Pisces remained unchanged.

Early Zoroastrian writings, though impregnated with star-worship, show no traces of an attempt to organize the heavenly array. In the *Bundehish*, however (ninth century), the twelve "Akhtars," designated by the same names as our signs, lead the army of Ormuzd, while the seven "Awakhtars" or planets (including a meteor and a comet) fight for Ahriman. Aryabhata, about the beginning of our era, reckoned by the same signs as Hipparchus. They were transmitted from India by Buddhist missionaries to China, but remained in abeyance until the Jesuit reform of Chinese astronomy in the seventeenth century. The characteristic Chinese mode of dividing the "yellow road" of the sun was by the twelve "cyclical animals"—Rat, Ox, Tiger, Hare, Dragon or Crocodile, Serpent, Horse, Sheep, Monkey, Hen, Dog, Pig. The opening sign corresponds to our Aquarius. But here the agreement ceases. For the Chinese series has the strange peculiarity of proceeding in a retrograde direction or *against* the course of the sun. Thus, the second sign (of the Ox) occupies the position of Capricorn, the third that of Sagittarius, and so on. The Chinese circle of the "animals" obtained early a wide diffusion. It was adopted by Tartars, Turks, and Mongols, in Tibet and Tong-king, Japan and Corea. A large detachment of the "cyclical animals" even found its way to the New World. Seven of the twenty days constituting the Aztec month bore names evidently borrowed from those of the Chinese horary signs. The Hare (or Rabbit), Monkey, Dog, and Serpent reappeared without change; for the Tiger, Crocodile, and Hen, unknown in America, the Ocelot, Lizard, and Eagle were substituted as analogous. The Aztec calendar dated from the seventh century; but the zodiacal tradition embodied by it was doubtless much more ancient.

The synodical revolution of the moon laid down the lines of the solar, its *siderial* revolution those of the lunar zodiac. The first was a circlet of "full moons;" the second marked the diurnal stages of the lunar progress round the sky, from and back again to any selected star. The moon was the earliest "measurer" both of time and space; but its services can scarcely have been rendered available until stellar "milestones" were established at suitable points along its path. Such were the Hindu *nakshatras*, a word originally signifying stars in general, but appropriated to designate certain small stellar groups marking the divisions of the lunar track. They exhibit in an exaggerated form the irregularities of distribution visible in our zodiacal constellations, and present the further anomaly of being frequently reckoned as twenty-eight in number, while the ecliptical arcs they characterize are invariably twenty-seven. The notion of a twenty-seven fold division of the zodiac was deeply rooted in Hindu tradition. The number and the name were in early times almost synonymous. Thus, a *nakshatra-mālā* denoted a necklace of twenty-seven pearls. Everything points to a native



origin for the system of *nakshatras*. Some were named after exclusively Vedic deities; they formed the basis of the sacrificial calendar of the Brahmans; the old Indian names of the months were derived from them; their existence was presupposed in the entire structure of Hindu ritual and science. They do not, however, obtain full recognition in Sanskrit literature until the Brāhmana period (seventh or eighth century B.C.) The *Rig-Veda* contains only one allusion to them, where it is said that "Soma is placed in the lap of the *nakshatras*," and this is in a part including later interpolations. Positive proof of the high antiquity of the Hindu lunar zodiac is nevertheless afforded by the undoubted fact that the primitive series opened with Krittikā (the Pleiades) as the sign of the vernal equinox.

The nomenclature of the Hindu signs of the zodiac, save as regards a few standard asterisms, such as Aṣvini and Krittikā, was far from uniform. Reminiscences of the Greek signs of Gemini, Leo, Libra, Sagittarius, Capricornus, and Pisces are obvious severally in the Hindu Two Faces, Lion's Tail, Beam of a Balance, Arrow, Gazelle's Head (figured as a marine nondescript), and Fish. Mexican loans are more remarkable. They were apparently direct as well as indirect. The Aztec calendar includes *nakshatra* titles borrowed, not only through the medium of the Tartar zodiac, but likewise straight from the Indian scheme, apart from any known intervention. Relationship of a more intimate kind connects the Hindu lunar mansions with those of the Arabs and Chinese. The resemblance between the three systems is indeed so close that it has been assumed, almost as axiomatic, that they must have been framed from a single model; and the question of their origin has been debated with all the resources of varied erudition by scholars such as Biot, Weber, Whitney, and Max Müller. As the upshot of the controversy it appears nevertheless to have become tolerably clear that the *nakshatras* were both native to India, and the *sieu* to China, but that the *manāzil* were mainly of Indian derivation.

The safest general conclusions regarding this disputed subject appear to be that the *sieu*, distinctively and unvaryingly Chinese, cannot properly be described as divisions of a lunar zodiac, that the *nakshatras*, though of purely Indian origin, became modified by the successive adoption of Greek and Chinese rectifications and supposed improvements; while the *manāzil* constituted a frankly eclectic system, in which elements from all quarters were combined. It was adopted by Turks, Tartars, and Persians, and forms part of the astronomical paraphernalia of the *Bundekish*. The *sieu*, on the other hand, were early naturalized in Japan.

The refined system of astrological prediction based upon the solar zodiac was invented in Chaldaea, obtained a second home and added elaborations in Egypt, and spread irresistibly westward about the beginning of our era. For genethliacal purposes the signs were divided into six solar and six lunar, the former counted onward from Leo, the "house" of the sun, the latter backward from the moon's domicile in Cancer. The influence of the signs, though secondary, was hence overmastering; Julian called them *θεων δυνάμεις*, and they were the objects of a corresponding veneration. Cities and kingdoms were allotted to their several patronage on a system fully expounded by Manilius: Syria was assigned to Aries, and Syrian coins frequently bear the effigy of a ram; Scythia and Arabia fell to Taurus, India to Gemini. Palmyra, judging from numismatic evidence, claimed the favor of Libra, Zeugma that of Capricorn; Leo protected Miletus, Sagittarius Singara. The "power of the signs" was similarly distributed among the parts of the human body.

In Egypt celestial influences were considered as emanating mainly from the thirty-six "decans" of the signs. They were called the "media of the whole circle of the zodiac;" each ten-day period of the Egyptian year was consecrated to the decanal god whose section of the ecliptic rose at its commencement; the body was correspondingly apportioned, and disease was cured by invoking the zodiacal regent of the part affected.

Probably the most ancient zodiacal representation in existence is a fragment of a Chaldaean planisphere in the British Museum, once inscribed with the names of the twelve months and their governing signs. Two only now remain. A zodiac on the "astrological altar of Gabies" in the Louvre illustrates the apportionment of the signs among the inmates of the Roman Pantheon; and they occur as a classical reminiscence in the mosaic pavements of San Miniato and the baptistery at Florence, the cathedral of Lyons, and the crypt of San Savino at Piacenza. Zodiacal symbolism became conspicuous in mediæval art.

It is curious to find the same sequence of symbols employed for the same decorative purposes in India as in Europe. A perfect set of signs was copied in 1764 from a pagoda at Verdapettah near Cape Comorin, and one equally complete existed at the same period on the ceiling of a temple near Mindurah.

The hieroglyphs representing the signs of the zodiac in astronomical works are of late introduction. They are found in manuscripts of about the tenth century, but in carvings not until the fifteenth or sixteenth. Their origin is unknown; but some, if not all of them, have antique associations. The hieroglyph of Leo, for instance, occurs among the symbols of the Mithraic worship.

**ZODIACAL LIGHT.** The zodiacal light is usually described as a cone or lenticular-shaped glow of nebulous light, seen after sunset or before sunrise, extending upward from the position of the sun nearly in the direction of the ecliptic or of the sun's equator. This description, though fairly correct for the higher latitudes, does not represent accurately what is seen in the tropics, where the light is often a very conspicuous object. There, if an observer on a clear, moonless night watches the western sky from soon after sunset till the last trace of twilight has disappeared, he will notice that the twilight seems to linger longer near where the sun sank below the horizon, and that gradually a nebulous whitish band of light, broad toward the horizon and narrowing first rapidly and then more slowly upward, begins to stand out clearly from the vanishing twilight, which spreads along a much wider and nearly horizontally-topped arc of the horizon. This is the zodiacal light.

Among the Moslems, to whom it is important on ritual grounds to determine accurately the moment of day-break, at which during Ramadan the daily fast begins, the morning zodiacal light appears to have been observed from an early period, and is known as the "false dawn" or the "wolf's tail" (Redhouse, in *Journ. R. A. S.*, July, 1878). But in Christian Europe it seems to have been first observed by Kepler, who described its appearance with considerable accuracy and came to the conclusion that it was the atmosphere of the sun. Descartes wrote about it in 1630 and Childrey in 1659; but the attention of astronomers was first prominently called to it by Dominic Cassini, who first saw it March 18, 1683. It is to him that it owes the name which it now bears.

**Extent.**—The way in which the light fades off gradually toward the boundaries makes it extremely difficult to determine accurately the true position of the light or its extent. Various observations show that at times



the base, at an elongation of about  $20^\circ$ , may have a width of from  $25^\circ$  to  $30^\circ$ , while at an elongation of  $60^\circ$  the breadth is frequently as much as  $20^\circ$ , but usually much less. The distance of the vertex from the sun frequently exceeds  $90^\circ$ , and Mr. Liais and others have recorded cases when the light has been traced completely round from the western to the eastern horizon. A lengthened series of observations was made on the zodiacal light by the Rev. G. Jones, chaplain of the United States steam frigate *Mississippi*, in the China and Japan Seas in 1855. He charted the apparent position of the cone of light on a large number of nights and mornings, and came to the somewhat startling conclusion that his observations could be explained only by supposing the existence of a nebulous ring round the earth within the orbit of the moon. He recorded that twice near  $23^\circ 28' N.$  latitude, with the sun at the opposite solstice, he had seen "the extraordinary spectacle of the zodiacal light, simultaneously at both the east and west horizons from 11 to 1 o'clock for several nights in succession." On reading this statement, Baron Humboldt communicated to the *Monatsberichte d. kön. preuss. Akad. d. Wiss.* some unpublished observations of his own on a similar phenomenon.

**Position.**—The exact position of the axis of the zodiacal light relatively to the ecliptic has not yet been satisfactorily fixed. Most observers have tried to fix its position by tracing its outline on a star chart, while Prof. C. Piazzi Smyth employed two sights mounted equatorially. But even by these means no great accuracy can be attained, for the limits of the light can be traced only when the eye is quite unfatigued and when the light is looked at with averted vision. The difficulty experienced is well illustrated by the wide divergencies between the results of different observers—divergencies not only in the extent of the light, which would be quite natural, but even in the direction of the axis of the cone.

**The Moon's Zodiacal Light.**—Several observers have recorded observations which appeared to show that the moon produced an appearance very similar to that of the zodiacal light. Piazzi Smyth, however, when observing on the Peak of Teneriffe, saw this appearance and showed by actual measurement that the glow seen before moonrise does not lie near the ecliptic, but is nearly vertical, and is due simply to refraction in the earth's atmosphere. This explanation will hardly account for an interesting observation made by Mr. L. Trouvelot, which if repeated would require to be very carefully investigated. The whole of the circumstances led Mr. Trouvelot to conclude that this light and the zodiacal light were phenomena of the same order, while this and other observations, he considered, rendered it probable that there was some connection between the zodiacal light and auroras.

**Physical Constitution.**—Many attempts have been made to determine whether or not the light was to any extent polarized, but with questionable results until Prof. A. W. Wright attacked the problem, using a polariscope specially designed for studying very faint lights. With this he was enabled to determine with certainty that the light was partially polarized in a plane passing through the sun, and that the amount of polarization was most probably as much as 15 per cent., but less than 20 per cent. Many attempts have been made to observe the spectrum. In 1867 Angström, observing at Upsala in March, obtained the bright aurora line (W. L. 5,567), and concluded that in the zodiacal light there was the same material as is found in the aurora and in the solar corona, and probably through all space. The most satisfactory observations hitherto published seem to be those of Prof. Piazzi Smyth and Prof. A.

W. Wright. Both used spectroscopes specially designed for the examination of faint lights, and their results agree completely with each other. Professor Smyth made his observations at Palermo and found a faint continuous spectrum extending from about W. L. 5,550 to W. L. 5,000 (British inches scale), with a maximum brightness at about W. L. 5,350. Professor Wright's conclusion was that the spectrum differs from that of sunlight only in intensity.

The discussion of the real cause of the zodiacal light is rendered very difficult by the want of agreement in the observations that have been made upon it, and by the existence of a small number of apparently trustworthy observations of a very abnormal extension of the light, as detailed above; but certain conclusions may be safely arrived at. The theory that it is due to a ring of small bodies surrounding the earth seems to be entirely negatived. There can be very little doubt that we must look for the cause of the light to the existence of a mass of small bodies moving in orbits round the sun, and that, as shown by the polarization and the spectrum, the light is chiefly, if not entirely, reflected sunlight.

Doctor Huggins, while holding that the corona is most probably due to the ceaseless outflow of extremely minute particles from the sun, thinks it not improbable that the zodiacal light may be in some way connected with this outflow. Doctor Siemens, when discussing his theory of the conservation of solar energy, sought for an explanation of the zodiacal light in the dust which he supposed to be ejected from equatorial regions, rendered luminous partly by reflected sunlight, partly by phosphorescence, and partly by electrical action.

With the increasing number of observatories at high altitudes it may fairly be hoped that before long astronomers will be put in possession of such definite measurements as will enable some at least of the points still under discussion to be finally settled, and that far more accurate observations will soon be available on which to construct a satisfactory theory.

ZOHAR. See KABBALAH.

ZÖLLNER, JOHANN CARL FRIEDRICH, astronomer and physicist, was born at Berlin, November 8, 1834. From 1872 he held the chair of astrophysics at Leipsic university. He is the author of numerous papers on photometry and spectrum analysis in *Poggendorff's Annalen und Berichte der k. sächsischen Gesellschaft der Wissenschaften*, of two works on astronomical photometry (*Grundzüge einer allgemeinen Photometrie des Himmels*, Berlin, 1861, and *Photometrische Untersuchungen*, Leipsic, 1865), and of a very strange book, *Ueber die Natur der Cometen* (Leipsic, 1872). He died at Leipsic, April 25, 1882.

ZOLLVEREIN (Ger., meaning "customs-union") a union of different independent states, under the leadership of Prussia, so as to enable them, in their commercial relations with other countries to act as one state. When, after the war of liberation in 1815, the political union, destroyed by the downfall of the "holy Roman Empire," had been restored to certain degree in the German "Bund" (see Germany), internal commerce was felt to be trammelled and depressed by the collection of revenue at the frontiers of every petty state; nor was it possible, without united action, to carry out the policy in regard to foreign commerce which might be thought best for protecting and developing the native trade and manufactures. The first suggestion of such a union came from Prussia; but it took many years before an actual beginning was made, and still longer before it reached its ultimate extent, as the plan was opposed for a long time by the jealousies and special interests of many of the states.

From 1819 to 1828 only some of the minor principalities inclosed within the Prussian territories had been got to conform to the Prussian commercial system; but in 1828 Hesse-Darmstadt, and in 1831 Hesse-Cassel, gave in. This was followed, in 1833, by the accession of Bavaria, Württemberg, the kingdom of Saxony, the principality of the same name, Schwarzburg, and Reuss; and in 1835-36, by that of Baden, Nassau, and Frankfurt on the Main. The adhesion of Hanover did not take place till 1851, of Oldenburg till 1852. When in 1868 Lubeck and the two duchies of Mecklenburg had joined the Zollverein, its territory extended over the whole of what subsequently became the German Empire, with the exception of Hamburg, Bremen, and a small part of Baden near Schaffhausen. The Reichsland of Alsace-Lorraine was incorporated in 1871. The imperial constitution of April 16, 1871, recognizes and ratifies the privilege of the free ports, so to remain until "they themselves demand admittance within the common customs-boundary."

The principle of the Zollverein's action was this: The whole territory embraced by the Union formed commercially (in regard at least, to countries beyond its limits) one state. The duties on exports, imports, and through transports were collected at all the frontiers of the Union, according to a uniform tariff (subject to some concessions, made on special grounds, to individual states); and the proceeds, after paying the expenses of collection, were divided among the members of the Union in proportion to their several populations. In regard to the internal trade of the Union, as the duties on articles manufactured for home consumption were different in the different states, a complicated system of drawbacks came into play, in order to put the commerce of all on an equal footing.

The treaty of Union was agreed upon for a definite period of years, and was renewed from time to time; as in 1842, 1853, 1865, 1867. In the latter year much was done to simplify the relations of the various states to one another in respect of internal trade, and the administration of the Zollverein was so modified as to give to the various members of the Union votes in its council and parliament proportionate to the number of inhabitants in each state. Since the establishment of the German Empire, the Zollverein has no longer a separate constitution of its own. The council (representing governments) is merged in the Federal Council of the Empire; its parliament (representing populations) in the Reichstag. Affairs are managed on the principles adopted by the Zollverein in 1867, by permanent committees of the Federal Council, viz.: those for customs and taxes, for trade and commerce, and for finance.

ZOMBOR, a royal free city of Hungary, the capital of the county of Bács-Bodrog, lies about 120 miles south of Budapest in a fertile plain, on the Francis canal that connects the Danube and the Theiss. The town has some fine streets and squares, and several handsome buildings, among which may be mentioned the county and town halls, the theater, and the Roman Catholic and Greek churches. Zombor is a station on the Alföld-Fiume railway and the center of the grain and cattle trade of an extensive area. The population numbered 24,693 in 1880 and about 35,000 in 1900.

ZONARAS, JOHANNES, historian and theologian, flourished at Constantinople in the twelfth century. Under Alexius I. Comnenus he held the offices of commander of the bodyguard and private secretary to the emperor, but in the succeeding reign he retired to Mount Athos, where he spent the rest of his life in writing his books. He is said to have lived to the age of eighty-eight.

**ZOOLOGY.** The branch of science to which the

name zoölogy is strictly applicable may be defined as that portion of biology which relates to animals, as distinguished from that portion which is concerned with plants.

The history of zoölogy as a science is the history of the great biological doctrine of the evolution of living things by the natural selection of varieties in the struggle for existence—since that doctrine is the one medium whereby all the phenomena of life, whether of form or function, are rendered capable of explanation by the laws of physics and chemistry, and so made the subject-matter of a true science or study of causes.

*History.*—The early collectors of natural curiosities were the founders of zoölogical science, and to this day the naturalist-traveler and his correlative, the museum curator and systematist, play a most important part in the progress of zoölogy. Anatomy and the study of animal mechanism, animal physics, and animal chemistry, all of which form part of a true zoölogy, have been excluded from the usual definition of the word by the mere accident that the zoölogist of the last three centuries has had his museum but has not had his garden of living specimens as the botanist has had, and while the zoölogist has thus for a long time been deprived of the means of anatomical and physiological study—only supplied within the past century by the method of preserving animal bodies in alcohol—the demands of medicine for a knowledge of the structure of the human animal have in the meantime brought into existence a separate and special study of human anatomy and physiology.

Whatever may be the history of the word "physiology," the true history of zoölogy as a science lies within the last three centuries; and, while the theories and fables which were current in earlier times in regard to animal life and the various kinds of animals form an important subject of study from the point of view of the history of the development of the human mind, they really have no bearing upon the history of scientific zoölogy.

The first founded of surviving European academies, the Academia Naturæ Curiosorum (1651), especially confined itself to the description and illustration of the structure of plants and animals. Eleven years later (1662) the Royal Society of London was incorporated by royal charter, having existed without a name or fixed organization for seventeen years previously (from 1645). A little later the Academy of Sciences of Paris was established by Louis XIV. The influence of these great academies of the seventeenth century on the progress of zoölogy was precisely to effect that bringing together of the museum men and the physicians or anatomists which was needed for further development. While the race of collectors and systematizers culminated in the latter part of the eighteenth century in Linnæus, a new type of student made its appearance in such men as John Hunter and other anatomists, who, not satisfied with the superficial observations of the popular "zoölogists," set themselves to work to examine anatomically the whole animal kingdom, and to classify its members by aid of the results of such profound study.

It was not until the nineteenth century that the microscope, early applied by Leeuwenhoek, Malpighi, Hook, and Swammerdam to the study of animal structure, was perfected as an instrument, and accomplished for zoölogy its final and most important service, and led to a full comprehension of the great doctrine of cell-structure and the establishment of the facts—(1) that all organisms are either single corpuscles (so-called cells) of living material (microscopic animalcules, etc.) or are built up of an immense number of such units; (2)



that all organisms begin their individual existence as a single unit or corpuscle of living substance, and (3) that the life of a multicellular organism is the sum of the activities of the corpuscular units of which it consists, and that the processes of life must be studied in and their explanation obtained from an understanding of the chemical and physical changes which go on in each individual corpuscle or unit of living material or protoplasm (cell-theory of Schwann). But it was reserved for Charles Darwin, in the year 1859, to place the whole theory of organic evolution on a new footing, and by his discovery of a mechanical cause actually existing and demonstrable, by which organic evolution must be brought about to entirely change the attitude in regard to it of even the most rigid exponents of the scientific method. Since its first publication in 1859, the history of Darwin's theory has been one of continuous and decisive conquest, so that at the present day it is universally accepted as the central, all-embracing doctrine of zoological and botanical science.

Darwin succeeded in establishing the doctrine of organic evolution by the introduction into the web of the zoological and botanical sciences of a new science. This branch of biological science may be called thremmatology (*θρέμμα*, "a thing bred"). Darwin's introduction of thremmatology into the domain of scientific biology was accompanied by a new and special development of a branch of study which had previously been known as teleology, the study of the adaptation of organic structures to the service of the organisms in which they occur. Teleology in this form of the doctrine of design was never very deeply rooted among scientific anatomists and systematists. It was considered permissible to speculate somewhat vaguely on the subject of the utility of this or that startling variety of structure; but few attempts, though some of great importance, were made to systematically explain by observation and experiment the adaptation of organic structures to particular purposes in the case of the lower animals and plants. Teleology had, however, an important part in the development of what is called physiology, viz., the knowledge of the mechanism, the physical and chemical properties, of the parts of the body of man and the higher animals allied to him.

The old doctrine of types which was used by the philosophically-minded zoologists (and botanists) of the first half of the century as a ready means of explaining the failures and difficulties of the doctrine of design, fell into its proper place under the new dispensation.

Thus not only did Darwin's theory give a new basis to the study of organic structure, but, while rendering the general theory of organic evolution equally acceptable and necessary, it explained the existence of low and simple forms of life as survivals of the earliest ancestry of more highly complex forms, and revealed the classifications of the systematist as unconscious attempts to construct the genealogical tree or pedigree of plants and animals.

**NATURE AND SCOPE OF ZOÖLOGY.**—The brief historical outline above given is sufficient to justify us in rejecting, for the purposes of an adequate appreciation of the history and scope of zoölogy, that simple division of the science into morphology and physiology which is a favorite one at the present day.

A more instructive subdivision of the science of animal biology or zoölogy is one which shall correspond to the separate currents of thought and mental preoccupation which have been historically manifested in western Europe in the gradual evolution of what is today the great river of zoölogical doctrine to which they have all been rendered contributory.

We accordingly recognize the following five branches of zoölogical study:—

1. *Morphography.*—The work of the collector and systematist: exemplified by Linnæus and his predecessors, by Cuvier, Agassiz, Haeckel.
2. *Bionomics.*—The lore of the farmer, gardener, sportsman, fancier, and field-naturalist, including thremmatology, or the science of breeding, and the allied teleology, or science of organic adaptations: exemplified by the patriarch Jacob, the poet Virgil, Sprengel, Kirby and Spence, Wallace, and Darwin.
3. *Zoo-Dynamics, Zoo-Physics, Zoo-Chemistry.*—The pursuit of the learned physician—anatomy and physiology: exemplified by Harvey, Haller, Hunter, Johann Müller.
4. *Plasmology.*—The study of the ultimate corpuscles of living matter, their structure, development, and properties, by the aid of the microscope: exemplified by Malpighi, Hook, Schwann, Kowalewsky.
5. *Philosophical Zoölogy.*—General conceptions with regard to the relations of living things (especially animals) to the universe, to man, and to the Creator, their origin and significance: exemplified in the writings of the philosophers of classical antiquity, and of Linnæus, Goethe, Lamarck, Cuvier, Lyell, H. Spencer, and Darwin.

**MORPHOGRAPHY.**—Under this head we include the systematic exploration and tabulation of the facts involved in the recognition of all the recent and extinct kinds of animals and their distribution in space and time. (1) The museum-makers of old days and their modern representatives the curators and describers of zoölogical collections, (2) early explorers and modern naturalist-travelers and writers on zoo-geography, and (3) collectors of fossils and palæontologists are the chief varieties of zoölogical workers coming under this head. The real dawn of zoölogy after the legendary period of the Middle Ages is connected with the name of an Englishman, Wotton, born at Oxford in 1492, who practiced as a physician in London and died in 1555. He published a treatise *De Differentiis Animalium* at Paris in 1552. In many respects Wotton was simply an exponent of Aristotle, whose teaching, with various fanciful additions, constituted the real basis of zoölogical knowledge throughout the Middle Ages. Wotton follows Aristotle in the division of animals into the *Enema* and the *Anama*, and in fact in the recognition of all the groups above given, adding only one large group to those recognized by Aristotle under the *Anama*, namely, the group of *Zoöphyta*, in which Wotton includes the *Holothuria*, Star-Fishes, *Medusæ*, Sea-Anemones, and Sponges. Wotton divides the viviparous quadrupeds into the many-toed, double-hoofed, and single-hoofed. By the introduction of a method of classification which was due to the superficial Pliny—viz., one depending, not on structure, but on the medium inhabited by an animal, whether earth, air, or water—Wotton is led to associate Fishes and Whales as aquatic animals.

Conrad Gesner (1516–1565), who was a physician and held professorial chairs in various Swiss cities, is the most voluminous and instructive of these earliest writers on systematic zoölogy, and was so highly esteemed that his *Historia Animalium* was republished a hundred years after his death. His great work appeared in successive parts—e.g., *Vivipara, Ovipara, Aves, Pisces, Serpentes et Scorpio*—and contains descriptions and illustrations of a large number of animal forms with reference to the lands inhabited by them. The exploration of parts of the New World next brought to hand descriptions and specimens of many novel forms of animal life, and, in the latter part of the sixteenth



century and the beginning of the seventeenth, that careful study by "specialists" of the structure and life-history of particular groups of animals was commenced, which, directed at first to common and familiar kinds, was gradually extended until it formed a sufficient body of knowledge to serve as an anatomical basis for classification. This minuter study had two origins, one in the researches of the medical anatomists, such as Fabricius (1537-1619), Severinus (1580-1656), Harvey (1578-1657), and Tyson (1649-1708), the other in the careful work of the entomologists and first microscopists, such as Malpighi (1628-1694), Swammerdam (1637-1680), and Hook (1635-1702).

The most prominent name between that of Gesner and Linnaeus in the history of systematic zoology is that of John RAY (*q.v.*) Associated with Ray in his work, and more especially occupied with the study of the Worms and *Mollusca*, was Martin Lister (1638-1712), who is celebrated also as the author of the first geological map. After Ray's death in London in 1705 the progress of anatomical knowledge, and of the discovery and illustration of new forms of animal life from distant lands, continued with increasing vigor. Two years after Ray's death Carl LINNÆUS (*q.v.*) was born. Unlike Jacob Theodore Klein (1685-1759), whose careful treatises on various groups of plants and animals were published during the period between Ray and Linnaeus, the latter had his career marked out for him in a university, that of Upsala, where he was first professor of medicine and subsequently in natural history. Linnaeus taught zoology and botany as branches of knowledge to be studied for their own intrinsic interest. His great work, the *Systema Naturæ*, ran through twelve editions during his lifetime (first edition 1735, twelfth 1768). He adopted Ray's conception of species, but he made species a practical reality by insisting that every species shall have a double Latin name—the first half to be the name of the genus common to several species, and the second half to be the specific name. Previously to Linnaeus long, many-worded names had been used, sometimes with one additional adjective, sometimes with another, so that no true names were fixed and accepted. Linnaeus by his binomial system made it possible to write and speak with accuracy of any given species of plant or animal. He was, in fact, the Adam of zoological science. He proceeded further to introduce into his enumeration of animals and plants a series of groups, viz., genus, order, class, which he compared to the subdivisions of an army or the subdivisions of a territory, the greater containing several of the less, as follows:—

Class.	Order.	Genus.	Species.	Variety.
Genus sum-	Genus inter-	Genus proxi-	Species.	Individuum.
mum.	medium.	mum.		
Provincia.	Territorium.	Parecia.	Pagus.	Domicilium.
Legio.	Cohors.	Manipulus.	Contubernium.	Miles.

Between Linnaeus and Cuvier there are no very great names; but under the stimulus given by the admirable method and system of Linnaeus, observation and description of new forms from all parts of the world, both recent and fossil, accumulated. The effect of the Linnæan system upon the general conceptions of zoologists was no less marked than were its results in the way of stimulating the accumulation of accurately observed details. LAMARCK (*q.v.*) represents most completely, both by his development theory (to be further mentioned below) and by his scheme of classification, the high-water mark of the popular but fallacious conception of a *scala naturæ*. We have mentioned Lamarck before his great contemporary Cuvier because, in spite of his valuable philosophical doctrine of development, he was, as compared with Cuvier and estimated as a

systematic zoölogist, a mere enlargement and logical outcome of Linnaeus.

The distinctive merit of CUVIER (*q.v.*) is that he started a new view as to the relationships of animals, which he may be said in a large measure to have demonstrated as true by his own anatomical researches. He opposed the *scala naturæ* theory, and recognized four distinct and divergent branches or *embranchemens*, as he called them, in each of which he arranged a certain number of the Linnæan classes, or similar classes. The *embranchemens* were characterized each by a different type of anatomical structure. The leading idea of Cuvier, his four *embranchemens*, was confirmed by the Russo-German naturalist Von Baer (1792-1876), who adopted Cuvier's divisions, speaking of them as the peripheric, the longitudinal, the massive, and the vertebrate types of structure. Von Baer, however, has another place in the history of zoölogy, being the first and most striking figure in the introduction of embryology into the consideration of the relations of animals to one another. Cuvier may be regarded as the zoölogist by whom anatomy was made the one important guide to the understanding of the relations of animals. Lamarck accepted the development theory fully, and pushed his speculations far beyond the realm of fact. The more cautious Cuvier adopted a view of the relationships of animals which, while denying genetic connection as the explanation, recognized an essential identity of structure throughout whole groups of animals. C. F. Wolff, Goethe, and Oken share the credit of having initiated these views, in regard especially to the structure of flowering plants and the Vertebrate skull.

Richard Owen, may be regarded as the foremost of Cuvier's disciples. Owen not only occupied himself with the dissection of rare animals, such as the Pearly Nautilus, *Lingula*, *Limulus*, *Protopterus*, *Apteryx*, etc., and with the description and reconstruction of extinct Reptiles, Birds, and Mammals—following the Cuvierian tradition—but gave precision and currency to the morphological doctrines which had taken their rise in the beginning of the century by the introduction of two terms, "homology" and "analogy." Analogous structures in any two animals compared were by Owen defined as structures performing similar functions, but not necessarily derived from the modification of one and the same part in the "plan" or "archetype" according to which the two animals compared were supposed to be constructed. Homologous structures were such as, though greatly differing in appearance and detail from one another, and though performing widely different functions, yet were capable of being shown by adequate study of a series of intermediate forms to be derived from one and the same part or organ of the "plan-form" or "archetype." Owen's definition of analogous structures holds good at the present day. His homologous structures are now spoken of as "homogenetic" structures, the idea of community of representation in an archetype giving place to community of derivation from a single representative structure present in a common ancestor. Darwinian morphology has further rendered necessary the introduction of the terms "homoplasy" and "homoplastic" to express that close agreement in form which may be attained in the course of evolutionary changes by organs or parts in two animals which have been subjected to similar molding conditions of the environment, but have no genetic community of origin, to account for their close similarity in form and structure. The real center of progress of systematic zoölogy was no longer in France nor with the disciples of Cuvier in England, but after his death moved to Germany.

We have already mentioned Von Baer in this con-



nection, and given a passing reference to Johann MÜLLER (*q.v.*), the greatest of all investigators of animal structure in the present century. Müller (1801-1858) was in Germany the successor of Rathke (1793-1860) and of Meckel (1781-1833) as the leader of anatomical investigation; but his true greatness can only be estimated by a consideration of the fact that he was a great teacher not only of human and comparative anatomy and zoölogy but also of physiology, and that nearly all the most distinguished German zoölogists and physiologists of the period 1850 to 1870 were his pupils and acknowledged his leadership. The most striking feature about Johann Müller's work, apart from the comprehensiveness of his point of view, in which he added to the anatomical and morphological ideas of Cuvier a consideration of physiology, embryology, and microscopic structure, was the extraordinary accuracy, facility, and completeness of his recorded observations.

A name which is apt to be forgotten in the period between Cuvier and Darwin, because its possessor occupied an isolated position in England and was not borne up by any great school or university, is that of John Vaughan Thompson, who was an army surgeon, and when past the age of forty, being district medical inspector at Cork (1830), took to the study of marine *Invertebrata* by the aid of the microscope. Thompson made three great discoveries. He showed that the organisms like *Flustra* are not hydroid Polyps, but of a more complex structure resembling Molluscs, and he gave them the name *Polyzoa*. He discovered the *Pentacrinus europæus*, and showed that it was the larval form of the Feather-Star *Antedon* (*Comatula*). He upset Cuvier's retention of the Cirripedes among Mollusca, and his subsequent treatment of them as an isolated class, by showing that they began life as free-swimming *Crustacea* identical with the young forms of other *Crustacea*.

It is impossible to enumerate or to give due consideration to all the names in the army of anatomical and embryological students of the middle third of this century whose labors bore fruit in the modification of zoölogical theories and in the building up of a true classification of animals. Their results are best summed up in the three schemes of classification which follow below—those of Rudolph Leuckart (b. 1823), Henri Milne-Edwards (1800-1884), and T. H. Huxley (b. 1825), all of whom individually contributed very greatly by their special discoveries and researches to the increase of exact knowledge.

We now arrive at the period when the doctrine of organic evolution was established by Darwin. Many zoölogists—prominent among them in Great Britain being Huxley—had been repelled by the airy fancies and assumptions of the "philosophical" morphologists. From time to time efforts were made by those who believed that the Creator must have followed a symmetrical system in his production of animals to force one or other artificial, neatly balanced scheme of classification upon the zoölogical world. The last of these was that of Louis Agassiz (*Essay on Classification*, 1859), who, while surveying all previous classifications, propounded a scheme of his own, in which, as well as in the criticisms he applies to other systems, the leading notion is that sub-kingdoms, classes, orders, and families have a real existence, and that it is possible to ascertain and distinguish characteristics which are of class value, others which are only of ordinal value, and so on, so that the classes of one sub-kingdom should on paper, and in nature actually do, correspond in relative value to those of another sub-kingdom, and the orders of any one class similarly should be so taken as to be of equal value with those of another class, and have been actually so created. The whole position was changed

by the acquiescence, which became universal, in the doctrine of Darwin. That doctrine took some few years to produce its effect, but it became evident at once to those who accepted Darwinism that the natural classification of animals, after which collectors and anatomists, morphologists, philosophers, and embryologists had been so long striving, was nothing more nor less than a genealogical tree, with breaks and gaps of various extent in its record.

The first naturalist to put into practical form the consequences of the new theory, in so far as it affected zoölogical classification, was Ernst Haeckel of Jena (b. 1834), who in 1866, seven years after the publication of Darwin's *Origin of Species*, published his suggestive *Generelle Morphologie*. Haeckel introduced into classification a number of terms intended to indicate the branchings of a genealogical tree. The whole "system" or scheme of classification was termed a genealogical tree (*Stammbaum*); the main branches were termed "phyla," their branchings "sub-phyla"; the great branches of the sub-phyla were termed "cladi," and the "cladi" divided into "classes," these into sub-classes, these into legions, legions into orders, orders into sub-orders, sub-orders into tribes, tribes into families, families into genera, genera into species. Haeckel's classification of 1866 was naturally enough only a first attempt. In the edition of the *Natürliche Schöpfungsgeschichte*, published in 1868, he made a great advance in his genealogical classification, since he now introduced the results of the extraordinary activity in the study of embryology which followed on the publication of the *Origin of Species*. The pre-Darwinian systematists since the time of Von Baer had attached very great importance to embryological facts, holding that the stages in an animal's development were often more significant of its true affinities than its adult structure. Von Baer had gained unanimous support for his dictum. But it was only after Darwin that the cell-theory of Schwann was extended to the embryology of the animal kingdom generally, and that the knowledge of the development of an animal became a knowledge of the way in which the millions of cells of which its body is composed take their origin by fission from a smaller number of cells, and these at last from the single egg-cell. Kölliker, Remak, and others had laid the foundations of this knowledge in isolated examples; but it was Kowalewsky, by his accounts of the development of Ascidians and of *Amphioxus* (1866), who really made zoölogists see that a strict and complete cellular embryology of animals was as necessary and feasible a factor in the comprehension of their relationships as at the beginning of the century the coarse anatomy had been shown to be by Cuvier.

One result of the introduction of the new conceptions dating from Darwin has been a healthy reaction from that attitude of mind which led to the regarding of the classes and orders recognized by authoritative zoölogists as sacred institutions which were beyond the criticism of ordinary men. To deny the Linnæan, or later the Cuvierian, classes was very much like denying the Mosaic cosmogony. At the present time systematic zoölogy is entirely free from any such prejudices, and the Linnæan taint which is apparent even in Haeckel and Gegenbaur may be considered as finally expunged.

We have now traced the history of the morphography of animals so as to show that increasingly in successive epochs independent branches of knowledge have been brought to bear on the consideration of the main problem. Before glancing at the history of the remaining branches of zoölogical science, which have had an independent history while ultimately contributory to taxonomy and morphography, it may be briefly pointed out that the accumulation of knowledge with regard to



the distribution of animal forms on the earth's surface and in the seas has progressed simultaneously with the discrimination of the mere forms of the species themselves. Alfred Russell Wallace stands prominently forward as a naturalist-traveler who, by his observations, chiefly on Lepidopterous Insects, in both South America and the Malay Archipelago, was led to the conclusion that a production of new species is actually going on, and that, too, by means of a process of natural selection of favorable variations. The facts of the geographical distribution of animals were systematized, and great zoo-geographical provinces first clearly recognized, by P. L. Sclater in 1857. The application of the Darwinian theory to the facts tabulated by Sclater, has led to a full explanation of the migrations of terrestrial animals, and has furnished a striking corroboration of the sufficiency of the doctrine of organic evolution, as reformed by Darwin, to account for all the phenomena of zoölogy.

The study of the marine fauna by means of the dredge and trawl had been enthusiastically prosecuted by British, French, and Scandinavian naturalists in the two decades before Darwin's book. The post-Darwinian developments of this line of inquiry have been two. In the first place, dredging and trawling have been extended by the aid of steamships of the Norwegian, British, American, French, and Italian navies into greater depths than were previously supposed to contain living things. New species and genera, and a vast extension of knowledge as to distribution, have been the outcome of these expeditions, connected with the names of G. O. Sars and Danielsen in Norway, of Alex. Agassiz in America, and of Carpenter and Wyville Thomson in Great Britain. It is worthy of note that the practical demand for sounding the Atlantic in connection with the laying of the first deep-sea telegraph-cable is what led to these explorations, the first recognition of life at these great depths in the ocean being due to Doctor Wallich, who accompanied a sounding expedition in 1860 to the North Atlantic, and to Professor Fleeming Jenkin, who in the same year acted as engineer in raising the submarine cable between Sardinia and Africa, upon which living corals were found. In the second place, the study of marine zoölogy has, since the publication of the *Origin of Species*, been found to require more complete arrangements.

Seaside laboratories have come into existence; the first was founded in France by Coste (1859) at Concarneau (Brittany), again with the practical end in view, viz., the study of food-fishes with an aim to pisciculture. The largest and best supported pecuniarily is that founded at Naples by Anton Dohrn in 1872; others exist at Trieste, Villefranche, Cette, and at New Haven and Beaufort in the United States, while a large laboratory, on a scale to compare with that at Naples, has been opened at Plymouth by the Marine Biological Association of the United Kingdom.

Another result of the stimulus given to zoölogical research by Darwin's work is the undertaking of voyages to distant lands by skilled anatomists for the purpose of studying on the spot, and with all the advantages of abundant and living material; the structure, and especially the embryology, of rare and exceptionally interesting forms of animal life. The most important of these voyages has been that of W. H. Caldwell, of Cambridge, to Australia (1885-86) for the purpose of studying the embryology of the *Monotremata* and of *Ceratodus*, the fish-like *Dipnoan*, which has resulted in the discovery that the *Monotremata* are oviparous. Similarly Adam Sedgwick proceeded to the Cape in order to study *Peripatus*, Bateson to the coast of Maryland to study *Balanoglossus*, and the brothers

Sarassin to Ceylon to investigate the embryology of the *Cacilia*.

**ZOO-MECHANICS, ZOO-PHYSICS, ZOO-CHEMISTRY.**—The development of that knowledge of the structure of the human body, and of the chemical and physical processes going on in it, which is necessary for the purposes of the medical art, forms a distinct history, which has both influenced and been influenced by that of other branches of zoölogy.

Physiological anatomy or anatomical physiology has its beginnings in Aristotle and other observers of antiquity. The later Græco-Roman and the Arabian physicians carried on the traditional knowledge and added to it. Galen dominated the Middle Ages. The modern development begins with Harvey and with the Italian school in which he studied. The history of the discovery of the circulation of the blood and of the controversies connected with it gives an interesting and sufficient presentation of the anatomico-physiological knowledge of the period (see HARVEY). The foundation of the scientific academies and the records of their publications furnish thenceforward a picture of the progress in this study.

Marcello Malpighi (1628-1694) and Anton van Leeuwenhoek (1632-1723) were the first to introduce the microscope into anatomical research. Leeuwenhoek discovered the red blood corpuscles of Vertebrates, saw the circulation in the capillaries of the Frog's foot, described the fibrillar structure and cross-stripping of muscular fiber, the tubular structure of dentine, the scales of the epidermis, the fibers of the lens, and the spermatozoa, these last having been independently discovered at Leyden in 1677 by Ludwig Ham of Stettin. The spermatozoa were regarded by the "animalculists" as the fully formed but minute young which had to be received in the egg, in order to be nourished and increase in size, and were hailed as a decisive blow to Harvey's doctrine of epigenesis and his dictum "omne vivum ex ovo." Albrecht von Haller was the champion of the so-called "evolutionists" in the eighteenth century, better called "præformationists." Haller wrote, "There is no such thing as development! No part of the animal body is made before another; all are simultaneously created." A corollary of this doctrine was that the germ contains the germs of the next generation, and these of the next, and so *ad infinitum*. It was calculated that Eve at her creation thus contained within her 200,000,000,000 of human germs. This was the view of the "ovists," who regarded the egg as the true germ, while the "animalculists," who regarded the spermatozoön as the essential germ, would have substituted Adam for Eve in the above calculation.

Albrecht von Haller (1708-1777) was the first to apply experimental methods to the determination of the functions of the various organs made known by anatomists, and from him we may trace a bifurcation in the tendencies of medical men who occupied themselves with the study of the structure and functions of the animal organism. John Hunter (1728-1793) is the most striking figure of this epoch in the relation of medicine to general zoölogical progress. The preservation of his museum in Lincoln's Inn Fields, London, by the combined action of the state and the Royal College of Surgeons, is an abiding record of the historical progress of biological science. Hunter collected, dissected, and described not only higher but lower animals, with the view of arriving at a knowledge of the function of organs by the most extensive and systematic survey of their modifications in all kinds of animals. His purpose was that of the physiologist and medical man, but he made great contributions to the general knowledge of animal structure. The same class of investigations,



when taken up by Cuvier from the point of view of systematic zoölogy and morphology, led to a reconstruction of classification, and laid the foundation of anatomical zoölogy.

The great progress of chemistry at the end of the eighteenth and the beginning of the nineteenth century was followed by an application of chemical laws and chemical methods to the study of animal life. The purely anatomical side of physiological progress is marked in the beginning of the nineteenth century by the work of Bichat (1771-1802), who distinguished by naked-eye characteristics the different structural materials of which the organs of man and the higher animals are built, and thus founded in first outline the science of histology. To a considerable extent the chemical composition and properties of the tissues, and the chemical nature of the various changes of life and of putrefaction after death, had been investigated, but one step was yet to be taken which brings the study of ultimate structure, chemical activity, form, and the formation of form to a single focus. This was taken by Theodore Schwann (1810-1881), who in 1839 published his epoch-making cell-theory. The cell-theory for which he is famous is this, that the substance of the individual cell is the seat of those chemical processes which seen *en masse* we call life, and the differences in the properties of the different tissues and organs of animals and plants depend on a difference in the chemical and physical activity of the constituent cells, resulting in a difference in the form of the cells and in a concomitant difference of activity. Schwann thus pointed to the microscopic cell-unit as the thing to be studied in order to arrive at a true knowledge of the processes of life and the significance of form. He spent a large part of the next forty years in an attempt to penetrate further into the structure of cell-substance; he hoped to be able to find in cell-substance ultimate visible molecules, a knowledge of the arrangement and characteristics of which would explain the varying properties of protoplasm.

From Schwann's time onward the cell became more and more the point of observation and experiment in the progress of both morphology and physiology. It was soon shown, chiefly through Kölliker and Remak, that all cells originate by fission from preëxisting cells—a fact unknown to Schwann—and the doctrine "omnis cellula e cellula" was established. It was also demonstrated that the Mammalian egg discovered by Von Baer was a typical nucleated cell, and that all animals, and plants also, take their origin from an egg, which is in essence and in fact a single nucleated cell. The doctrine of Harvey, "omne vivum ex ovo," thus received its most ample justification.

The knowledge of the anatomical facts of cellular development and cellular structure necessarily gave immensely increased precision to the notion of gradation of structure in the animal series from simple to complex, and rendered Darwin's doctrine the more readily accepted.

Similarly cellular physiology, by establishing the conception of a simple optically homogeneous cell-substance as the seat of the activities which we call "life," rendered it possible to accept the suggestion of a simple "substance of life" which might have been evolved from simpler non-living matter by natural processes depending on physical and chemical laws. It is noteworthy that Darwin himself appears not to have been influenced directly by any such physiological or chemico-physical doctrine as to "protoplasm" or cell-substance. Protoplasm was applied by Von Mohl and by Max Schultze to the slimy substance of the cell, including therein both the general thinner material and the nucleus. It is, as Roscoe remarked at Manchester (*Brit. Ass. Ad-*

*dress*, 1887), a structure and not a chemical body. Nevertheless gradually physiologists have come to use the word "protoplasm" for one of the chemical substances of which Schultze's protoplasm is a structural mixture—namely, that highest point in the chemical elaboration of the molecule which is attained within the protoplasm, and up to which some of the chemical bodies present are tending, while others are degradation products resulting from a downward metamorphosis of portions of it.

#### GENERAL TENDENCY OF ZOÖLOGY SINCE DARWIN.

—The serious and broadly-based study of bionomics which was introduced by Darwin, and in his hands gave rise to the doctrine of natural selection, by which the hypothesis of the origin of species by gradual transmutation in the natural process of descent from ancestral forms was established as a scientific doctrine, can hardly be said to have had any history.

The full influence of Darwin's work upon the progress and direction of zoölogical study has not yet been seen. The *immediate* result has been a reconstruction of the classification of animals upon a genealogical basis, and an investigation of the individual development of animals in relation to the steps of their gradual building up by cell-division, with a view to obtaining evidence of their genetic relationships. On the other hand, the studies which occupied Darwin himself so largely subsequently to the publication of the *Origin of Species*, viz., the explanation of animal (and vegetable) mechanism, coloring, habits, etc., as advantageous to the species or to its ancestors—in fact, the new teleology—has not yet been so vigorously pursued as it must be hereafter. The most important work in this direction has been done by Fritz Müller (*Für Darwin*), by Herman Müller (*Fertilization of Plants by Insects*), and by August Weismann (memoirs translated by Meldola). More has been done with plants than with animals in this way since Darwin, probably owing to the same cause which has, ever since the revival of learning, given botany a real advantage over zoölogy, namely, the existence of "physick" gardens, now become "botanical" gardens, and the greater ease of management, experiment, and observation in the case of plants than in that of animals. It is true that zoölogical gardens have existed for the last fifty years in all large European cities, but these have always been conducted with a view to popular exhibition; and, even where scientific influences have been brought to bear on their management, they have been those of the morphographer and systematist rather than of the bionomist.

If we turn to the other branch of bionomics, that concerned with the laws of variation and heredity (thremmatology), we find that since Darwin, and independently of his own work, there has been a more obvious progress than in teleology. This is not the fitting place in which to give a sketch of the doctrines and hypotheses of thremmatology. They may be gathered from Darwin's writings, more especially the *Origin of Species* and *Animals and Plants under Domestication*. They relate to the causes of variation in animals and plants, the laws of the transmission of parental characteristics, the share of each parent in the production of the characteristics of the offspring, atavism, and the relations of young to parents as to number, sex, nourishment, and protection.

An important development of Darwin's conclusions is actually in progress and deserves special notice here, as it is the most distinct advance in the department of bionomics since Darwin's own writings, and at the same time touches questions of fundamental interest. The matter strictly relates to the consideration of the "causes of variation," and is as follows.



The fact of variation is a familiar one. No two animals, even of the same brood, are alike: while exhibiting a close similarity to their parents, they yet present differences, sometimes very marked differences, from their parents and from one another. Lamarck had put forward the hypothesis that structural alterations acquired by a parent in the course of its life are transmitted to the offspring. In its turn, being operated upon by the conditions of life, it would acquire a greater development of the same modification, which it would in turn transmit to its offspring. The familiar illustration of Lamarck's hypothesis is that of the giraffe, whose long neck might, he suggested, have been acquired by the efforts of a primitively short-necked race of herbivores, who stretched their necks to reach the foliage of trees in a land where grass was deficient, the effort producing a distinct elongation in the neck of each generation, which was then transmitted to the next. Darwin's great merit was that he excluded from his theory of development any necessary assumption of the transmission of acquired characteristics. He pointed to the admitted fact of congenital variation, and he showed that these variations to all intents and purposes have nothing to do with any characteristics acquired by the parents, but are arbitrary and, so to speak, non-specific.

The new attitude which has been taken since Darwin on this question is to ask for evidence of this asserted transmission of acquired characteristics. It is held that the Darwinian doctrine of selection of fortuitous congenital variations is sufficient to account for all cases, that the Lamarckian hypothesis of transmission of acquired characteristics is not supported by experimental evidence, and that the latter should therefore be dismissed. The one fact which the Lamarckians can produce in their favor is the account of experiments by Brown-Séquard, in which he produced epilepsy in guinea-pigs by section of the large nerves or spinal cord, and in the course of which he was led to believe that in a few rare instances the artificially produced epilepsy was transmitted. This instance does not stand the test of criticism. It is not clear whether the guinea-pigs operated upon had or had not already a constitutional tendency to epilepsy, and it is not clear in what proportion of cases the supposed transmission took place, and whether any other disease accompanied it. On the other hand, the vast number of experiments in the cropping of the tails and ears of domestic animals, as well as of similar operations on man, are attended with negative results.

The relation of Darwinism to general philosophy and of the history of zoology to philosophical doctrines is one of the most interesting chapters which might be written on the subject of this article. It belongs, however, rather to the history of philosophy than to that of zoology. So far as philosophy affected the study of zoology in the beginning of the modern period, its influence was felt in the general acceptance of what has been called the Miltonic cosmogony. It was not until the end of the eighteenth century that Schelling (as quoted above) conceived that unity of nature and general law of development which is now called the doctrine of evolution.

In England Erasmus Darwin (*Zoönomia*, published in 1794-96), in France Lamarck (*Philosophie Zoologique*, 1809) and Geoffroy Saint-Hilaire (*Principes de Philosophie Zoologique*, 1830), and in Germany Oken (*Lehrbuch der Natur-Philosophie*, 1809-11), Goethe (*Zur Natur Wissensch.*, Stuttgart, 1817), and Treviranus (*Biologie*, 1802-5) were the authors of more or less complete systems of a philosophy of nature in which living things were regarded as the outcome of natural law, that is, of the same general processes which had produced the inanimate universe.

Darwin, by his discovery of the mechanical principle of organic evolution, namely, the survival of the fittest in the struggle for existence, completed the doctrine of evolution, and gave it that unity and authority which was necessary in order that it should reform the whole range of philosophy. The detailed consequences of that new departure in philosophy have yet to be worked out. Its most important initial conception is the derivation of man by natural processes from ape-like ancestors, and the consequent derivation of his mental and moral qualities by the operation of the struggle for existence and natural selection from the mental and moral qualities of animals. Not the least important of the studies thus initiated is that of the evolution of philosophy itself. Zoology thus finally arrives through Darwin at its crowning development; it touches and may even be said to comprise the history of man, sociology, and psychology.

ZOROASTER, one of the great teachers of the East, the founder of what was the national religion of the Perso-Iranian people from the time of the Achæmenidæ to the close of the Sasanian period. The name (*Ζωροάστρης*) is the Greek form of the old Iranian *Zarathushtra* and the new Persian *Zardush*; it seems to mean "possessor of old camels." Zoroaster was already famous in classical antiquity as the founder of the widely renowned wisdom of the Magi. The later Greek writers place him with almost one consent in the east of Iran, and more particularly in Bactria.

Ancient writers differ greatly as to Zoroaster's date. Ctesias, as we have seen, makes him a contemporary of Semiramis. Hermippus of Smyrna places him 5,000 years before the Trojan War, Xanthus 6,000 years before Xerxes. Aristotle assigned him a similar antiquity. Agathias remarks (ii. 24) with perfect truth that it is no longer possible to determine with any certainty when he lived and legislated. "The Persians," he adds, "say that Zoroaster lived under Hystaspes. But, whatever may have been his date, he was their teacher and instructor in the Magian religion." All classical antiquity, however, without a dissentient voice, speaks of Zoroaster as a historical person.

As to the birthplace of Zoroaster, the Avesta is silent. In later tradition two places contended for this honor: the older and more widely spread story made him a native of Rai (Rhagæ) in Media, another of Shîz, the capital of Atropatene, also in Media. It is hard to decide whether both traditions rest merely upon priestly pretensions of a later date or whether one of them is not perhaps authentic. However this may be, the activity of Zoroaster as a teacher is certainly to be placed in the east of Iran. He taught under the reign of a ruler named Vishtâspa, with whom and with whose court he stood in close and friendly relations.

Among the grandees of the court of Vishtâspa mention is made of two brothers Frashaoshtra and Jâmâspa; the latter, according to the later legend, was the minister of Vishtâspa. Zoroaster was nearly related to both; his wife Hvôvi seems to have been their sister, and the husband of her daughter, Pourcusta, was a son of Jâmâspa. His first disciple, Maidhyôimâongha, was a relation; his father was, according to the later Avesta, Pourushaspa, his great-grandfather Haëcataspa, and the ancestor of the whole family Spitama, for which reason Zarathushtra usually bears this surname. His sons and daughters are repeatedly spoken of. His death is, for reasons easily intelligible, nowhere mentioned in the Avesta; in the *Shâh-Nâma* he is said to have been murdered at the altar by the Turanians in the storming of Balkh.

It was a new religion that Zoroaster taught. Usually



he is spoken of as a reformer of the old Iranian faith. The most striking difference between Zoroaster's doctrine of God and the old religion of India lies in this, that, while in the Avesta the evil spirits are called *daēva* (Modern Persian *div*), the Aryans of India, on the other hand, in common with the Italians, Celts, and Letts, gave the name of *dēva* to their good spirits, the spirits of light. An alternative designation for deity in the *Rig-Veda* is *asura*. In the more recent hymns of the *Rig-Veda* and in later India, on the other hand, only evil spirits are understood by *asurās*, while in Iran the corresponding word *ahura* was, and ever has continued to be, the designation of God the Lord, especially of the supreme God, with the epithet of *Mazdāo* (the Wise). The difference proceeded from an old distinction between the ideas *deva* and *asura*. *Asura* is ethically the higher conception, *deva* the lower; *deva* is the vulgar notion of God, *asura* is theosophic. The super-sensuous figure of Varuna is the type of an *asura*, the sensuous figure of Indra the type of a *deva*. The *asuras* thus come to form a distinct group of celestial beings mentioned along with the *devas* (*A.-V.*, 10, 10, 26): they became in rank inferior to the *devas* (*A.-V.*, 6, 86, 3) and receive the designation of *asurā adevās*—*asuras* that are not *devas*; and from this it is but a short step to the "*asuras* that are opposed to the gods." The old contrast between *asura* and *deva* was wrought out and accentuated quite differently on Iranian soil. While in India the entire revolution took place in a bloodless manner wholly within the realm of ideas, the old antithesis led to an open quarrel among the Aryans of Iran. In the background of the picture of Zoroaster's times set before us in the Gāthās we see the people divided between two opposing and hostile cults, the watchwords of which are *ahura* on the one hand and *daēva* on the other.

It is to this period of religious ferment that Zoroaster's appearance on the scene belongs. It is not he who has evoked this religious conflict of parties, as the common assumption is, and just as little is it he who in *Ahura* with the epithet of *Mazdāo* offers a new god to his people. He strikes decisively into the existing struggle, mounts to the position of spiritual leader of the *ahura* party and makes the battle a victory.

**ZOROASTRIAN DOCTRINE.**—The fundamental idea of the Zoroastrian creed is dualistic. At the beginning of things there existed two spirits—*Ahurō Mazdāo* (Ormuzd) and *Angrō Mainyush* (Ahriman)—who represented good and evil (*Yasna*, 30, 3). The existence of evil in the world is thus presupposed from all eternity. Both spirits possess creative power, which manifests itself in the one positively, and in the other negatively. Ormuzd is light and life and all that is pure and good—in the ethical world law, order, and truth; his antithesis is darkness, filth, death, all that is evil in the world, lawlessness, and lies. As soon as the two at first absolutely separate spirits (comp. *Bundahish*, 1, 4) encounter one another, their creative activity and at the same time their permanent conflict begin. The history of this conflict is the history of the world. The field of battle is the present world. In the center of battle is man; his soul is the object of the war. Man is a creation of Ormuzd, who therefore has the right to call him to account. But Ormuzd created him free in his determinations and in his actions, therefore he is accessible to the influences of the evil powers. Man takes part in this conflict by all his life and activity in the world. By a true confession of faith, by every good deed, by continually keeping pure his body and his soul, he impairs the power of Satan and strengthens the might of goodness, and establishes a claim for reward upon Ormuzd; by a false confession, by every evil deed and defilement, he increases the evil and renders service to Satan.

The life of man falls into two parts—its earthly portion and that which is lived beyond the grave. The lot assigned to him after death is the result and consequence of his life upon earth. No religion has so clearly grasped the ideas of guilt and of merit. On the works of men here below a strict reckoning will be held in heaven. All thoughts, words, and deeds of each are entered in the book as separate items (*dāthra*, *Y.*, 31, 14; *Vend.*, 19, 27), all the evil works as debts (*ishudō*). Wicked actions cannot be undone, but in the heavenly account can be counterbalanced by a surplus of good works. It is only in this sense that an evil deed can be atoned for by a good one. Of a remission of sins the doctrine of Zoroaster knows nothing. After death the soul arrives at the *cinvalo peretush* or accountant's bridge over which lies the way to heaven. Here the statement of his life account is made out. If he has a balance of good works in his favor, he passes forthwith into paradise (*Garō demāna*) and the blessed life. If his evil works outweigh his good he falls finally under the power of Satan, and the pains of hell are his portion forever. Should the evil and the good be equally balanced, the soul passes into an intermediate stage of existence (the *Hamēstakāns* of the Pahlavi books) and his final lot is not decided until the last judgment.

But man has been smitten with blindness and ignorance: he knows neither the eternal law nor the things which await him after death. He allows himself only too easily to be ensnared by the craft of the evil powers who seek to ruin his future existence. He worships and serves false gods, being unable to distinguish between truth and lies. Therefore it is that Ormuzd in his grace determined to open the eyes of mankind by sending a prophet to lead them by the right way, the way of salvation. According to later legend (*Vd.*, 2, 1), Ormuzd at first wished to intrust this task to Yima (Jemshid), the ideal of an Iranian king. But Yima, the secular man, felt himself unfitted for it and declined it. He contented himself therefore with establishing in his paradise (*vara*) a heavenly kingdom in miniature, to serve at the same time as a pattern for the heavenly kingdom that was to come. Zoroaster at last, as being a spiritual man, was found fit for the mission. Zoroaster experienced within himself the inward call to seek the amelioration of mankind and their deliverance from everlasting ruin, and regarded this inward impulse, intensified as it was by means of dreams and visions, as being the call addressed to him by God Himself. Like Mohammed after him he often speaks of his conversations with God.

Zoroaster's teachings show him to have been a man of a highly speculative turn, faithful, however, with all his originality, to the Iranian national character. With zeal for the faith, and boldness and energy, he combined diplomatic skill in his dealings with his exalted protectors. His thinking is consecutive, self-restrained, practical, devoid on the whole of all that might be called fantastic and excessive. His form of expression is tangible and concrete. His system is constructed on a clearly conceived plan.

**History and Later Development of Zoroastrianism.**—For the great mass of the people Zoroaster's doctrine was too abstract and spiritualistic. The religion of Zoroaster, broadly speaking, never spread beyond the limits of Iran, although some isolated Turanian stems can be reckoned among those who profess it. From the east it doubtless passed in the first instance into Media and thence into Persia proper (comp. PERSIA). In the Persians of Herodotus' time we still see the new proselytes who have indeed accepted the creed, but not yet without reserve all the religious usages which accompany it and least of all those which run completely counter

to sacred and immemorial traditions of their time-honored customs.

After the fall of the Achæmenidæ (331 B.C.) Zoroastrianism lost greatly in power and dignity. It was subsequently rehabilitated, however, by the Sasanians, under whom it reached its highest prosperity. Protected by this dynasty, the priesthood developed into a completely organized state church, which was able to employ the power of the state in enforcing strict compliance with the religious law-book hitherto enjoined by their unaided efforts only. The formation of sects was at this period not infrequent (comp. MANICHÆISM). The Mohammedan invasion (636), with the terrible persecutions of the following centuries, was the death-blow of Zoroastrianism. In Persia itself only a few followers of Zoroaster are now found (in Kirman and Yazd). The PARSEES (*q.v.*) in and around Bombay hold by Zoroaster as their prophet and by the ancient religious usages, but their doctrine has reached the stage of a pure monotheism.

ZOSIMUS, a Greek historical writer, held public office at Constantinople some time in the first half of the fifth century. His *History*, which is mainly a compilation from previous authors, consists of six books: the first sketches very briefly the history of the early emperors from Augustus to Diocletian (305); the second, third, and fourth deal more copiously with the period from the accession of Constantius and Galerius to the death of Theodosius; the fifth and sixth cover the period between 395 and 410. The work is apparently unfinished. The style is characterized by Photius as concise, clear, and pure. The historian's object was to account for the decline of the Roman empire from the pagan point of view, and in this undertaking he has at various points treated the Christians with some unfairness.

ZOSIMUS, bishop of Rome from March 18, 417, to December 25, 418, succeeded Innocent I., and was followed by Boniface I. He took a decided part in the protracted dispute in Gaul as to the jurisdiction of the see of Arles over that of Vienne, giving energetic decisions in favor of the former, but without settling the controversy.

ZOSTEROPS, originally the scientific name of a genus of birds founded by Vigors and Horsfield on an Australian species called by them *Z. dorsalis*, but subsequently shown to be identical with the *Certhia cerulea*, and also with the *Sylvia lateralis*, previously described by Latham. Latterly the name has been Anglicized, and applied to a great number of species of little birds which inhabit for the most part the tropical districts of the Old World, from Africa to most of the islands in the Indian and Pacific Oceans, and northward in Asia through India and China to Amurland and Japan. The birds of this group are mostly of unpretending appearance, the plumage above being generally either mouse-colored or greenish olive; but some are sufficiently varied by the white or bright yellow of their throat, breast, or lower parts, and several have the flanks of a more or less lively bay. First described from New South Wales, where it is very plentiful, it had been long known to inhabit all the eastern part of Australia. In 1856 it was noticed by naturalists as occurring in the South Island of New Zealand, when it became known to the Maories by a name signifying "Stranger," and to the English settlers as the "Blight-bird," from its clearing the fruit-trees of a blight by which they had lately been affected. It soon after appeared in the North Island, where it speedily became common, and it has thence not only spread to the Chatham Islands, but has been met with in considerable numbers 300 miles from land, as though in search of new countries to colonize.

Yet this author believes it to be indigenous to the west coast of the South Island, and Sir James Hector joins in that opinion. It is known to propagate at a high rate of increase, and at times numbers have been found dead, apparently for want of food. In any case it is obvious that this *Zosterops* must be a comparatively modern settler in New Zealand.

All the species of *Zosterops* are sociable, consorting in large flocks, which only separate on the approach of the pairing season. They build nests, described as being variously placed—sometimes suspended from a horizontal fork and sometimes fixed in an upright crotch—and lay (so far as is known) pale blue, spotless eggs, thereby differing wholly from several of the groups of birds to which they have been thought allied. Though mainly insectivorous, the birds of this genus will eat fruits of various kinds and in such quantities as to be at times injurious.

The affinities of the genus *Zosterops* are by no means clear. Placed by some writers, if not systematists, with the *Parida* (*cf.* *TITMOUSE*), by others among the *Meliphagide* (*cf.* *HONEY-EATER*), and again by others with the *Nectariniide* (*cf.* *SUNBIRD*), the structure of the tongue, as shown by Doctor Gadow (*Proc. Zool. Society*, 1883, pp. 63, 68, pl. xvi. fig. 2), entirely removes it from the first and third, and from most of the forms generally included among the second. On the whole it seems safest to regard the genus, at least provisionally, as the type of a distinct Family—*Zosteropide*—as Familier go among Passerine birds; but, whether the Australian genera *Meliphreptus* and *Plectorhamphus* (otherwise *Plectorhynchus*) should be included under that heading, as has been done, remains to be proved, and in the meanwhile may be reasonably doubted.

ZOUCH, RICHARD, a distinguished writer on civil and international law, was born at Anstey, Wiltshire, about the year 1590. He was educated at Winchester and afterward at Oxford, where he became a fellow of New College in 1609. In 1613 he published a poem entitled *The Dove, or Passages of Cosmography*. He was admitted at Doctor's Commons in January, 1618, commenced LL.D. in April, 1619, and was appointed regius professor of law at Oxford in 1620. In 1625 he became principal of St. Alban Hall and chancellor of the diocese of Oxford. In 1641 he was made judge of the High Court of Admiralty. Under the Commonwealth, having submitted to the parliamentary visitors, he retained his university appointments, though not his judgeship; this last he resumed at the Restoration, dying soon afterward at his apartments in Doctor's Commons, London, March 1, 1661.

ZOUAVES (Arab, Zwawa), a body of troops in the French army which derives its name from a tribe of Kabyles inhabiting the mountain of Jurjura, in the Algerian province of Constantine. Long previous to the invasion of Algiers by the French, these Kabyles had been employed as hired mercenaries in the service of the rulers of Tripoli, Tunis, and Algiers, and, after the conquest of the last named country in 1830, the French, in the hope of establishing a friendly feeling between the natives and their conquerors, took the late dey's mercenaries into their services, giving them a new organization. Accordingly, General Clausel created, in 1830, two battalions of zouaves, in which each company consisted of French and Kabyles in certain proportions, officers, subalterns, and soldiers being selected from either race. The zouaves, though retaining their Moorish dress, were armed and disciplined after the European fashion, and the battalions were recruited by voluntary enlistment. As it was soon found, however, that the system of commingling the two races did not effect the object intended, the French and Kabyles



were formed into separate companies, and in 1837 they were divided into three battalions, and put under the command of a colonel. Their first colonel was Lamoriciere, who mainly effected their reorganization, and under whom, as well as his successor, CAVIGNAC (*q. v.*), they distinguished themselves in many a bloody conflict with the Arabs of the south.

Gradually, however, the native element was eliminated, and, since 1840, they may be considered as French troops in a Moorish dress. In 1852–1855 their numbers were greatly augmented, and they now amount to upward of 10,000 men, divided into four regiments of four battalions each. They are recruited from veterans of the ordinary infantry regiments, who are distinguished for their fine “physique” and tried courage and hardihood; clad in a loose jacket and waistcoat of dark blue cloth ornamented with yellow braid, loose madder-colored trousers, brown cloak, madder-colored fez cap with a yellow tassel, surrounded by a green turban, a light blue sash of wool, yellow leather leggings, and white gaiters; and armed with a carbine and sword bayonet. The uniform of the officers and subalterns is the same as that of the hussars. When the French and the African elements of the original zouave battalions were separated, the Africans were constituted into a separate body, under the name of Algerian Tirailleurs, a force still recruited in Algiers to form a part (three regiments) of the regular French army. They are better known as the Turcos.

ZSCHOKKE, JOHANN HEINRICH DANIEL, German author, was born at Magdeburg March 22, 1771. He was educated at the cloister school of his native place and at the gymnasium of Altstädt. He created much sensation by two extravagant plays, *Aböllino, der grosse Bandit* (1794), and *Julius von Sassen* (1796), the success of which shows how urgent was the need for the elevating influence of the dramatic writings of Goethe and Schiller. The Prussian Government having declined to make him a full professor, Zschokke in 1795, after some time spent in travel, settled in the Grisons, where, in association with the burgomaster Tschanner, he conducted an educational institution in the castle of Reichenau. The political disturbances compelled him to close his institution; but, being a man of great resource and energy, he was able, during the revolutionary period which now began in Switzerland, to enter upon a new and more important career. He was sent as a deputy to Aarau, where he was made head of the educational department. Afterward he was sent as government commissioner to Unterwalden, and his authority was ultimately extended over the cantons of Uri, Schwyz and Zug. In 1800 he reorganized the institutions of the Italian cantons, and then he became lieutenant-governor of the canton of Basel. In 1801 he attracted attention by his *Geschichte vom Kampfe und Untergange der schweizerischen Berg- und Wald-Cantone*. Through his *Schweizerbote*, the publication of which began in 1804, he exercised a wholesome influence on public affairs; and the like may be said of his *Miscellen der neuesten Weltkunde*, issued from 1807 to 1813. In 1811 he also started a monthly periodical, the *Erheiterungen*. He wrote various historical works, the most important of which is *Des Schweizerlandes Geschichte für das Schweizervolk*, published in 1822. He was also the author of *Bilder aus der Schweiz*, and of a series of popular tales which greatly extended his reputation—*Der Creole*, *Alamontade*, *Jonathan Froch*, *Das Goldmachedorf*, and *Meister Jordan*. Zschokke was not a great original writer, but he secured for himself an eminent place in the literature of his time by his enthusiasm for modern ideas in politics and religion, by the sound, practical judgment displayed in his works,

and by the energy and lucidity of his style. He died June 27, 1848.

ZUCCARO, or ZUCCHERO, the name of two Italian painters.

I. TADDEO ZUCCARO, one of the most popular painters of the so-called Roman mannerist school, was the son of an almost unknown painter at St. Angelo in Vado, called Ottaviano Zuccaro, where he was born in 1529. His first start in life, while only seventeen years old, was due to a pupil of Correggio, named Daniele da Parma. Taddeo returned to Rome in 1548, and began his career as a fresco painter by executing a series of scenes in monochrome from the life of *Furius Camillus* on the front of the palace of a wealthy Roman named Jacopo Mattei. From that time his success was assured, and for the rest of his short life he was largely employed by the popes Julius III. and Paul IV., by Della Rovere, duke of Urbino, and by other rich patrons of art in Rome and elsewhere. His best frescoes were a historical series painted on the walls of a new palace at Caprarola, built for Cardinal Alessandro Farnese, for which Taddeo also designed a great quantity of rich decorations in stucco relief after the style of Giulio Romano and other pupils of Raphael. Taddeo Zuccaro died in Rome in 1566; he is buried in the Pantheon, not far from Raphael.

II. FEDERIGO ZUCCARO, the younger brother and pupil of Taddeo, was born in 1543. In 1550 he was placed under his brother's charge in Rome, and during his lifetime worked as his assistant; he completed the Caprarola frescoes, which were unfinished when Taddeo died in 1566.

Federigo was recalled to Rome by Gregory XIII. to continue in the Pauline chapel of the Vatican the scheme of decoration which had been begun by Michelangelo during his failing years. In 1574 Federigo passed over to England, where his fame was already known, so that he at once received a large number of commissions to paint the portraits of various distinguished persons, among them Queen Elizabeth, Mary Queen of Scots, Sir Nicholas Bacon, Sir Francis Walsingham, Lord High Admiral Howard, and others. After a short exile Federigo was recalled to Rome to finish his work on the vault of the Pauline chapel. In 1585 he was invited by Philip II. of Spain to decorate the new Escorial at a yearly salary of 2,000 crowns. He accepted this offer, and worked at the Escorial from January, 1586, to the end of 1588, when he returned to Rome. He there founded, in 1595, under a charter confirmed by Sixtus V., the Academy of St. Luke, of which he was the first president.

Federigo was raised to the rank of a *cavaliere* not long before his death, which took place at Ancona in 1609.

ZUG, a canton of Switzerland, ranking as eighth in the Confederation. It includes the districts round the Lake of Egeri and on both shores of the northern half of the Lake of Zug, and is the smallest undivided canton both in area and in population. Its total area is 92.3 square miles, 75 of which are classed as productive (forests 12.5), while of the rest 13 are covered with lakes. The highest point in the canton is the Wildspitz (5,191 feet), the culminating peak of the Rossberg ridge. The population was 25,093 in 1900, an increase of 2,072 on that of 1888, the numbers of men and women being nearly equal. German is the native tongue of 22,592, and 21,734 are Roman Catholics. The capital is Zug (4,924 inhabitants in 1880); Baar has a population of 3,896. The territory of Zug is very fertile and the population mainly agricultural. Cattle and fruit are among the chief articles of export, much cider and “kirschwasser” being manufactured. The town of Zug



is connected by railway with Lucerne and Zurich, and a railway is planned to Arth, which will connect Zug directly with the St. Gotthard line. On July 5, 1887, a landslip carried the houses of a small portion of the capital, as in 1435, into the lake.

ZULLA, as Salt writes the name, or ZŪLA (Thulla, Dôla), as it is also written, is a village near the head of Annesley Bay on the African coast of the Red Sea. It derives its only interest from ruins in its vicinity which are generally supposed to mark the site of the ancient emporium of Adulis (*Ἀδουλις*, *Ἀδουλει*), the port of Axum and chief outlet in the early centuries of our era for the ivory, hides, slaves, and other exports of the interior. Cosmas Indicopleustes saw here an inscription of Ptolemy Euergetes (247-222 B.C.); and hence, as the earliest mention of Adulis is found in the geographers of the first century after Christ, it is conjectured that the town must have previously existed under another name and may have been the Berenice Panchrysus of the Ptolemies. An Italian protectorate over the district of Zulla was proclaimed in 1888.

ZULULAND, a territory of South Africa, lying to the north of the colony of Natal, with a coast-line of about 130 miles. It is occupied chiefly by Zulu tribes; but since its conquest by England in 1879 a Boer republic, known as the New Republic, has been carved out of it, which extends into the center of the country from the Transvaal on its northwest, and comprises an area equal to nearly one-half of the remaining portion of Zululand. It is bounded on the southwest by the Tugela, Buffalo, and Blood rivers, the last-named being one of the borders of the Transvaal Republic.

Zululand presents very varied physical features: undulating country covered with mimosa "bush," in some parts very densely, alternates with wild and fantastically broken scenery, and thickly-wooded precipices and ravines, and these again with grass-clad hills. Two considerable forests exist in the country—one, the Ingome Forest, lying in northern Zululand, just within the territory recently ceded to the Boers, the other upon the Natal border. These produce the varieties of timber mentioned under NATAL. The mineral resources of the country have yet to be investigated, but gold has been recently found in the Reserve. The rivers, like those in Natal, are rapid streams of small volume, running over rocky beds; the Tugela river is the most considerable. The climate differs but little from that of Natal. The country is very healthy for the most part; but horse sickness prevails in the valleys in the hot season, and the swampy neighborhood of St. Lucia Bay, a lagoon lying at the mouth of the Umfolosi river, is uninhabitable. Like the Natal natives, the Zulus cultivate the ground very superficially, planting maize, gourds of several kinds, and a grain from which a light beer is prepared. Cattle, the sole wealth of the people, were at one time very numerous in the country, and also goats. A few of the chiefs use horses.

*Language.*—With the exception of the tongues spoken by the Hottentot-Bushman tribes of the southwest, the languages of Africa from about five degrees north of the equator southward are now recognized as forming one great family, for which the designation Bantu has been adopted, the word *abantu* in Zulu and other members of the group denoting "people." The Zulu tongue, as that of a conquering and superior race, extends beyond the river Zambesi, and is often understood even where another language is the vernacular. In the kingdoms of Lobengula and Umzila it is the language of the ruling classes.

The pedigree and affinity of the Zulus, that is, the northern branch of the Zulu-Kaffre group, are given under KAFFRARIA. Here it will suffice to add that

since the establishment of the Zulu military ascendancy early in the nineteenth century various Zulu hordes have successively invaded and overrun a great part of southeast Africa, as far as and even beyond the Lake Nyassa district. Throughout these regions they are variously known as Ma-Zitu, Ma-Ravi, Ma-Ngone (Umgone), Matebele (Ama-Ndebeli), Ma-Viti, and Aba-Zanzi. Such is the terror inspired by these fierce warriors that many of the conquered tribes, such as the Wa-Nindi of Mozambique, have adopted the very name of their conquerors or oppressors. Hence the impression that the true Zulus are far more numerous north of the Limpopo than has ever been the case. In most places they have already become extinct or absorbed in the surrounding populations. But they still hold their ground as the ruling element in the region between the Limpopo and the lower Zambesi, which from them takes the name of Matebeleland, and which, like Zululand itself, has recently become a British protectorate.

*Laws and Customs.*—The Zulus possess an elaborate system of laws regulating the inheritance of personal property (which consists chiefly of cattle), the complexity arising from the practice of polygamy and the exchange of cattle made upon marriage. The kraal is under the immediate rule of its headman, who is a patriarch responsible for the good behavior of all its members. Over the headman, whose authority may extend to more than one kraal, is the tribal chief. Several of the Zulu customs resemble those of the Jews, such as the Feast of First Fruits, held upon the ripening of the maize, when the whole nation gathers at the king's kraal, and the custom of raising up seed to a deceased brother. By the custom of *ukuhlonipa* a woman carefully avoids the utterance of any word which occurs in the names of the principal members of her husband's family: e.g., if she have a brother-in-law named uNkomo, she would not use the Zulu for "cow," *incoma*, but would invent some other word for it. The employment of "witch doctors" for "smelling out" criminals or *abatagati* (usually translated "wizards," but meaning evildoers of any kind, such as poisoners) is still common in Zululand, as in neighboring countries, although it was discouraged by Cetshwayo, who established "kraals of refuge" for the reception of persons rescued by him from condemnation as *abatagati*.

*Population.*—No means exist for estimating the present population of Zululand. The country was at the time of the late war regarded as less densely inhabited than the colony of Natal. The Zulu army was estimated to contain twenty-three regiments, of 40,400 men in all, and, although the enrollment was voluntary, it may be assumed that it comprised nearly all the able-bodied men of the nation. In addition to the heavy mortality sustained by the Zulus in the war many lives have been lost in subsequent conflicts in which they have engaged among themselves.

*History.*—The earliest record of contact between Europeans and the Zulu race is probably the account of the wreck of the *Doddington* in 1756. The survivors met with hospitable treatment at the hands of the natives of Natal, and afterward proceeded up the coast to St. Lucia Bay, where they landed.

In 1780 the Zulu tribe inhabited the valley of the White Umfolosi river under the chieftainship of Senzanakona. At that time the Zulus numbered some few thousands only, being subject to the paramount chief Dingiswayo, who ruled over the mTetwa tribe, which inhabited the country to the northeast of the Tugela. Dingiswayo is represented as having been very much in advance of other chiefs in those parts in enlightenment and intelligence. He opened up a trade with the Portuguese, bartering ivory and oxen for beads and brass.



He was also very warlike, and introduced a strict military organization among his people, by means of which he obtained the ascendancy over neighboring tribes, including that of the Zulus. Upon the death of Senzangakona at the beginning of the nineteenth century he was succeeded by a son named Tshaka, who had served as an officer in the army of Dingiswayo, whose favor he won through his force of character and talents. Dingiswayo having been killed in battle, the mTetwa tribe sought the protection of Tshaka, who lost no time in further developing the new military organization, and very soon became master of nearly the whole of south-eastern Africa from the Limpopo to Cape Colony, including the settlement of Natal, Basutoland, a large part of the Orange Free State, and the Transvaal Republic. He overran the district of Natal with his armies in 1820; but crowds of the northern tribes driven before his onslaught passed through the country about 1812.

In 1825 an English naval officer, Lieutenant Farewell, visited Tshaka with the object of obtaining leave to establish a settlement in what is now the district of Natal. He found the king at Umgungindhlovu, "surrounded by a large number of chiefs, and about 8,000 or 9,000 armed men, observing a state and ceremony in our introduction that we little expected." The king showed his visitor much friendliness, making him a grant of land in that neighborhood. Lieutenant Farewell took formal possession of the territory he had received, which he described as nearly depopulated and not containing more than 300 or 400 inhabitants, August 27, 1825. The Zulu monarch, being anxious to open a political connection with the Cape and English Governments, intrusted in 1828 one of his principal chiefs, Sotobi, and a companion, to the care of Lieutenant King, to be conducted on an embassy to Cape Town, Sotobi being commissioned to proceed to the king of England. From causes which are not now certainly known these people were not allowed to proceed beyond Port Elizabeth, and were soon sent back to Zululand. On September 23, 1828, Tshaka was murdered by his brother, Mhlangana, and a few days afterward Mhlangana was killed by another brother, Dingane.

In 1840 the Boers agreed to support Dingane's brother mPande in rebellion against him. The movement was completely successful, several of Dingane's regiments going over to mPande. Dingane passed into Swaziland in advance of his retreating forces, and was there murdered, while mPande was crowned king of Zululand by the Boers, who received in exchange for their services the much-coveted district of Natal. In 1856 a civil war broke out between two of mPande's sons, Cetshwayo and Umbulazi, who were rival claimants for the succession. A bloody battle was fought between them on the banks of the Tugela in December, 1856, in which Umbulazi and many of his followers were slain. The Zulu country continued, however, excited and disturbed, until the government of Natal in 1861 obtained the formal nomination of a successor to mPande; and Cetshwayo was appointed. In 1873 the Zulu nation appealed to the Natal Government to preside over the installation of Cetshwayo as king; and this request was acceded to. In 1854 the native population in Natal was reckoned at from 100,000 to 120,000. By 1873, owing largely to the influx of refugees from Zululand, it had risen to 282,783; but five years later it had not increased to more than 290,035, some hundreds of heads of families having returned to Zululand.

The incroachments of the Transvaal Boers upon the borders of Zululand having for many years exposed the British Government to urgent appeals on the part of the Zulus for its intervention, a second attempt was made by the government of Natal, and this time with

success, to induce the Boers to submit the boundary disputes between them and their neighbors to arbitration. A commission was appointed, composed of three British officers, who in June, 1878, pronounced a decision substantially in favor of the Zulus. The invasion of Zululand took place in January, 1879, and the war was ended by the capture of the king at the end of August. Cetshwayo having been conveyed to Cape Town, the Zulu country was portioned out among eleven Zulu chiefs, a white adventurer, and a Basuto chief who had done good service in the war. This arrangement was productive of much bloodshed and disturbance, and in 1882 the British Government determined to restore Cetshwayo again to power. In the meantime, however, the deepest blood feuds had been engendered between the chiefs Zibebu and Hamu on the one side and the neighboring tribes who supported the ex-king and his family on the other. Zibebu, having created a formidable force of well-armed and trained warriors, was left in independence on the borders of Cetshwayo's territory, while the latter was restrained by the conditions of his restoration from any military enterprise or defensive measures. A collision very soon took place; but in the conflicts that followed, Zibebu's forces were victorious, and on July 22, 1883, led by a troop of mounted whites, he made a sudden descent upon Cetshwayo's kraal at Ulundi, which he destroyed, massacring such of the inmates of both sexes as could not save themselves by flight. The king escaped, though wounded, into the Reserve, which had been placed under British rule; there he died in 1884. He left a son, Dinuzulu, who sought the assistance of some of the Transvaal Boers against Zibebu, whom he defeated and drove into the Reserve. These Boers, not a large number, claimed as a stipulated reward for their services the cession of the greater part, and the more valuable part, of central Zululand. The government of Natal has recently attempted to mediate on behalf of the Zulus and has accepted on their behalf, in spite of their protests, a line which roughly divides central Zululand into two equal portions. Of these, until lately (1902), the northwestern has been created into a quasi-independent Boer state already mentioned. The rest of central Zululand is administered, with the Reserve, as a British protectorate. Area of the province, 10,450 sq. m.

ZURBARAN, FRANCISCO, a distinguished Spanish painter, was born at Fuente de Cantos in Estremadura November 7, 1598. In mere childhood he set about imitating objects with charcoal; and his father was quick-witted and long-headed enough to take him off, still extremely young, to the school of Juan de Roelas in Seville. Francisco soon became the best pupil in the studio of Roelas, surpassing the master himself; and before leaving him he had achieved a solid reputation, though Seville was then full of able painters. His subjects were mostly of a severe and ascetic kind—religious vigils, the flesh chastised into subjection to the spirit—the compositions seldom thronged, and often reduced to a single figure. Toward 1630 he was appointed painter to Philip IV.; and there is a story that on one occasion the sovereign laid his hand on the artist's shoulder, saying, "Painter to the king, king of painters." It was only late in life that Zurbaran made a prolonged stay in Madrid, Seville being the chief scene of his operations. He died in 1662 in Madrid.

ZÜRICH (German *Zürich*), a canton in Switzerland, ranking as the first in dignity. It is of very irregular shape, consisting simply of the conquests made, by the city. It extends from the Lake of Zurich to the Rhine, taking in the district of Eglisau on the right bank of that river. Its total area is 665.9 square miles, of which 610.6 are classified as fertile (woods covering



186 and vines 21.5). Of 45.2 square miles of non-fertile land, 26.2 are covered by the lake. The highest point in the canton is the Schnebelhorn (4,250 feet) in the southeast corner. The population in 1900 was 431,036 (an increase of 93,853 since 1888), and in 1887 was estimated to be 339,163. In 1880 there were 313,762 German-speaking and 283,134 Protestant inhabitants. The number of Roman Catholics nearly doubled from 1870 to 1880 (17,942 and 30,298). Besides ZURICH (see below), the capital, the only other town of any size in the canton is WINTERTHUR, (*q.v.*) The land is very highly cultivated and is held by no less than 36,000 proprietors. The canton is well supplied with railways, the first line of any length in Switzerland being that from Zurich to Baden in Aargau (opened 1847). The line from Zurich to the summit of the Uetliberg (2,861 feet) was made in 1875.

ZURICH, chief city of the above canton, and until 1848 practically the capital of the Swiss confederation, is beautifully situated, at a height of 1,506 feet, on the banks of the Limmat where it issues from the Lake of Zurich, and on the river Sihl, which joins the Limmat just above the north end of the lake. That part which lies on the right bank of the Limmat is known as the Large Town, that on the left as the Little Town. The central portion—the “city”—is governed by an executive of seven members and a town council of sixty, both elected by the citizens, and in 1887 had 27,638 inhabitants. The nine outlying townships or “gemeinden” have each a separate organization, distinct from that of the city, and in 1887 had 60,836 inhabitants, of whom 18,527 were in Aussersihl and 10,883 in Riesbach. The total population of the town and its suburbs was thus 152,942 in 1901. These are nearly all Protestants and German-speaking. The number of Roman Catholics has doubled in the last ten years; they are mainly resident in Aussersihl, the workmen’s quarter, where also many Italian-speaking persons dwell. There are in Zurich about 7,000 Old Catholics.

It is the intellectual capital of German-speaking Switzerland, and has been called “Athens on the Limmat.” Cotton-spinning and the manufacture of machinery are two of the leading industries, but by far the most important of all is the silk trade. The value of the silk annually exported (mainly to France, the United States, and England) is estimated at \$14,580,000 to \$16,665,000. The trade employs about 20,000 hand looms and 4,500 steam-power looms; but the number of the former is diminishing, while that of the latter is increasing. Poor wine is also made. Zurich is the banking center of Switzerland. There are a large number of educational establishments, public and private. Besides the excellent primary and secondary schools, there are the cantonal school, including a gymnasium and a technical side (opened 1842), and a high school for girls (opened 1875). The cantonal university and the Federal polytechnic school are housed in the same building, but have no other connection. The university was founded in 1832-33; in 1901 it had 180 professors and 703 matriculated students, besides 65 persons attending special courses of lectures. The polytechnic school, founded in 1854, includes six main sections (industrial chemistry, mechanics, engineering, training of scientific and mathematical teachers, architecture, forestry and agriculture), and a general philosophical, mathematical, and literary department. The numbers of students in the first three sections were, in 1885, 122, 97, and 90—in all the six 412, of whom 192 were foreigners; there were about 54 professors. The polytechnic school has good collections of botanical specimens and of engravings. Near it is the observatory (1,542 feet). There are also in Zurich many institutions

for special branches of education—*e.g.*, veterinary, surgery, music, industrial art, silk-weaving, etc.

ZUTPHEN, a fortified town of Holland, in the province of Guelderland, twenty miles by rail south from Deventer, stands on the right bank of the Yssel, at its junction with the Berkel. The place has an active trade, especially in grain and in the timber floated down from the Black Forest by the Rhine and the Yssel; the industries include tanning, weaving, and oil and paper manufactures. The population in 1887 was 16,357. Some two and one-half miles to the north of the town is the agricultural colony of Nederlandsch-Mettray, founded by a private benefactor for the education of poor and friendless boys in 1851, and since that date largely extended.

ZWEIBRÜCKEN. See DEUX PONTS.

ZWICKAU, one of the busiest towns in the industrial district of the kingdom of Saxony, to which it gives its name, is situated in a pleasant valley on the left bank of the Zwickauer Mulde, forty-one miles south of Leipsic. The river is here crossed by four bridges, two of which are of iron. The railway station, which, with its dependencies, covers eighty-one acres, is said to be one of the largest in Germany. The Château of Osterstein (1581-91) is now a penitentiary. The manufactures of Zwickau are both extensive and varied; they include machinery, chemicals, porcelain, paper, glass, dyestuffs, tinware, stockings, and curtains. There are also steam saw-mills, brickfields, iron foundries, and breweries. Though no longer so important as when it lay on the chief trade route from Saxony to Bohemia and the Danube, Zwickau still carries on considerable commerce in grain, linen, and coal. The mainstay of the industrial prosperity of the town is the adjacent coalfield, which in 1885 employed 10,000 hands and yielded coal to the value of \$4,274,500. In 1900 the population was 55,829; in 1834 it was 6,701.

ZWINGLI, HULDRICH, Swiss Reformer, was born January 1, 1484, at Wildhaus, at the head of the Toggenburg valley, in the canton of St. Gall, Switzerland.

When twenty-two years of age Zwingli was ordained by the bishop of Constance. He preached his first sermon at Rapperswyl, and said his first mass among his own people at Wildhaus. He was appointed (1506) to the parish of Glarus, where he had leisure for study and began to read extensively and carefully in preparation for future work. In 1516 Zwingli was transferred to Einsiedeln. It was then, and is still, resorted to by thousands of pilgrims yearly, who come to visit the famous image of the *Virgin and Child* which has been preserved there for at least a thousand years. Zwingli denounced the superstition of pilgrimages. His sermons made a great sensation and attracted attention in Rome. Soon afterward he was elected, after some opposition, to be preacher in the cathedral at Zurich, and accepted the office (1518), having first obtained a pledge that his liberty to preach the truth should not be interfered with.

In the beginning of 1519 he began a series of discourses on the New Testament Scriptures—on St. Matthew’s Gospel, on the Acts of the Apostles, and on the Pauline Epistles. The sermons, preached “in simple Swiss language,” had a great effect. The Reformation in Zurich was begun. The council of the canton was on Zwingli’s side and protected their preacher. He began to preach against fasting and other Roman practices; some of his followers put his precepts in practice and ate flesh in Lent. The bishop of Constance accused them before the council of Zurich. Zwingli was heard in their defense, and the accusation was abandoned. The victory on the subject of fasting was followed by an attack on the doctrine of the celibacy of the clergy. Pope Adrian VI



interfered, and asked the Zurichers to abandon Zwingli. The reformer persuaded the council to allow a public disputation, which was held in 1523. Zwingli produced sixty-seven theses, containing a summary of his doctrinal views, and argued in their favor with such power that the council upheld the Reformer and separated the canton from the bishopric of Constance. The reformation, thus legally established, went forward rapidly.

The progress of the Reformation in Zurich attracted the attention of all Switzerland, and the Confederation became divided into two parties. The Reformers found numerous supporters in the larger towns of Basel, Bern, and Schaffhausen, and in the country districts of Glarus, Appenzell, and the Grisons. The five forest cantons—Lucerne, Zug, Schwyz, Uri, and Unterwalden—remained solidly opposed to all reforms. The two parties henceforward faced each other in Switzerland. It so happened that those cantons which remained firmly attached to Roman Catholicism were the least powerful, and yet from historical position and the long custom of the Confederacy had the largest legal influence in the country. They dreaded the Reformation. They persecuted inquirers after truth, and imprisoned, beheaded, and burned the followers of Zwingli, when they caught them within their borders. Zwingli alone among Protestant leaders, saw that the religious and the political questions could not be decided separately, but were for practical statesmanship one and the same problem. His policy was to reorganize the Swiss constitution on the principles of representative democracy. His counsels were overruled. Bern was anxious to treat the religious question separately, and to negotiate for religious toleration, leaving the political future to take care of itself. The course of history has fully justified Zwingli. At length the storm burst. The forest cantons advanced (1531) secretly and rapidly on Zurich, with the intention of overcoming the Protestant cantons one by one. The Zurichers met their foes at Cappel, were out-

numbered, and were defeated. Zwingli, who had accompanied the troops as field chaplain, had received two wounds on the thigh when a blow on the head knocked him senseless. After the retreat of the Zurichers, when the victors examined the field, Zwingli was found to be still living. He was not recognized, and was asked if he wished a priest; when he refused, a captain standing near gave him a death-stroke on the neck, October 11, 1531.

ZWOLLE, a fortified town of Holland, capital of the province of Overijssel, fifty-five miles by rail to the northeast of Utrecht, stands on the Zwart Water, a right-hand tributary of the Yssel, a little above its junction with that river. On the side of the town next the railway station is the Sassen-poort, an old Gothic gateway of brick; but the town has few other historical monuments of interest. The large Gothic church of St. Michael in the market place, begun in 1406, contains a fine organ and a richly carved pulpit. The town has a considerable trade by water, and among its more important industries are shipbuilding, cotton manufacture, dyeing and bleaching, tanning, rope-making, and salt-making. The population in 1901 was 30,848.

ZYMOTIC DISEASES (ζύμη, ferment), a term in medicine applied by some authorities to the class of acute infectious maladies. As originally employed by Doctor Farr of the British registrar-general's department, the term included the diseases which were "epidemic, endemic, and contagious," and owed their origin to the presence of some morbid principle in the system acting in a manner analogous to, although not identical with, the process of fermentation. A very large number of diseases were accordingly included under this designation. The term, however, has come to be restricted in medical nomenclature to the chief fevers and contagious diseases, (*e.g.*, typhus and typhoid fevers, smallpox, scarlet fever, measles, erysipelas, cholera, whooping-cough, diphtheria, etc.)





# AMERICANIZED ENCYCLOPÆDIA BRITANNICA.

## BIOGRAPHICAL SUPPLEMENT.

### VOLUME X.

#### A B B—A D A

**ABBAS PASHA II.**, reigning viceroy or khedive of Egypt; born July 14, 1874; succeeded his father, Mohammed Tewfik Pasha, on the latter's death, January 7, 1892. Nominally dependent on the sultan of Turkey, and really subject to English control, Abbas Pasha has shown a disposition unfriendly to the English, and in April, 1894, appointed a new ministry of anti-English sympathies. He married one of his slaves in 1895.

**ABBOT, EZRA**, born in Jackson, Me., April 28, 1819; died in Cambridge, Mass., March 21, 1884. He graduated at Bowdoin in 1840, and in 1856 became assistant librarian at Harvard, to which he left a library of 5,000 volumes. His works include *New Discussions of the Trinity*, *Literature of the Doctrine of a Future Life* and *The Authorship of the Fourth Gospel*.

**ABBOTT, EMMA**, American operatic artist of great popularity, born in Chicago, in 1850, died in Salt Lake City, January 5, 1891. Her success was unbroken, and she left a fortune of \$500,000.

**ABBOTT, JOHN S. C.**, pastor and author, born in Brunswick, Me., September 18, 1805; died June 17, 1877. He was the author of many popular historical works, notably *The History of Napoleon Bonaparte*, *Napoleon at St. Helena*, *The History of Napoleon III.*, and a *History of the Civil War in America*.

**ABBOTT, LYMAN**, clergyman, born in Roxbury, Mass., December 18, 1835; third son of Jacob Abbott, the author, and nephew of John S. C. Abbott. He graduated at the university of the City of New York, in 1853; studied law and was admitted to the bar in 1856, but abandoned law for theology and was ordained in the Congregational church in 1860, preaching for five years in Terre Haute, Ind., and was secretary of the American Union (Freedmen's) Commission, 1865-68. Mr. Abbott has done much literary and editorial work, has edited the *Christian Union* since Mr. Beecher's retirement, has written a *Life of Henry Ward Beecher* (1883), and in January, 1889, succeeded him in the pastorate of Plymouth church, Brooklyn.

**ABDUL HAMID II.**, sultan of Turkey, born Sep-

tember 22, 1842; succeeded to the throne in 1876. He is a Turk, and a Mussulman of the old school, and is opposed to English interference in Turkish affairs.

**ABDUR RAHMAN KHAN**, Ameer of Afghanistan, established on the throne July 22, 1880, by the aid of British arms and influence which were hostile to his cousin, Shere Ali, the rightful heir. In 1889 he suppressed an insurrection in Turkestan with great severity. He died Oct. 1, 1901.

**ABERDEEN, EARL OF, JOHN CAMPBELL HAMILTON-GORDON**, governor-general of Canada, appointed in 1893. He was born in 1847 and succeeded to the title as seventh earl in 1870. Lady Aberdeen, when the earl was lord lieutenant of Ireland, 1886-93, took a great interest in the Irish peasantry, opening schools for their instruction, and to introduce their manufactures established an "Irish Village" at the Columbian World's Fair in Chicago, in 1893.

**ADAMS, CHARLES FRANCIS**, diplomatist, born in Boston, August 18, 1807; died there November 21, 1886. He spent his early years in Russia and England, where his father, John Quincy Adams, was United States minister; graduated at Harvard, 1825; studied law in Daniel Webster's office and was admitted to the bar in 1828. From 1831 to 1836 Mr. Adams served in the Massachusetts legislature as a Whig, but after this adopted the tenets of the Free-soil party. In 1848 this party, in convention at Buffalo, nominated Mr. Adams for vice-president of the United States, with Martin Van Buren for president. In 1858 Mr. Adams was elected to congress from the third district of Massachusetts as a Republican, and in 1860 he was reelected. In 1861, he was sent as minister to England, where he remained seven years. During this period he had a more difficult task to fulfil than that which fell to the lot of his father when filling the same position fifty years before. The *Trent* affair and *Alabama* question were among those which he had to face, and his firmness and self-control in these trying times were admirably displayed. In 1872 the Liberal Republicans considered his name as a candidate for the presidency, but the barren honor fell to Horace

Greeley. He was an arbitrator of the Alabama claims 1871-1872, and was president of the board of overseers of Harvard college for several years.

ADAMS, CHARLES FRANCIS, JR., second son of the foregoing, was born in Boston, May 27, 1835; graduated at Harvard in 1856, and was admitted to the bar in 1858. He entered the volunteer army at the beginning of the war and was mustered out in July, 1865, as brevet brigadier-general of volunteers. In 1869 he was appointed on the board of railroad commissioners for Massachusetts; in 1879 became arbitrator for northern railroads, and in 1884 was elected president of the Union Pacific railroad. He has published *Chapters of Erie and Other Essays*, and numerous other works. His elder brother, JOHN QUINCY, born September 22, 1833, served in the Massachusetts legislature, and in 1867 and 1871 unsuccessfully contested the gubernatorial chair as a Democrat. He died August 14, 1894. A younger brother, HENRY BROOKS, born February 16, 1838, was from 1870 to 1877 assistant professor of history at Harvard, and has written several historical works, including a history of the administrations of Thomas Jefferson, in several volumes.

ADAMS, CHARLES KENDALL, born in Derby, Vt., January 24, 1835, graduated at the university of Michigan in 1861, became professor of history there in 1868, president of Cornell university, 1885, and of Wisconsin university, 1892. He is the author of *Democracy and Monarchy in France* (1874), and of *A Manual of Historical Literature* (1882). Died July 26, 1902.

ADAMS, GEORGE EVERETT, born at Keene, N. H., June 8, 1840; graduated at Harvard in 1860. He became a lawyer in Chicago, and was elected State senator in 1880. He was elected to congress in 1882, and was three times reelected, representing the fourth Illinois district as a Republican until March, 1891.

ADAMS, JOHN COUCH, born in Cornwall, England, in 1817, and educated at Cambridge, England. He took up the study of astronomy, and shares with Leverrier the credit of discovering the planet Neptune. He became president of the Astronomical Society in 1851 and professor of astronomy at Cambridge University in 1858, holding the chair many years. He died June 21, 1892.

ADAMS, WILLIAM TAYLOR (Oliver Optic), author, born in Medway, Mass., July 30, 1822; has written over 100 volumes of stories for boys, and has contributed extensively to magazines. Died March, 1897.

ADLER, FELIX, born in Germany, August 13, 1851, the son of a Jewish rabbi; graduated at Columbia college in 1870, and studied at Berlin and Heidelberg. He was professor of Hebrew and Oriental literature at Cornell 1874-76, and in 1876 founded, and still leads, the Society of Ethical Culture, in New York city.

AGASSIZ, ALEXANDER, son of Louis Agassiz, the great naturalist, was born in Neuchâtel, Switzerland, December 17, 1835. He was educated in Europe, came to the United States in 1849, and graduated at Harvard in 1855. He became connected with the California Coast Survey, and was associated with his father in the museum of zoölogy at Cambridge, Mass. From 1866 to 1869, he was superintendent of the Calumet and Hecla copper mines, Lake Superior, and amassed great wealth, which he bestowed in princely fashion on Harvard. He was curator of the museum in Cambridge from 1874 to 1885, and has been a fellow and overseer of Harvard. Professor Agassiz is a member of the National Academy of Sciences and of numerous other scientific societies in this country and Europe. He is considered one of the greatest living authorities on marine zoölogy.

AGNEW, D. HAYES, surgeon, born in Lancaster

county, Penn., in 1818; graduated in medicine at the university of Pennsylvania, in Philadelphia. He acquired a high reputation as an anatomist and operating surgeon, in 1870 he became professor of operative surgery in his university, and in 1871 was called to the chair of the principles and practices of surgery. He became widely known through his treatment of President Garfield's wound. Doctor Agnew also wrote *Practical Anatomy* (1856), *The Principles and Practices of Surgery* (3 vols., 1878-83), etc. He died March 22, 1892.

AIMARD, GUSTAVE, born in France, September 13, 1818; spent many years among the Indians on the frontier, and wrote a number of romances of adventure based on his experiences. He died April 30, 1883.

AINSWORTH, WILLIAM HARRISON, novelist, born in Manchester, England, in 1805; died January 3, 1882. His works, mostly of a semi-historical character, have been translated into French, German, Spanish and Russian. The best-known of his novels are: *The Tower of London*, *The Constable of the Tower*, *Rookwood*, and *Jack Sheppard*.

AIRY, SIR GEORGE BIDDELL, astronomer born in England, June 27, 1801; was appointed astronomer royal in 1835, and resigned that post in 1881 on a pension. During that period he had charge of the National Observatory at Greenwich, and published extensive observations on astronomical subjects. He became a fellow of the Royal Society in 1836, and was its president from 1871 to 1873. He died January 2, 1892.

ALBANI, MME. (MARIE EMMA LAJEUNESSE), was born near Montreal, Canada, in 1851. Her parents removed in 1864 to Albany, N. Y., where she sang in the Catholic cathedral, and attracted so much attention that funds were procured to send her to Europe to complete her musical education. She made her début in 1870 at Messina, Sicily, and adopted the stage name of Albani, in remembrance of the city where she had received her first encouragement. Mme. Albani, who in 1878 married Mr. Ernest Gye, the operatic impresario, has sung in opera in London, Florence, St. Petersburg, and all the principal cities of this country. In December, 1889, she took part in the historic operatic season at the Chicago Auditorium.

ALBERT EDWARD, Prince of Wales, eldest son of Queen Victoria (now EDWARD VII, King of England), was born November 9, 1841, and married in March, 1863, the Princess Alexandra of Denmark, daughter of Christian IX. By her he had two sons and three daughters. The Prince of Wales visited the United States in 1860. His eldest son, Albert Victor Christian Edward, was born in January, 1864 and died January 14, 1892, six weeks after his betrothal to the Princess Mary of Teck. That Princess married July 6, 1893, George, Duke of York, second son of the Prince of Wales, and heir presumptive of the throne. To them a son, Edward, was born June 23, 1894.

ALBERT, king of Saxony, was born April 23, 1828, and succeeded to the throne October 29, 1873. In 1853 he married Caroline, Princess Vasa, of Sweden. He supported Prussia in the war with France, 1870-71, and died June 19, 1902.

ALCOTT, AMOS BRONSON, born in Wolcott, Conn., Nov. 29, 1799, died March 4, 1888; teacher, writer, founder of the Concord School of Philosophy and advocate on the lecture platform of reform ideas in theology, education and social institutions. In 1842 he visited England to confer with other educational and social reformers. On his return to America he at first went to Boston, but soon was again settled in Concord. Of late years Mr. Alcott led the life of a philosopher, conversing and lecturing on a wide range of practical



questions. Among his publications are: *Tablets* (1868); *Concord Days* (1872); *Table Talk* (1877); and *Sonnets and Canzonets* (1877), besides other papers contributed to periodicals.

ALCOTT, LOUISA MAY, author, born in Germantown, Penn., November 29, 1832, died March 6, 1888. She was the daughter of Amos Bronson Alcott. Thoreau taught her for a short time, but most of her education was supplied by her father. For a number of years she wrote for periodicals, while she was occupied as a school-teacher. In 1862 she went as a volunteer nurse in military hospitals. In 1866 Miss Alcott visited Europe, and on her return in 1867 wrote *Little Women*, a book that at once established her popularity as a writer. Its sale within five years amounted to 87,000 copies. Some of her other publications have been almost equally popular.

ALDRICH, NELSON WILMARTH, born in Foster, R. I., November 6, 1841; served in the State general assembly in 1875-76, in the latter year was speaker of the House of Representatives, and was elected to congress in 1878 and 1880. In 1881 he was elected to the United States Senate as a Republican to succeed General Burnside, and was reelected in 1886 and in 1893.

ALDRICH, THOMAS BAILEY, poet and prose writer, was born at Portsmouth, N. H., in 1836. He began life in a merchant's office in New York, but soon abandoned commerce for literature. He contributed frequently to *Putnam's Magazine*, the *Knickerbocker*, and other periodicals, and, in 1856, joined the staff of the New York *Evening Mirror*. From 1870 to 1874 he edited *Every Saturday*, and in March, 1881, became the editor of the *Atlantic Monthly*, to which he had long contributed. Mr. Aldrich has written several notable novels and romances, and is the author of much beautiful poetry.

ALDRIDGE, IRA, a negro actor, born at Belair, Md., in 1804; died in Lodez, Poland, August 7, 1867. As a boy he was educated for the ministry, but his tastes were dramatic. Showing marked ability in an amateur theatrical company his father's friends sent him to London to complete his studies. Instead he went on the stage, scoring a success at the Royalty theater as "Othello, the Moor of Venice." Later he played "Othello" to the "Iago" of Edmund Kean; in 1833 appeared at Covent Garden theater in London, and in 1848 at the Surrey theater. From 1852 he played for three years in Germany, and in 1857 visited Sweden. He received a number of medals, and decorations.

ALEXANDER I., King of Serbia, born August 14, 1876, son of ex-King Milan, who abdicated March 6, 1889, and Queen Natalie. Left at that time under a regency until eighteen years of age, King Alexander dismissed the regency April 13, 1893, reigning in his own right.

ALEXANDER II., emperor of Russia, born April 29, 1818; married in 1841, the Princess Marie of Hesse. He succeeded his father, Nicholas, March 2, 1855, while the Crimean war was in progress, and made peace with England and France. In 1861 he emancipated the serfs, giving freedom to 23,000,000 people. He made war against the Turks in 1877-78, and took the field in person. On March 13, 1881, he was killed by a dynamite bomb thrown by Nihilists.

ALEXANDER III., emperor of Russia, second son of Alexander II., was born March 10 (February 26, O. S.), 1845, and was married in 1866 to Maria Sophia Frederika Dagmar, daughter of Christian IX. of Denmark, who had been betrothed to his older brother, the czaritch, who died in 1865. Alexander participated in the Turkish war of 1877-78, and ascended the throne March 13, 1881, on the assassination of his

father. He was not crowned until May, 1883, in consequence of the threats of the Nihilist conspirators, and his life was several times attempted afterward, but he died a natural death, November 1, 1894.

ALEXANDER, ARCHIBALD, born in Virginia, April 17, 1772; died October 22, 1851. He became a Presbyterian minister, and in 1812 head of the theological seminary at Princeton. He wrote extensively for the *Princeton Review*, and published several theological treatises.

ALEXANDER, STEPHEN, astronomer, born in Schenectady, N. Y., September 1, 1806; died at Princeton, N. J., June 25, 1883. From 1845 to 1878 he occupied in turn the professorships of mathematics and of astronomy and mechanics at Princeton. In 1860 he conducted an expedition to Labrador for the purpose of observing a solar eclipse.

ALEXANDER, WILLIAM, called "Lord Stirling," soldier, born in New York city, 1726; died in Albany, N. Y., January 15, 1783. He became aide-de-camp to Governor Shirley. In 1757 he prosecuted his claim to the earldom of Stirling before the British House of Lords, but without success. In 1761 he married the daughter of Philip Livingston. Soon afterward, Alexander became surveyor-general and member of the provincial council. At the beginning of the revolution he assumed the cause of the patriots in October, 1775, as colonel of the battalion of East Jersey. Soon afterward he captured an armed British transport, for which exploit congress, in March 1776, appointed him brigadier-general. At the battle of Long Island, August 26, 1776, his brigade was nearly destroyed, and he himself taken prisoner. Within the same year he was exchanged, and in February, 1777, was promoted a major-general. When Gen. Charles Lee marched to Philadelphia, in December, 1776, Alexander remained in command at New York. At Trenton, N. J., he captured a Hessian regiment. On June 24, 1777, at Metuchen, his division was defeated, and he lost two guns and 150 men. He fought creditably at Brandywine, Germantown, and Monmouth. In 1779 he surprised a British force at Paulus Hook, N. J. In 1781 he was in command at Albany. Alexander was one of the founders of King's college (now Columbia), and became its first governor.

ALFONSO XII., king of Spain, son of Isabella II., was born November 28, 1857, went into exile with his mother in 1868, and became king January 15, 1875. In 1878 he married his cousin Mercedes d'Orleans, who died the same year, and, in 1879, he married the Arch-duchess Maria Christina, of Austria. At his death, November 25, 1885, he left one daughter, Mercedes, who was styled queen, under the regency of her mother. But on May 17, 1886, a posthumous child was born, who became titular king of Spain, with the title of Alfonso XIII. The regency ceased in 1902.

ALGER, HORATIO, author, born in Mass., Jan. 13, 1834; graduated at Harvard in 1852, and, in 1864, became pastor of a Unitarian church in Brewster, Mass. He has written books for boys. Died July, 1899.

ALGER, RUSSELL ALEXANDER, born in Lafayette, Ohio, February 27, 1836; was admitted to the bar in 1859. He entered the volunteer service as captain in the 2d Michigan cavalry in 1861, and came out as brevet major-general, having greatly distinguished himself at Gettysburg and in the Shenandoah valley. After the war he was engaged in the lumber business in Detroit, where he amassed a large fortune. In 1884 he was elected on the Republican ticket as governor of Michigan, and served for two years. From 1897 to 1899 he was U. S. Secretary of War.

ALLAN, GEORGE WILLIAM, born in Toronto, Jan-



uary 9, 1822; graduated at Upper Canada college in 1839, and died July 24, 1901. In 1855 he was elected mayor of his native city, and from 1858 until the Confederation, sat in the Legislative Council for York division. In 1867 he was elected to the Senate, and in 1876 became chancellor of Trinity college.

ALLAN, SIR HUGH, born in Scotland, September 29, 1810; died in Edinburgh, December 8, 1882. In 1824 he came to Canada, entered the shipping business, and established the Allan line of ocean steamers. He was a director of several banks and public companies, and was knighted in 1871.

ALLEN, ETHAN, soldier, born in Litchfield, Conn., January 10, 1737; died in Burlington, Vt., February 13, 1789. About 1763 he removed to near Bennington, Vt. The governor of New York claimed jurisdiction over the Green Mountain territory, and a dispute arose as to ownership; in 1764, the king, who had been appealed to, decided in favor of the claim of New York. Attempts were made to eject the settlers under the New Hampshire grants, which were resisted; in 1770 Allen was chosen to plead the cause of the New Hampshire settlers at Albany, N. Y. The decision of the courts was finally adverse. Soon afterward Allen was made colonel of the "Green Mountain Boys," who sided with the New Hampshire grantees, and expelled the New York settlers. In 1774 Governor Tryon, of New York, issued a proclamation offering £150 reward for the capture of Allen, and £50 each for the other ring-leaders. Allen retaliated by offering a reward for the capture of Tryon. In 1775, when the news of the battle of Lexington spread throughout New England, the condition of Fort Ticonderoga attracted the attention of the patriots; it was well supplied with military stores, but only feebly garrisoned. Allen and Benedict Arnold both were eager to obtain commissions, means and volunteers for an expedition to affect its capture. Arnold was commissioned colonel by Massachusetts; but as the "Green Mountain Boys," with Allen, their leader, had reached Lake George before Arnold overtook them, they were not disposed at such a time to receive a new commander. Early on May 10th, when only eighty-three of his men had as yet crossed the lake, Allen rushed into the fort and summoned the astonished commander to surrender "In the name of the Great Jehovah and the Continental Congress!" The garrison consisted of only fifty men; but the fort contained a large amount of artillery and arms. On June 24th Arnold resigned, after having taken an active part in the operations of this adventure. Allen went to Philadelphia, where he received the thanks of congress for his services. Later in the same year he was sent by Gen. Philip Schuyler on a secret mission to Canada to learn the views of the Canadians as to emancipation. On his way to join General Montgomery's expedition he was led to take part in a rash adventure at Montreal on September 25th, when his little band was captured, and himself sent as prisoner to England. He was soon returned to this country, where, at first, he was confined in prison-ships and jails, but later allowed partial liberty on parole. In 1779 Allen published a *Narrative* of his treatment while a British prisoner. Its style is a compound of local barbarisms, Scripture, physiology and Oriental wildness. After Burgoyne's surrender at Saratoga, congress secured Allen's release on May 3, 1778. In 1777 Vermont had declared its independence, and sought to join the other colonies on equal terms. This proposition was opposed by New York. Allen, on obtaining his freedom, was appointed major-general of the Vermont militia, and sent as an agent to congress to secure the admission of Vermont to the Confederation. Congress, for a long time, hesitated, and the

British commanders endeavored to persuade Allen and his companions to restore the authority of the crown, suggesting that Vermont should become an independent British province. In 1782 Vermont sent these letters to the president of congress, and at the close of the war was a part of the Union, although not recognized as a State until 1791. Allen published in 1784 *Reason the Only Oracle of Man; or, a Compendious System of Natural Religion*, the earliest American work opposed to Christianity.

ALLIBONE, SAMUEL AUSTIN, author, born in Philadelphia April 17, 1816; died September 13, 1889. He published a *Dictionary of Authors, Poetical Quotations, Chaucer to Tennyson, Prose Quotations, Socrates to Macaulay*; and many other works of reference.

ALLISON, WILLIAM B., born in Wayne county, O., March 2, 1829, studied law and practiced in Ohio until 1857, when he removed to Dubuque, Ia. He served in Congress as a Republican from December 7, 1863, till March 3, 1871. In 1873 he was elected to the United States Senate, and reelected in 1878, 1884 and 1890.

ALMA-TADEMA, LAURENCE, painter, born in West Friesland, June 8, 1836; settled in England in 1870, became an associate of the Royal Academy January 26, 1876, and an academician June 19, 1879. His pictures are of the classical type, illustrative of ancient Greek, Roman and Egyptian subjects, and are marked by the closest attention to detail. A special exhibition of Tadema's pictures was given at the Grosvenor Gallery, London, in 1883. He is an honorary member of the Royal Academies of Madrid, Vienna, Naples and Stockholm, and has several foreign decorations. His *The Sculpture Gallery, A Dedication to Bacchus*, and other works, were exhibited at the Columbian Fair in 1893.

ALTGELD, JOHN P., lawyer and Governor of Illinois, born in Germany, December 30, 1847; brought to Ohio two years later; entered the Union army in 1864; elected Judge of the Superior Court in Cook county, Illinois in 1886 and Governor in November, 1892, as a Democrat. Governor Altgeld has published two volumes of essays on *Live Questions*, of broad views on social matters, and attracted national attention in 1893 by pardoning the Chicago anarchists and in July, 1894, by his bitter public criticism of President Cleveland for ordering out federal troops to suppress the great railroad strike in Chicago. Died March 12, 1902.

AMADEUS, duke of Aosta, son of Victor Emmanuel, king of Italy, born May 30, 1845; died January 17, 1890. In November, 1870, he was invited to accept the crown of Spain, and accepted the offer December 4 following. His brief reign was marked by numerous insurrections and attempts to assassinate him, and on February 11, 1873, he abdicated and returned to Italy.

AMES, OAKES, born in Easton, Mass., January 10, 1804; died May 8, 1873. He served in Congress from 1862 to 1873 as representative of the second Massachusetts district. The firm with which he was connected was interested in contracts for building the Union Pacific railroad, and his connection with the Credit Mobilier of America led to a congressional investigation and the censure of Mr. Ames, who withdrew from political life. His son, Oliver, was governor of Massachusetts, 1886-88.

AMPUDIA, PEDRO DE, Mexican soldier, was appointed general by President Santa Anna in 1840; in December, 1842, he commanded the land forces in the siege of Campeachy, Yucatan. Soon afterward Ampudia was dismissed from command for practicing military barbarities. Later he was in command of Monterey, where, September 24, 1846, he surrendered to General Taylor of the United States forces.



ANDERSEN, HANS CHRISTIAN, born in the island of Fünen, Denmark, April 2, 1805; died August 4, 1875. His parents were very poor, but his precocious genius attracted the attention of wealthy patrons, who gave him an education. His first successful romance, *The Improvisatore*, was published in 1834, and for more than thirty years he continued to charm the young, and delight adults with his fairy tales and descriptive writings. His works have been translated into almost every language, and his quaint humor, deep pathos, and wealth of imagination mark him as the prince of storytellers.

ANDERSON, GALUSHA, born in Bergen, N. Y., March 7, 1832; educated for the Baptist ministry, held pastorates in Brooklyn and Chicago, and from 1878 to 1885 was president of the Chicago university.

ANDERSON, MARV, actress, born in Sacramento, Cal., July 28, 1859. She was taken while an infant to Louisville, Ky., where her father died when she was four years old. She was educated at the Ursuline convent of that city, and began to study for the stage at the age of thirteen. On November 27, 1875, she made her first appearance in Louisville, as "Juliet," in Shakespeare's *Romeo and Juliet*, with much success. In February, 1876, she reappeared at the same place, and in the same character, which was followed by "Blanca" in *Fazio*, "Evadne" in the drama of the same name, and "Julia" in the *Hunchback*. In March she played "Pauline" in *The Lady of Lyons* at St. Louis, and "Meg Merrilies" in *Guy Mannering* at New Orleans. On September 11th of the same year she appeared in San Francisco as "Parthenia" in *Ingomar*, and on January 5, 1877, was seen for the first time as "Lady Macbeth" at the National theater in Washington. She began playing in New York on November 16, 1876, a round of her principal characters during a six weeks' engagement. In 1877 and 1878 most of her time was occupied in New York, Philadelphia, Boston, and other Eastern cities, where she met with distinguished success, and constantly improved in her art. In 1879 Miss Anderson visited Europe for study and recreation. On her return home she added to her repertory of characters "Galatea," in Mr. Gilbert's adaptation of *Pygmalion and Galatea*. On September 1, 1883, she made her *début* in London, at the Lyceum theater, as "Parthenia," followed by "Pauline" and "Galatea," and immediately became a great favorite. During a later engagement she produced the *Winter's Tale*, which ran through an entire season, and thereafter transferred the play, including scenery, property and actors, to this country, with equal success. Miss Anderson, who has not recently appeared on the stage, was married at Hampstead, England, June 18, 1890, to Mr. Navarro, son of a wealthy Spanish resident of New York city.

ANDERSON, ROBERT, soldier, born near Louisville, Ky., June 14, 1805; died in Nice, France, October 27, 1871. He was graduated at the United States military academy in 1825, and served in the Black Hawk war of 1832. Later he became instructor of artillery at West Point, served in the Seminole war, and in 1838 was assistant adjutant-general on the staff of Gen. Winfield Scott. In the Mexican war he served as captain, and in the battle of Molino del Rey was wounded. In 1857 he was promoted major of artillery, and on November 15, 1860, was ordered to assume command of Fort Moultrie. When the political troubles began in South Carolina, Major Anderson called on the National government for reinforcements. As none were furnished, and South Carolina had passed the ordinance of secession, he transferred his command of eighty-three men to Fort Sumter, for better defense, leaving the guns at Fort Moultrie spiked, and their carriages burnt. On

April 13, 1861, Fort Sumter was surrendered to the South Carolinians, after having endured a destructive bombardment; its guns were dismounted, its gates and quarters set on fire, and its defenders entirely exhausted. After the capitulation Major Anderson sailed for New York city, and soon afterward the President and Secretary of War presented to him and to the officers and men under his command the thanks of the nation for their courage and patriotic conduct. In May he was appointed brigadier-general, and assigned to the department of the Cumberland, where he organized the volunteer regiments of Kentucky. On October 27, 1863, he retired from active service, and in 1868 went to Europe. He translated several military text-books from the French, and adapted them to the American service.

ANDRASSY, JULIUS, COUNT, born at Zemplin, Hungary, March 8, 1823; entered the Hungarian Diet in 1847, took a prominent part in the abortive revolution of 1848, and was condemned to death in *contumacium*. He remained in exile until 1857, when he was amnestied and reentered political life. In ten years' time he became prime minister of Hungary, and in 1871 minister of foreign affairs for Austro-Hungary. He took part in the Berlin Congress of 1878, and retired from public life in the following year. He died February 18, 1890.

ANDREW, JOHN ALBION, born in Albion, Me., May 31, 1818; died in Boston, Mass., October 30, 1867. He was graduated at Bowdoin, studied law at Boston, and was admitted to practice. He became prominent as an anti-slavery man, and was elected to the legislature in 1858. In 1860 he was a delegate to the Republican convention at Chicago which nominated Abraham Lincoln for president, and in the same year was elected governor of Massachusetts. To this office he was annually reelected until 1866, when he declined the nomination. In January, 1861, as soon as he was inaugurated, he began to prepare for the possibility of war by reorganizing the militia and calling on the governors of the other New England States to do likewise. Within a week after the president's proclamation of April 15, 1861, he had dispatched five regiments of infantry, a battalion of riflemen, and a battery of artillery to Washington. In September, 1862, he attended the convention of the governors of the loyal States at Altoona, Penn., and drew up the address they presented to the president. In January, 1863, he obtained permission from the war department to enlist negro troops.

ANDREWS, STEPHEN PEARL, author, born in Templeton, Mass., March 22, 1812; died in New York city, May 21, 1886. He studied at Amherst, removed to New Orleans, La., and became a lawyer, and in 1839 went to Texas. In 1843 Andrews went to England to raise money with the aid of the British anti-slavery society and prominent emancipationists to purchase the freedom of the Texan slaves, and render it a free State. In this enterprise he was unsuccessful, and returned home, settling in Boston, Mass., where he became a leader in the anti-slavery movement. In 1847 he removed to New York city, where he published a series of phonographic instruction books. He was an accomplished linguist, a close student and restless worker. He also evolved a scientific universal language called "Alwato;" in this he conversed and corresponded with several of his pupils, and was preparing a dictionary of it at the time of his death. The attempt was a kind of forerunner of the present Volapuk.

ANDROS, SIR EDMUND, colonial-governor, born in London, England, December 6, 1637; died there February 24, 1714. In 1672 he was appointed major under Prince Rupert, and in 1674 he succeeded his father as



bailliff of the island of Guernsey; a few months later he was made governor of New York. Andros was familiar with the French and Dutch languages, and devoted to his patron the duke of York. To further the duke's interest he endeavored to extend the limits of the duke's province to the Connecticut river on one side and to the Delaware on the other; he also endeavored to detach the five tribes of Mohawk Indians from the French influence. In 1678 he visited England, where he was knighted by Charles II. When James II. became king an attempt was made to consolidate the New England colonies into one royal province, and Andros was appointed governor-general. In December, 1686, he arrived at Boston and began his administration with a set of new laws and regulations. Connecticut refused to surrender its charter to the new governor, and in October, 1687, he marched to Hartford with a body of sixty soldiers, to enforce his command. He was unsuccessful in obtaining the delivery of the charter, which was carried away from the meeting of the assembly, and hidden in the famous "Charter Oak" tree of that city. Some months later New York and New Jersey were added to his jurisdiction, when he appointed Francis Nicholson lieutenant-governor of New York. Soon afterward the operations against the French in Maine brought on a war with the Penobscot Indians—for which the people were additionally taxed. On April 18, 1689, the magistrates removed by Andros published a proclamation denouncing his tyranny, and appointed Simon Bradstreet governor. Andros and some of his subordinates were arrested and imprisoned, and agents were sent to King William to request the restoration of the former charter. Andros several times attempted to escape from confinement, and in July was sent to England, where a formal complaint was made against him; but he was discharged without trial. In 1692 he was made governor of Virginia. Here he became popular with the planters, to whom he recommended the introduction of manufactures and the cultivation of cotton. Andros had brought with him the charter of William and Mary college, and took measures for the preservation of documents relating to the early history of Virginia. Later he got into difficulties with Doctor Blair, the founder of the college, through whose influence Andros was recalled to England in 1698. From 1703 to 1706 he was governor of the island of Guernsey.

ANDROS, THOMAS, born at Norwich, Conn., in 1759, was for forty years a preacher at Berkeley, Mass. Notwithstanding his clerical function he joined the Continental army and took an active part in the battles of Long Island and White Plains. He was afterwards captured by the English and confined in a prison-ship, from which he made his escape. He died in 1845.

ANGELL, JAMES BURRILL, born in Rhode Island, January 7, 1829, graduated at Brown university in 1849, and four years later became professor of modern languages and literature in the same university. In 1860 he became editor of the *Providence Journal*, in 1866 president of the university of Vermont, and in 1871 president of the university of Michigan; the latter office he still holds. He was minister to China in 1880-81, and minister to Turkey in 1897-98.

ANGUS, JOSEPH, D.D., was born January 16, 1816, at Bolam, Northumberland, England, and educated at King's College, Stepney College, and Edinburgh, where he graduated in 1836, taking the first prizes in nearly all his classes. He was appointed secretary of the Baptist Missionary Society in 1840, and president of Stepney College in 1849. Dr. Angus, who was for several years English examiner to the University of

London, and to the Indian Civil Service, is the author of the *Handbook of the Bible*, *Handbook of the English Tongue*, *English Literature*, *Christ our Life*, and several other works. He has also edited Butler's *Analogy and Sermons*, with notes, and Dr. Wayland's *Moral Science*. He was a member of the New Testament Company for the revision of the Scriptures, and for ten years a member of the London School Board. In recent years the college at Regent's Park has made provisions for largely extending its work; and the sum of \$150,000 has just been contributed to it through Dr. Angus, for increasing its efficiency. Special chairs are founded, and lectureships have been established.

ANNANDALE, THOMAS, F. R. S. E., was born at Newcastle-on-Tyne, Eng., February 2, 1838, and educated at the Newcastle Infirmary and the University of Edinburgh. He became private assistant to the late Professor Syme, demonstrator of anatomy in the University of Edinburgh, and surgeon and lecturer on surgery to the Edinburgh Royal Infirmary. His high reputation as a practical and operating surgeon and teacher of surgery led to his appointment in October, 1877, as regius professor of clinical surgery in the University of Edinburgh. He is the author of *The Malformations, Diseases, and Injuries of the Fingers and Toes, and their Surgical Treatment*, 1865, being the Jacksonian prize essay of the Royal College of Surgeons of London for 1864; *Abstracts of Surgical Principles*, 1868-70, second edition, 1876; *Clinical Surgical Lectures*, 1874-75, reported in the *Medical Times and British Medical Journal*; *On the Pathology and Operative Treatment of Hip Disease*, 1876; and numerous contributions to professional periodicals.

ANTHONY, HENRY BOWEN, born in Coventry, R. I., April, 1815; died September 2, 1884. He graduated in 1833 at Brown university, and edited the *Providence Journal* from 1838 to 1859. From 1849 to 1851 he was governor of Rhode Island, and in 1859 was elected as a Republican to the United States Senate. He was four times reelected to the Senate, and in 1863, 1869, and 1871 was chosen president *pro tem.* of that body.

ANTHONY, SUSAN B., born in South Adams, Mass., February 15, 1820, became well known as an anti-slavery and total-abstinence orator and as an advocate of female suffrage.

ARABI PASHA, AHMED EL, was born of peasant parents in Lower Egypt, about 1837, entered the Khedive's army, and by 1876 had risen to be a lieutenant-colonel. In 1881 he placed himself at the head of a body of discontented soldiers and effected a forcible change in the government. He led the movement against the Anglo-French control of Egypt, and fortified Alexandria, while the Khedive fled. The English fleet bombarded Alexandria July 11, 1882, in revenge for certain alleged massacres of Europeans by natives. On September 13, the earthworks at Tel-el-Kebir were taken by the English, who had ascertained, by bribing native officers, that no defense could be made. Arabi was captured at Cairo, tried for treason, and sentenced to death, but this was changed to exile, and the native chief was sent to Ceylon, where he remains in honorable captivity.

ARGYLL, GEORGE CAMPBELL, DUKE OF, born in 1823, succeeded as eighth duke in 1847, and died April 24, 1900. Nominally a Liberal, he broke with Mr. Gladstone over the Irish land act. He has written *The Reign of Law* and other treatises. His oldest son, known as the Marquis of Lorne, married the Princess Louise, daughter of Queen Victoria, and from 1878 to 1883 was governor-general of Canada.



**ARISTA, MARIANO**, Mexican general, born in the state of San Luis Potosi, July 26, 1802; died on board the British steamer *Tagus*, August 7, 1855. He became distinguished in the war that established Mexican independence, made his way as a successful military leader, and in 1836 became second in command to General Santa Anna. He commanded at Palo Alto and Resaca de la Palma in the war between Mexico and the United States. After the declaration of peace, he was appointed in June, 1848, minister of war. In 1850 General Arista became president of Mexico, which office he resigned January 6, 1853, to retire to his plantation. Soon afterward Arista was banished, and died in exile. In 1881 his remains were sent to Mexico. During the war with this country he bore the character of unusual urbanity, in contrast with the other Mexican military commanders.

**ARMITAGE, EDWARD**, an English historical painter and member of the Royal academy, was born in London in 1817. He is best known in this country by his allegorical picture of Britannia and Columbia relieving Chicago. He died May 24, 1896.

**ARMSTRONG, JOHN**, soldier, born in Carlisle, Pa., November 25, 1758; died in Red Hook, N. Y., April 1, 1843. In 1775, while a student at Princeton, he enlisted in a Pennsylvania regiment, and in a short time was appointed aide to Gen. Hugh Mercer. After the death of the latter he became aide to General Gates, with the rank of major, serving in the campaign against Burgoyne and in the South. At the close of the war of the revolution, when a portion of the army lay at Newburg, N. Y., there was much discontent among the soldiery, and a memorial was sent to congress on their behalf, but as the government could raise little revenue, it rendered little satisfaction. On March 10, 1783, an anonymous notice was circulated among the officers, calling a meeting to consider their grievances, urging the troops to lay down their arms unless their demands were conceded, and complaining of the neglect of congress to give proper attention to their former memorial. This paper is known as the "Newburg Memorial"; in later years Major Armstrong confessed its authorship. Washington issued general orders rebuking these "disorderly proceedings," and called a meeting for the 15th, when he protested against the reasonable course advocated in the address, urged the officers to wait patiently for the action of congress, and pledged his efforts to secure for them the reward of their services. When the army disbanded Armstrong returned to Carlisle, and soon afterward was made secretary of state, and later adjutant-general of Pennsylvania. In 1784 he was engaged in the proceedings to eject the settlers in Wyoming valley, who claimed the land under a grant from Connecticut. In 1789 Armstrong married a sister of Robert R. Livingston, of New York, removed to that State, and settled on a farm in the old Livingston manor. Here, for several years, he became engaged in agriculture. In 1800, he was elected to the United States Senate, and in 1804 was appointed minister to France; later he became minister to Spain. In 1810 he returned to New York. During the war of 1812 he was made brigadier-general, and in 1813 was appointed secretary of war. During his tenure of office the city of Washington was captured and burnt, and, as he was commonly blamed for this disgrace, he resigned in September, 1814. He published a *History of the War of 1812*, a *Review of Gen. Wilkinson's Memoirs*, and some treatises on farming and gardening.

**ARNOLD, ARTHUR**, an English editor and statesman, brother of Sir Edwin Arnold, was born May 28, 1833. He edited the *London Echo*, a liberal news-

paper, became connected with the *London Telegraph*, and entered parliament in 1880. He has written *From the Levant*, and other books of travels, and has also published two novels.

**ARNOLD, BENEDICT**, born in Norwich, Conn., January 14, 1741; died in London, England, June 14, 1801. He had a common school education, with some knowledge of the higher branches. At first he was an apprentice in a drug store in his native place; afterward he went to New Haven and successfully conducted a book and drug store, extending his connections to Canada and the West Indies. He made a business visit to Honduras, where he fought a duel with an English sea captain, provoked by the captain's severe reflections on the natives of New England. On February 27, 1767, he married Miss Margaret Mansfield, by whom he had three sons. At the time of the battle of Lexington Arnold was captain of the governor's guards, nearly all of whom volunteered to join in the fight at Boston. Soon afterward he was sent by Massachusetts to lead an expedition for the capture of Crown Point and Ticonderoga, and on his way thither met Col. Ethan Allen with a company of soldiers devoted to the same purpose. Allen took the lead, to which he was entitled, and captured Ticonderoga on May 10, 1775. Four days later Arnold captured St. John's. On September 11th of the same year Washington dispatched Colonel Arnold with 1,100 men through the wilderness of Maine, to assist in capturing Quebec. After enduring incessant hardships Arnold and his men arrived opposite Quebec, and on December 13th climbed to the Plains of Abraham. On December 31st he was joined by the corps under the command of General Montgomery, and a combined attack was made on the city. The American army was defeated, Montgomery killed, and Arnold's leg seriously fractured. For his gallantry and skill congress promoted him to the rank of brigadier-general. On October 11, 1776, he fought a naval battle with a superior force of the British under Sir Guy Carleton, during which he ran his own vessel ashore, burnt her, and with his other ships and men safely retreated to Ticonderoga. On February 19, 1777, congress appointed five major-generals for the army, none of whom had signalized themselves as soldiers, and all of whom were juniors of Arnold. The latter was stung by this injustice, and Washington wrote to assure him that he would endeavor to remedy "the error." In April, 1777, he learned of the invasion of Connecticut by Governor Tryon, of New York, when he at once gathered about 500 volunteers, and made a heroic resistance at Ridgefield, during which several horses were killed under him, and a bullet went through his coat. On presenting his claims for advancement in rank, congress voted him a horse and thanks, but did not accede to his request for promotion. He then forwarded to that body his resignation, which was not accepted. At that time General Burgoyne was advancing from Canada with his British troops, apparently carrying all before him, and Washington urged congress to send Arnold north, at once, to stay the enemy's advance. Arnold consented to serve anew, saying he would "trust to the justice of his claims for future reparation." He joined the army of Gen. Philip Schuyler, and volunteered to lead an expedition to relieve Fort Stanwix, then besieged by a force of British and Indians, under St. Leger. This done, he returned to the main army, and in the first battle of Bemis Heights, October 19, 1777, commanded the left wing of the army. At that time differences arose between General Gates and General Arnold, and the latter asked and obtained permission from Gates to join Washington. He did not leave, however, and was



not restored to his command. During the battle of October 7th, without authority, he led several attacks against the enemy at the head of the troops he lately commanded, during which his horse was shot under him, and a musket-ball shattered his thigh. Congress now sent, through General Washington, his commission as major-general, antedating it so as to confer the rank to which he was justly entitled. In June, 1778, he was appointed to the command of Philadelphia. Here he became involved in quarrels with President Joseph Reed and the authorities of Pennsylvania. Their charges subjected him to trial by court-martial. He was acquitted of intentional wrong-doing, but on some charges his conduct was declared "imprudent and improper;" the sentence was that he should receive a reprimand from the commander-in-chief. Washington discharged this duty with consideration, and assured him of his continued esteem and the high estimate he placed on his services. Arnold's first wife had died during his campaign in Canada; in Philadelphia he married Miss Margaret Shippen, a daughter of Chief Justice Shippen of Pennsylvania. Through this marriage he was brought into companionship with several distinguished Tory families, and a treacherous correspondence was opened with Sir Henry Clinton. On July 31, 1780, Arnold visited the camp of Washington, and was tendered the command of the left wing of the army. But he declined on the pretense of inability to perform service in the field, as he had not recovered from the wound received at Saratoga. Instead he desired the command at West Point, on which he entered in August, 1780. His quarters were at the country-seat of Col. Beverly Robinson, a Virginia Loyalist, and a friend of Sir Henry Clinton. When Arnold's treachery had become manifest through the capture of Major André, he found a refuge among the British in New York city, and was compensated for his treason with a British brigadier-general's commission and a small sum of money. Early in 1781, acting as a loyalist, he led a raid into Virginia, and in September of that year made an attack on New London. In the following winter he and his wife went to London; in 1787 he settled in St. John, New Brunswick, where he and two of his sons founded a mercantile business. In 1791 he permanently retired to London. In 1797 the British Government gave him a grant of 13,400 acres of land in Canada. By his second wife he left four sons and one daughter. All his sons received commissions in the British army, one of them rose to distinction. His *Life* has been written by Jared Sparks and by Isaac N. Arnold (Chicago, 1880). The latter tried, not so much to extenuate Benedict Arnold's treason, but by bringing out in high relief his distinguished early services to show the better side of his character. But Arnold was despised even by the British, who would have profited had his treason been successful, and died in obscurity.

ARNOLD, EDWIN, SIR, one of the most distinguished living English poets and scholars, was born June 10, 1832. He was educated at Oxford, where he carried off the Newdigate prize in 1852 with his poem, *The Feast of Belshazzar*. From 1857 to 1861 he was principal of the Sanscrit College at Poonah, and held a fellowship in the university of Bombay. In 1862 he became connected with the editorial staff of the London *Daily Telegraph*. In this capacity he sent George Smith to Assyria, and cooperated with the New York *Herald* in sending Stanley on his first African expedition. Sir Edwin Arnold has published many translations of the Sanscrit sacred books, and in 1878 gave to the world his magnificent poem, *The Light of Asia*. He is a Companion of the Star of India, and of the Order of the White Elephant of Siam.

ARNOLD, ISAAC NEWTON, born in Oswego county, N. Y., November 30, 1815; was admitted to the bar in 1835, and in the following year removed to Chicago, of which, in 1837, he became the first city clerk. In 1842-43 he was a member of the Illinois legislature, and again in 1856. In 1860 he was elected to congress as a Republican and served until 1865, when he was appointed one of the auditors of the treasury. In 1867 he published *The Life of Abraham Lincoln*, and in 1880 *The Life of Benedict Arnold*. He was for several years president of the Chicago Historical Society, and published pamphlets on the early history of Illinois. Mr. Arnold died April 24, 1884.

ARNOLD, MATTHEW, eldest son of Dr. Thomas Arnold, headmaster of Rugby, was born at Laleham, England, December 24, 1822, and died April 15, 1888. He was educated at Rugby and Oxford, became a fellow of Oriel college in 1845, and was elected professor of poetry at Oxford in 1857. He wrote numerous essays on art and literature and held the highest rank as a critic. Edinburgh and Oxford both gave him the degree of doctor of laws.

ARTHUR, CHESTER ALAN, twenty-first president of the United States, born in Fairfield, Vt., October 5, 1830; died in New York city, November 18, 1886. His father, Rev. William Arthur, D.D., was a Protestant Irishman, who was graduated at Belfast college and came to the United States at the age of eighteen. Here he became a Baptist minister, published a work on *Family Names*, and during several years edited a journal called *The Antiquarian*. His son, the future president, was educated at Schenectady, N. Y., entered Union college in 1845, and was graduated in 1848. Soon afterward he began the study of law in Lansingburg, N. Y., and having saved \$500 by teaching school, he went to New York city to enter the law office of E. D. Culver. In 1853 he was admitted to the bar and became junior partner of the firm of Culver, Parker and Arthur. This firm attained much notoriety as legal champions of the negro race, and, in 1856, succeeded in obtaining for them the right to ride in public conveyances. Until that time Mr. Arthur belonged to the Whig party, but when the Republican party was formed he was active in giving it local organization. In 1860, when Edwin D. Morgan was reelected governor, he appointed Mr. Arthur engineer-in-chief on his staff. In 1861 he was ordered to open a branch quartermaster's department in New York city; soon afterward he had charge of preparing and equipping the soldiers of the State, until the termination of the civil war. In January, 1862, he made a report to the legislature on the defense of New York harbor and of the inland border. In February, 1862, he was appointed inspector-general, when he visited the New York regiments in the Army of the Potomac. In June, 1862, he served as secretary at the meeting of the loyal governors held in New York city. Later he became quartermaster, and as such was efficient in raising the quota of his State. In December, 1863, when Horatio Seymour became governor of the State of New York, the Democrats were in the ascendancy, and Mr. Arthur returned to the practice of law. Meanwhile he had acquired the title of general without having done any service in the field. He then became chairman of the Republican State executive committee of New York, and, in 1868, favored the nomination of General Grant for the presidency. On November 20, 1871, he was appointed collector of the port of New York. When his first term had expired he was re-nominated and confirmed for a second term. In 1878 he was removed from this office, and in 1879 elected chairman of the Republican State committee. In June, 1880, at the Republican National convention, held in



**Chicago**, General Garfield was nominated for the presidency, and it was deemed advisable that the second nominee should be taken from the Empire State. The New York delegation recommended General Arthur, and he was nominated. In November he was elected vice-president, and in March, 1881, took his seat. On July 2, 1881, President Garfield was shot, and lingered for eighty days on his bed. When his death was announced General Arthur took the oath of office privately in New York city; thereafter he proceeded to Washington, where he was inaugurated on September 22d. On the expiration of his term of office his name was presented at the Republican presidential convention held at Chicago, June 3, 1884; but he failed of a nomination. On October 29, 1859, General Arthur married Miss Ellen Louise Herndon, of Fredericksburg, Va.

**ARTHUR, TIMOTHY S.**, born in Orange county, N. Y., in 1809; died March 6, 1885. He wrote popular tales of a domestic character, and founded *Arthur's Home Magazine*.

**ASBJÖRNSEN, PETER CHRISTEN**, born at Christiania, Norway, January 15, 1812; died January 6, 1885. He published several collections of folk-lore, and wrote extensively on natural history.

**ASBURY, FRANCIS, M. E.** bishop, born in Handsworth, England, August 20, 1745; died in Spottsylvania, Va., March 31, 1816. He was the first bishop of the Methodist Episcopal church ordained in this country. In England, at the age of sixteen he was a local preacher, and at twenty-two an itinerant. Three years later he became a missionary to this country and sailed for Philadelphia, where he arrived October 27, 1771. In the following year he was made general assistant to John Wesley. The political disturbances throughout the land at the beginning of the Revolution greatly hindered his efforts but he persevered and was unanimously elected bishop by the Methodist ministers, and consecrated December 20, 1784, with a fixed salary of \$64 per year. All donations Bishop Asbury assigned to his fellow laborers; the horses and carriage used in his journeyings were given by his friends. His annual travels extended from Canada to the Mississippi river, where he was engaged distributing Bibles and religious tracts. He was never married.

**ASTOR, WILLIAM WALDORF**, born at New York in 1848, great grandson of John Jacob Astor and possessor of vast wealth. Dabbling in law and politics he was appointed United States minister to Italy in 1882, and while there wrote *Valentino*, a romance. Going to England in 1892 he purchased the ducal estate of Cliveden, bought the *Pall Mall Gazette* and *Budget*, in which he infused some American enterprise, and in 1893 founded the *Pall Mall Magazine*.

**ATKINSON, EDWARD**, was born at Brookline, Mass., February 10, 1827. He has written extensively on economic subjects, and is considered a high authority on questions of this character.

**AUERBACH, BERTHOLD**, German novelist, born February 28, 1812, in the Black Forest district of Würtemberg; died February 8, 1882, at Cannes. He was of Jewish parentage, and wrote biographies of Spinoza and other worthies of his race. He is chiefly known by his romances and stories of peasant life, many of which have been translated into English.

**AUGUR, CHRISTOPHER COLON**, born in New York in 1821, graduated at West Point in 1843, served in the Mexican war and on the frontier, and was commissioned brigadier-general of volunteers in November, 1861. He fought at Cedar Mountain, and commanded at the siege of Port Hudson, and on March 13, 1865, received the brevet of major general for distinguished services in the field. Subsequently he had command of various departments, and in 1885 was retired under the rule. He died Jan. 16, 1898.

**AUMALE, DUC D' (HENRI D' ORLÉANS)**, fourth son of Louis Philippe, king of the French, was born in Paris in 1822. He served with the French army in Algiers, and defeated Abd-el-Kader. In 1848 he went into exile with his father and family, and resided in England until the revolution of September, 1870. In 1861 he challenged Prince Napoleon, but the latter refused to fight. In 1871 he returned to France, and was elected to the National Assembly and the Council General. In December, 1871, he was chosen a member of the Academy. He resumed his position in the army and presided at the court-martial on Marshal Bazaine. In 1887 he was banished from France, with other dynastic pretenders, but the decree was revoked. Died May 7, 1897.

**AVERILL, WILLIAM WOODS**, soldier, born in Cameron, N. Y., November 5, 1832. He was graduated at the United States military academy in June, 1855, and assigned to the cavalry service, and, until 1857, served in garrison at Carlisle, Penn. Later he was ordered to the frontier to fight the Indians. In one of these conflicts he was wounded, and placed on sick leave until the beginning of the civil war in 1861. He renewed active service as first lieutenant of mounted riflemen, and took part in the battle of Bull Run. On August 23d Averill was appointed colonel of the 3d Pennsylvania cavalry, and commanded the cavalry defenses in front of Washington, continuing his connection with the Army of the Potomac until March, 1863. At that time he began a series of notable cavalry raids in Virginia, that included the battle of Kelley's Ford, fought on March 18th. On August 26-27 he engaged the enemy near White Sulphur Springs, but was repulsed. Later he had sundry skirmishes with the Confederates with varying success, but met with no disaster. He had been brevetted until he attained the rank of brevet major-general. On May 18, 1865, he resigned. From 1866 to 1869 he was United States consul-general in the British Provinces of North America, and later became president of a manufacturing company. He died February 3, 1900.

## B.

**BABCOCK, ORVILLE E.**, born in Franklin, Vt., December 25, 1835; died in Florida, June 2, 1884. He graduated at West Point, served during the whole of the civil war, was promoted colonel in the regular army, and acted as aid-de-camp to General Grant. After the latter was inaugurated president, Colonel Babcock acted as his secretary, and, in 1871, was appointed superintendent of buildings in the District of Columbia. In 1876 he was indicted by the Federal Grand Jury at St. Louis for complicity in the whisky-ringing frauds, but was acquitted.

**BACON, DELIA**, born in Ohio, February 2, 1811; died September 2, 1859. She was a talented but erratic woman, who sought to prove that Francis Bacon, Lord Verulam, was the author of the Shakespearean plays.

**BACON, LEONARD**, born in Detroit, Mich., February 19, 1802; died in New Haven, Conn., December 24, 1881. He graduated at Yale in 1820, and in 1825 was ordained pastor of the First Congregational church of New Haven, which pastorate he held until his death. From 1866 to 1871 he was professor of didactic theology in Yale. Doctor Bacon edited *The Christian Spectator*



wrote for the *New Englander*, and founded and edited the *Independent* (1847-63). He was an ardent opponent of slavery, and a strong supporter of the Union.

BACON, LEONARD WOOLSEY, clergyman, son of the foregoing, was born in New Haven, Conn., January 1, 1830. He graduated at Yale in 1850, and studied theology at Andover and medicine at Yale. He served as pastor of several churches in New York and Connecticut, and has contributed largely to the religious press.

BADEAU, ADAM, born in New York, December 29, 1831. He served on General Grant's staff and retired with a brigadier-general's brevet in the regular army. From 1869 to 1881 he was successively secretary of legation and consul-general at London, and in 1877-78 accompanied General Grant on his trip round the world. Appointed United States minister to Brussels in 1875, and to Copenhagen in 1881, he declined both positions. He published *Military History of Ulysses S. Grant* (3 vols. 1867-81) and *Grant in Peace* (1886). He died March 20, 1895.

BAGEHOT, WALTER, born in England, February 3, 1826; died there March 24, 1877. For seventeen years he edited the *London Economist*. He was a recognized authority on economic questions, and wrote *The English Constitution*, a text-book, and many treatises on banking, the coinage, and the history of the money market.

BAILEY, JAMES MONTGOMERY, born in Albany, N. Y., September 25, 1841; edited the *Danbury News*, to which he contributed humorous articles which for a time had great vogue. He died March 4, 1894.

BAINBRIDGE, WILLIAM, born in Princeton, N. J., May 7, 1774; died in Philadelphia, July 28, 1833. His father was a physician in New York city. When eighteen years of age he was mate, and at nineteen became captain of a merchant vessel. When the United States navy was reorganized in 1798, he was appointed lieutenant-commandant. In May, 1800, he commanded the frigate *George Washington* which carried to Algiers the commercial tribute then levied by the Dey of that country; and afterward reluctantly consented to be employed by that ruler to convey an Algerine embassy to Constantinople. In 1801 Bainbridge was captain of the *Essex*, which cruised in the Mediterranean. In 1803, in the United States war with Tripoli, he commanded the frigate *Philadelphia* under Commodore Preble, and while chasing a blockade-runner his vessel grounded on a reef and was scuttled and surrendered. The captain and his three hundred and fifteen men were kept as prisoners until the peace in June, 1805. For some years afterward he was connected with merchant vessels. In 1811, when war with Great Britain became imminent, he hastened home from St. Petersburg to offer his services to the government. In October, 1812, he sailed from Boston in command of a squadron comprising the *Constitution*, *Essex* and *Hornet*. On December 26th off the coast of Brazil, he captured the British frigate *Java*, of forty-nine guns, for which achievement congress distributed among the crew \$50,000 as prize-money, voted the commodore a gold medal, and to each of his officers a silver one. In 1815 Bainbridge commanded the Mediterranean squadron. He was afterward president of the board of navy commissioners. In the duel between Barron and Decatur, he acted as second to the latter.

BAIRD, HENRY CAREY, born near Philadelphia, September 10, 1825, became a publisher, and has written extensively on economic subjects and the currency. In 1875 he joined the Greenback party.

BAIRD, SPENCER FULLERTON, born at Reading, Penn., February 3, 1823; became assistant secretary of the Smithsonian Institute in 1850, and in 1878, on

the death of Prof. Joseph Henry, was appointed secretary. In 1871 he was appointed commissioner of fish and fisheries. He was a member of the National Academy of Sciences, an honorary member of many foreign scientific societies, fellow and secretary of the American Association for the Advancement of Science, and a writer on natural history. He died Aug. 19, 1887.

BAKER, SIR SAMUEL WHITE, born in London, England, June 8, 1821. He organized a colony in Ceylon, built the first Turkish railway, and in 1861 began the series of African explorations which have made him famous. In 1864, in company with his wife, he discovered the Lake Albert Nyanza, the source of the White Nile. In 1869 he undertook a mission for the suppression of the slave trade in equatorial Africa. He was knighted in 1866, and was a fellow of the Royal Society, of the geographical societies of London and Paris, and a member of the French Legion of Honor. His devoted and intrepid wife, Lady Baker, accompanied him through all his dangers and trials, and has written accounts of their travels and adventures. He died December 30, 1893.

BAKUNIN, MICHAEL, the founder of Nihilism, was born of a noble Russian family in 1814, joined the army, but resigned in two years, and became associated with a band of students who studied German philosophy. Among these were Herzen, Turgeneff, the novelist, and Belinski. He went to Berlin in 1841, was expelled from that city and from various continental capitals as a revolutionist and firebrand, and in 1848 participated in the Dresden insurrection. Captured by the Saxon troops, he was sentenced to death, but the penalty was commuted. He spent eight years in prisons in Austria and Russia, was banished to Siberia in 1856, and escaped from there in an American vessel. Arriving in London he joined the staff of Herzen's revolutionary organ, the *Kolokol*, but his ideas were too far advanced for his associates and he quarreled with Karl Marx, and was denounced by Mazzini. He went to Switzerland, where he preached Nihilism, and died suddenly at Berne in the summer of 1878.

BALCH, GEORGE B., born in Tennessee, January 3, 1821; entered the navy in 1837; was many years on foreign service and participated in the attack on Vera Cruz. He served in the South Atlantic squadron during the civil war and commanded the *Pavnee*. He became commodore August, 1872, rear-admiral June, 1878, and was superintendent of the naval academy until 1879. In January, 1883, he was retired.

BALFOUR, ARTHUR JAMES, born in 1848; entered the House of Commons in 1874, as a Conservative, joined the "fourth party" under the leadership of Lord Randolph Churchill, accepted office under Lord Salisbury (his uncle) in 1885, and from 1887 to 1891 was chief secretary for Ireland. He then became leader of the Conservatives in the House of Commons, and in 1902 became prime-minister.

BALFOUR, JOHN HUTTON, a distinguished botanist, and writer on botany, born at Edinburgh, September 15, 1808; died February 11, 1884. He established the Botanical Society of Edinburgh, was professor of botany in Glasgow university, queen's botanist for Scotland, fellow of the Royal Society, and dean of the medical faculty of the university of Edinburgh.

BALL, THOMAS, sculptor, was born in Charlestown, Mass., in June, 1819. He studied in Europe, and in 1865 settled in Florence. Among his works are the Webster statue in Central Park, New York, and the Emancipation group at Washington, D. C. He exhibited at the World's Fair of 1893, *Christ and the Little Child* (marble), a colossal statue of *Washington*, in bronze, and other works.



**BALMACEDA, JOSÉ MANUEL**, born in 1840, in Chili, entered Congress in 1868, became leader of the Liberal Party, and, in 1886, President of the Republic for five years. His veto in January, 1891, of a bill for municipal control of elections caused a revolt of Congress and the navy. Balmaceda took command of the army, but was defeated after a bloody war and killed himself, September 19, 1891, to avoid capture.

**BANCROFT, GEORGE**, historian, born in Worcester, Mass., October 3, 1800. In 1817 he was graduated at Harvard, and in 1818 went to Germany, to continue his studies at Göttingen, where in 1820 he received the degree of doctor of philosophy. After several years' travel in Great Britain and Central Europe, he returned to the United States, and in 1822 served as tutor of Greek at Harvard. At that time he was being prepared for the ministry, but soon afterward turned his attention to letters. In 1823 he published a volume of poems, and began contributing to the *North American* and *American Quarterly* reviews translations from the German poets, and original articles. Later, in connection with Dr. J. G. Cogswell, he opened the Round Hill school in Northampton, Mass., of which the historian Motley was a pupil. At that time he translated some of Heeren's works from the German, followed in 1834, 1837 and 1840, by the first three volumes of his *History of the United States*. An active advocate of the principles of the Democratic party, he frequently spoke on the stump and in the lecture room. In January, 1838, President Van Buren appointed him collector of the port of Boston, which office he held for three years. In 1844 he was nominated for governor of Massachusetts by the Democrats, but not elected. In March, 1845, President Polk called him to a seat in his cabinet as secretary of the navy, which he occupied until September, 1846. He resigned to accept the appointment of minister plenipotentiary to Great Britain, where he remained until the summer of 1849. In England and France the public archives and many private collections of important state papers were open to his investigation. When Mr. Bancroft returned to the United States he chose New York city for his home, and resumed work on his important *History of the United States*. In 1852, 1853, and 1854 were published volumes 4, 5, and 6. Before he went to Europe he had made several public addresses, and delivered eulogies on our distinguished dead; on his return from abroad these were continued, together with occasional lectures on subjects of interest to the nation. In April, 1865, he delivered in New York city, at the obsequies of President Lincoln, a eulogy on the departed, and in February following he pronounced an oration on the life and services of that distinguished man. In 1858 appeared the 7th volume of his *History*, followed in 1860 by the 8th volume; volume 9 was issued in 1866. In 1867 Mr. Bancroft was appointed minister to Berlin, where he was continued seven years. In 1874 he returned and made his home in Washington; during the same year he published the 10th volume of his *History*. From that time until 1881 he was engaged on his *History of the Formation of the Constitution*, which was published early in 1882. Later he was occupied with a thorough revision of his *History of the United States*. He died January 17, 1891.

**BANCROFT, HUBERT HOWE**, born at Greenville, O., in 1832; went to California in 1852, and engaged in the publishing business. He acquired a magnificent library, principally of books relating to the history of the Pacific coast, and in 1875 published in five octavo volumes his work on *The Native Races of the Pacific States*. He has written with the aid of a large corps of assistants a *History of the Pacific States*, thirty-nine volumes, and a pretentious *History of the World's Fair*.

**BANKS, NATHANIEL PRENTISS**, born in Waltham, Mass., January 30, 1816. He received an ordinary school education, worked in a cotton factory, of which his father was superintendent, and learned the trade of machinist. Afterward he lectured, became editor of the local paper of his native place, studied law, and in 1849 was chosen to represent his native town in the legislature of Massachusetts. Mr. Banks advocated a coalition of the Democrats and the new Republican party, and was elected speaker of the state assembly in 1851, and reelected in 1852. In 1853 he became chairman of the Massachusetts constitutional convention, and in 1853 was sent to Congress as a Coalition Democrat. During his term he identified himself with the American or Know-Nothing party, and was reelected to Congress. Later he was speaker of the House of Representatives. Soon afterward the American party broke up, and Mr. Banks was again elected to the thirty-fifth Congress by a large majority. He served until December 4, 1857, when he was elected governor of Massachusetts. In 1858 and 1859 he was reelected to that office. In 1860 he became president of the Illinois Central railroad. A year later, when the civil war began, Mr. Banks was commissioned major-general of volunteers and assigned to the command of the fifth corps in the Army of the Potomac. Before this he had some experience in the State militia. His first military effort was made at the battle of Winchester, March 23, 1862. In April and May he was left with 8,000 men, to guard the Shenandoah, where he was attacked by the forces of "Stonewall" Jackson. General Banks and his men escaped with some difficulty, and on May 26th crossed the Potomac at Front Royal. On June 27, 1862, General Pope was placed in command of the Army of Virginia, and early in August concentrated his forces near Culpepper Court House. On August 9th, the corps of General Banks was ordered to the front, when the battle of Cedar Mountain was fought, which lasted into the night without any decided result. Later General Banks was placed in command of the defenses of Washington, while preparations were being secretly made to send a strong expedition by sea to New Orleans. He was assigned to command this expedition, which sailed from New York in November and December. On reaching New Orleans he succeeded Gen. B. F. Butler in command. In July the news of the surrender of Vicksburg was received, and on the 9th of that month the garrison of Port Hudson, 6,000 in number capitulated to General Banks. After some unimportant engagements during the year 1863, in May, 1864, he was relieved of his command, resigned his commission, and returned to his native State, where he was biennially elected to Congress as a Republican until 1877, failing only in 1872. General Banks was long chairman of the committee on foreign relations. He afterward served as United States marshal for Massachusetts, and was again elected to Congress in 1888. He died Sept. 1, 1894.

**BARATIERI, ORESTE**, Lieutenant General, civil and military governor of Eritrea, the Italian colony in Abyssinia, was born in 1841 in Condino, and fought with Garibaldi in Sicily in 1860. Appointed governor of Eritrea in 1892, he restored order, and in July, 1894, avenged an attack made by the Dervishes on Agordat, in his absence in November, 1893, by marching on their citadel at Kassala, routing them and taking possession of their stores. In November, he suppressed a rebellion of 10,000 Abyssinians and strengthened the Italian protectorate. Died Aug. 8, 1901.

**BARLOW, SAMUEL LATHAM MITCHELL**, born in Granville, Mass., June 5, 1826; died in Glen Cove, L. I., July 10, 1889. His father was a physician—



Samuel Bancroft Barlow, who married a descendant of Capt. Joe Wadsworth of Charter Oak fame. At the age of fourteen years he entered a law office. After studying seven years he set up in business for himself, and in 1852 became connected with several partners. A trip to Europe in behalf of an Illinois railway in the year the firm was started brought him \$50,000. Another in the interests of the Ohio and Mississippi brought an equal sum. The act by which he gained his widest fame was the lawsuit which expelled Jay Gould from the control of the Erie railway after the death of James Fisk, Jr. The English and other ill-used stockholders of the railroad had long been looking for an opportunity to oust the manipulators into whose hands the property had fallen. Fisk had been a hard fighter, and lavished the money he had made in keeping the Erie in his power. He and Gould employed distinguished counsel, who kept the two impreguably intrenched. An effort to end this was made when Fisk was shot. Thereafter a suit was begun against Gould for \$10,000,000. He retained able counsel to defend him, but after several weeks of consultation and negotiation he was advised to compromise, which he did, paying the large sum of \$9,000,000 in full settlement. Mr. Barlow was elected one of the directors of the road under the new management, and was retained as its private counsel at a salary of \$25,000 a year. Mr. Barlow was a Democrat in politics, and during and before the war was an apologist for slavery. He never held any political office.

BARNEY, JOSHUA, naval officer, born in Baltimore, Md., July 6, 1759; died in Pittsburgh, Pa., December 1, 1818. He attended school till he was ten years old, and at the age of thirteen became seaman's apprentice on a small brig commanded by his brother-in-law, in the Liverpool trade. Here he remained three years. When the American Revolution began Barney was appointed master's mate of the sloop *Hornet*, fitted out in Baltimore, and in November, 1775, joined Commodore Hopkins' squadron at Philadelphia. After the fleet had captured New Providence and the Bahamas, it returned to Philadelphia, and Barney, transferred to the sloop *Wasp*, was soon afterward promoted to a lieutenantcy; later he was transferred to the frigate *Virginia* as first officer. In attempting to pass the mouth of the Chesapeake the vessel ran aground and was captured. After five months' confinement in a prison-ship in New York, he was exchanged, and again captured, when he was sent for imprisonment to England, but escaped in the undress uniform of a British officer. Eventually he found his way back to Philadelphia, where he was placed in command of the ship *Hyder Ali*. While conveying a fleet of merchantmen down the Delaware river he captured the British ship *General Monk*, after an engagement of twenty-six minutes. Though only twenty-three years of age, he was promoted by congress to the rank of commodore, and received from the State of Pennsylvania a gold-hilted sword. Later he went on a secret mission to the West Indies, and also was sent to France with dispatches from our government. In 1795 he entered the French navy, and was placed in command at the West Indies to protect French commerce from British cruisers. In 1802 he resigned and returned to Baltimore. In the war of 1812 Barney was appointed commander of the gunboat flotilla, organized for the defense of Chesapeake bay. On August 26, 1814, at the battle of Bladensburg he did all the fighting of that day. Here he was wounded and taken prisoner, exchanged six weeks later, and at once resumed his command. For his services at this battle the city of Washington voted him an elegant sword. In 1817 President Monroe appointed him naval officer of the port of Baltimore.

BARNUM, PHINEAS TAYLOR, showman, born in

Bethel, Conn., July 5, 1810. In 1829 he established and edited a country newspaper, *The Herald of Freedom*, and was imprisoned sixty days for libel. In 1834 he removed to New York city. At Philadelphia he saw on exhibition an old negro slave woman, called Joyce Heth, and advertised as the nurse of George Washington, one hundred and sixty-one years old. For one thousand dollars Barnum bought the right to exhibit her, advertised her extensively, and realized a large profit. Barnum traveled through the Southern States exhibiting several small shows. In 1841 he bought Scudder's American Museum on credit, for he was without means, and by shrewd management was enabled to pay for it within a year. The museum became "Barnum's," and was a favorite family resort for many years. In 1842 he brought forward Charles S. Stratton, of Bridgeport, Conn., a dwarf, whom he named Gen. Tom Thumb, and exhibited in this country and Europe with great success. In 1849 he engaged Miss Jenny Lind to sing in the United States for 150 nights at the rate of \$1,000 per night, together with a concert company to assist her. This venture returned the showman a large profit, resulting from the most audacious puffing and advertising scheme on record. On the conclusion of several smaller enterprises, Barnum, in 1855, retired to Bridgeport, Conn. Here he entered into several vast local and business schemes that eventually absorbed his fortune. However, in the days of his prosperity he took the precaution to settle an ample fortune on his wife. He again went to England with "Tom Thumb," returning in 1857. On his return he once more took charge of the old museum, until it was burned on July 13, 1865; another museum, in a different locality, was quickly extemporized, but that also was burned after short duration. In 1871 he established a traveling menagerie and circus, which has attracted much patronage. Barnum has been a member of the Connecticut legislature, and mayor of Bridgeport. He has also delivered numerous lectures on temperance and the practical affairs of life. Among the volumes published by him are: his *Autobiography* and *Humbugs*. He died in April, 1891.

BARNUM, WILLIAM H., born in Connecticut, September 17, 1818; died April 30, 1889. He was elected to the Connecticut legislature in 1852, and was in congress from 1866 until 1876, when he was elected to the United States Senate for the term ending March 4, 1879. At his death he was chairman of the Democratic national committee.

BARRETT, LAWRENCE, actor, born in Paterson, N. J., April 4, 1838. He made his *début* at Detroit, Mich., in 1853, as "Murad," in the drama of the *French Spy*. After playing a number of small parts he became connected with the theater in Pittsburgh, Pa. This was followed by stock engagements in St. Louis, Chicago, and other cities; in 1856 he appeared at Burton's theater in New York city, as "Sir Thomas Clifford," in *The Hunchback*. In 1857 and part of 1858 he continued at the same place, and in 1858 he went to Boston, where for some time he was connected with the stock companies of the Boston Museum and Howard Athenæum. In 1861, at the beginning of the civil war, Mr. Barrett for a time served as captain of a company of Massachusetts infantry. Retiring from the army, he again acted in Washington, Philadelphia, and New York city. In the last named place he was advanced to performing "Othello" to the "Iago" of Mr. Edwin Booth. From New York he went to New Orleans, where he became associate manager of the Varieties theater, and assumed the leading parts in Shakespeare's plays. In 1867 he first appeared as a star actor in San Francisco, and became co-manager of the California



theater, remaining until 1870. Returning to New York city at the end of that year, he played with Mr. Booth in alternate parts at Booth's theater. In 1871 and part of 1872 he again managed the Varieties theater in New Orleans, and in December of the last named year again played in company with Mr. Booth in New York city. During 1873-74 he starred in the large cities of the Union, and in 1875 renewed his connection with Mr. Booth in New York city, when his performance of "Cassius" in Shakespeare's *Julius Caesar* was deservedly admired. Later he appeared at other New York theaters in various dramatic and tragic characters, notably in *King Lear*, *Yorick's Love*, and Boker's *Francesca da Rimini*, which were repeated in other cities. For some years he traveled through the United States, in company with Mr. Booth, giving performances that proved exceedingly profitable. Mr. Barrett visited Europe several times. He died March 20, 1891.

BARRETT, WILSON, a popular English melodramatic actor, was born in Essex, February 18, 1846, went on the stage in 1864, made his London debut in 1876 in *Jane Shore*, and later at the Princess Theater, of which he is lessee, produced *The Lights O' London*, *The Silver King* and other marked successes. He has made several American tours, appearing in *Othello*, *Hamlet*, *Claudian*, and, in 1895, in his dramatization of Hall Caine's powerful novel, *The Manxman*.

BARRIOS, JUSTO RUFINO, lawyer, soldier and statesman, born in San Lorenzo, Guatemala, July 17, 1835; died in Chachuapa, April 2, 1885. In 1867 he took part in the revolutionary struggles in his country and in May, 1871, rebelled against Cerna and dissolved his government. General Granados became president, and Barrios continued at the head of the army, suppressing several revolutions, until he was elected president in 1873. He decreed freedom of the press and suppressed the religious orders. Early in his term new disturbances began; but they were of short duration. Peace continued until 1876, when the States of Salvador and Honduras united with the reactionary party of Guatemala. Barrios made a valiant defense, and the national assembly approved of all his acts. In 1879 a liberal constitution was promulgated, and on March 1, 1880, General Barrios was again elected president for the term of six years. He traveled through the United States and Europe during part of his term of office, and returned to his own country in 1884. On February 28, 1885, after consultation with the presidents of Salvador and Honduras, he published a proclamation intended to effect the union of all the Central American republics as one state, but Mexican cabals and double dealing on the part of the president of Salvador frustrated this purpose and led to renewed warfare. During an attack made by Barrios on the forces of Salvador, he was fatally wounded by a bullet, and also had a son killed by his side. After his death his widow retired to New York city, and a son entered the United States military academy at West Point.

BARRON, JAMES, naval officer, born in Virginia, 1769; died in Norfolk, Va., April 21, 1851. As a boy he entered the United States service, was made lieutenant in the navy in 1798, captain in 1799, and made commodore, in command of the *Chesapeake*, in June, 1807. On June 27th he sailed in this vessel of thirty-eight guns from Washington navy-yard, with the intention of drilling his men on the ocean. Hardly out of sight of land his ship was met by the British frigate *Leopard*, of fifty guns, whose captain demanded the surrender of several alleged British deserters from among the American crew. To this demand Barron demurred, and the *Leopard* opened fire, killing three and wounding eighteen of the *Chesapeake's* men. Thereupon the

American ensign was hauled down, and after a conference the alleged deserters were carried away on the British vessel. The British Government promptly repudiated the action of the captain of the *Leopard*, the alleged "deserters" were restored on board the *Chesapeake*, and a monetary indemnity paid to our government. Commodore Barron thereafter was tried by court-martial and suspended from rank and pay for five years. On the expiration of this term he was refused an active command, and kept only on shore duty. In 1820 Commodore Decatur, having severely reflected on his conduct at sea, was challenged by Barron to fight a duel, in which Decatur was killed, and Barron severely wounded. In succession Barron became senior officer of the United States navy in 1839.

BARRY, JOHN, naval officer, born in Ireland in 1745; died in Philadelphia, September 13, 1803. He was early apprenticed to seamanship, and became master of a trading vessel. At the beginning of the revolution he offered his services to this country, and in February, 1776, became commander of the *Lexington*, with which he captured the British tender *Edward*. From this cruiser he was transferred to the command of the frigate *Effingham*. In the winter of 1776-7, after the close of navigation, he assisted at the battle of Trenton with some heavy artillery. In 1777, with four boats, Barry captured a British war schooner in the Delaware river. For a short time he acted as aide to General Cadwalader. In 1778 he commanded the *Raleigh*, which was pursued and driven on shore by a British squadron. Later he was transferred to the *Albion*, and in a severe engagement captured the *Atalanta* and the *Trepassy*. At this time he was wounded. In 1794, when our new navy was organized, he was senior officer, with the rank of commodore.

BARTHOLDI, FRÉDÉRIC AUGUSTE, born in Colmar, Alsace, April 2, 1834. He studied painting in Paris under Ary Scheffer, but afterward devoted himself to sculpture, and he has executed a number of works in marble and bronze. Among these are *Francesca da Rimini* (1852); a *Fountain* in honor of Martin Schongauer, painter and engraver (1863); and a *Fountain* surmounted by a statue of General Rapp, both in Colmar; *The Lion of Belfort*, commemorative of the defense of that city during the Franco-Prussian war, in which Bartholdi served with distinction under Garibaldi; *La Lyre chez les Barbères*, group in bronze; *La Génie dans les Griffes de la Misère*, in plaster; *Les Loisirs de la Paix*, in plaster; *Jeune Vigneron Alsacien*, in bronze; *La Malediction de l'Alsace*, in bronze and marble; *Les Quatre Etapes de la Vie Chrétienne*, and a bronze statue of Lafayette, made in 1872, and placed in Union Square, New York city, in 1876. For his works sent to the Centennial exhibition in Philadelphia in 1876, to which he was a commissioner from France, Bartholdi received a bronze medal. He was decorated with the cross of the Legion of Honor in 1865. His greatest work is the colossal statue of *Liberty Enlightening the World*, which was cast at a cost of more than 1,000,000 francs, raised by the French Government at the instigation of the "French American Union," formed in 1874, including Laboulaye, De Rochambeau, De Lesseps, Henri Martin, Waddington, and Bartholdi, and given to the American republic as an expression of the fraternal feeling of France. The statue was formally delivered to the American minister in Paris July 4, 1880, the event being celebrated by a banquet. Bedloe's island in New York harbor was selected for its site, and about \$300,000 was raised in the United States for the building of the pedestal. In October, 1886, the statue was presented to the American people as the joint gift of the French and American nations. It is 151 feet and



1 inch high, and the top of the torch is 305 feet and 11 inches from the low-water mark. It is the largest work of the kind ever completed, being many times the size of the Colossus of Rhodes. See *Bartholdi and the Great Statue* (New York, 1886).

BARTON, CLARA, philanthropist, born in Oxford, Mass., about 1826. She first went to school in Clinton, N. Y.; afterward she became a teacher and founded a free school in Bordentown, N. J. In 1854 Miss Barton became clerk in the United States patent office. When the civil war began she devoted herself to the care of wounded soldiers on the battle field; and in 1864 had charge of the hospitals at the front of the Army of the James. In 1865 she visited Andersonville, Ga., to mark the graves of the Union soldiery. In 1866 and 1867 she gave lectures on her experiences during the war, and visited Europe to recuperate her health. During the war between Germany and France she volunteered in humane and hospital service, for which she was decorated with the golden cross of Baden and the iron cross of Germany. In 1881, on the organization of the American Red Cross Society, she became its president, and in 1884 she represented our government at the Red Cross conference in Geneva, Switzerland. In 1883 she became superintendent of the reformatory prison for women in Sherborn, Mass. She was also delegate to the international peace convention at Geneva, in 1884, and a special commissioner for foreign exhibits at the New Orleans exhibition. In 1883 the United States Senate committee on foreign relations requested her to prepare a *History of the Red Cross*, which was published at the government printing office, Washington.

BARTRAM, JOHN, botanist, born in Chester county, Penn., March 23, 1699; died in Kingessing, Penn., September 22, 1777. He was a grandson of John Bartram, who came to this country with William Penn in 1682, and was a member of the Society of Friends. After studying medicine and surgery, he became interested in the study of plants. He was the first to form a botanic garden for American plants, and gave several acres of his farm on the Schuylkill, near Philadelphia, for that purpose. The garden still remains; although in a neglected state it contains some fine old trees. In 1743 Mr. Bartram went on his first extensive botanical expedition, joining a mission to the Six Nations of Indians at Onondaga, and afterward traveling to Oswego, and to the partly explored shores of Lake Ontario. He returned to Philadelphia with many specimens, and published his *Observations on the Inhabitants, Climate, Soil, etc., from Pennsylvania to Onondaga, Oswego, and the Lake Ontario, etc.* (London, 1751). In 1765-6, he made a second expedition from Charleston, S. C., to East Florida, and carefully explored the St. John's river, where he collected many curious plants then unknown, and made an accurate map of the river and adjacent country, afterward published by the board of trade of England. His *Journal of Travels* was published in *An Account of East Florida* (London, 1766). Mr. Bartram contributed several papers to the American Philosophical Society, was a member of the Royal Society, and other foreign societies, and was appointed "American botanist to his majesty George III." He was intimate with Franklin, and corresponded with many leading foreign botanists, who, in return for valuable specimens and data, supplied him with books and apparatus. Mr. Bartram supported his family by farming, and quarried and shaped the stones for the quaint house on the Schuylkill, which he built with his own hands, and which is still standing. See *Memoirs of John Bartram*, by William Bartram; and *Memorials of*

*John Bartram and Henry Marshall*, by William Darlington (Philadelphia, 1849).

BARTRAM, WILLIAM, botanist, son of John Bartram, born in Kingessing, Pa., February 9, 1730; died there July 22, 1823. He engaged in business in Philadelphia, and afterward in North Carolina. In 1765 he accompanied his father to Florida, and remained on the St. John's river for several years cultivating indigo. In 1771 he returned to his father's home and devoted his attention to botany, a love for which he had inherited. From 1773 till 1778 he traveled through the Carolinas, Georgia and Florida to examine their natural products, and he made many drawings of the specimens which he collected. In 1782 he was appointed professor of botany in the university of Pennsylvania, which post he declined on account of impaired vision. He was a member of the American Philosophical society, and, in addition to his botanical labors, prepared a complete table of American birds. He possessed a talent for drawing, and made the illustrations of Barton's *Elements of Botany*, thus being the first to make known many curious and beautiful plants of North America.

BATES, EDWARD, statesman, born in Virginia September 4, 1792; died March 25, 1869. He became a lawyer and was two years attorney-general of Missouri. In 1827-28 he served a term in congress. In the National Republican convention of 1860 he received forty-eight votes on the first ballot, but withdrew in favor of Abraham Lincoln, who afterward made him attorney-general of the United States.

BAYARD, JAMES ASHETON, statesman, born in Philadelphia, Pa., July 28, 1767; died in Wilmington, Del., August 6, 1815. He was descended from a Huguenot family of France which fled to Holland, and settled in Manhattan in the seventeenth century. Nicholas Bayard, who arrived there in 1647, was a nephew of Gov. Peter Stuyvesant. On the death of his father, Dr. James Asheton Bayard, June 8, 1770, James A. was adopted by his uncle, Col. John Bayard, a patriot. After graduation at Princeton in 1784, he studied law in Philadelphia under Gen. Joseph Reed and Jared Ingersoll, was admitted to the bar in 1787, and settled in Wilmington, Del. He was sent to England in 1795, as American agent in ship cases growing out of the "Orders in Council," and in 1796 was elected to congress as a Federalist. He was appointed minister to France by President John Adams, before the new administration of 1801, and although confirmed by the Senate, he declined the office. In the eighth congress (December 7, 1801), he opposed the judiciary bill enacted by Federal votes in the preceding session. His service extended from May 15, 1797, till March 3, 1803, and in 1804 he was made United States senator, as the successor of William H. Wells, who resigned. He served from January 15, 1805, till March 3, 1813, and opposed the declaration of war against Great Britain in 1812. In 1813 President Madison appointed him a commissioner with Albert Gallatin (rejected by the Senate), and John Quincy Adams, to negotiate a peace with Great Britain through the mediation of Russia. He left Philadelphia May 8, 1813, and met Mr. Adams in St. Petersburg in July. This mission was not successful, and he went to Holland, and took a prominent part in the negotiations resulting in the treaty of peace signed in Ghent, December 24, 1814. He was appointed United States minister to Russia, but declined the office, and returned to Wilmington on June 15, 1814, where he died two months later. His speech on the foreign intercourse bill was published in 1798, and the speech on the repeal of the judiciary in a volume of speeches (1802.) His two sons, Richard Henry, and James A., were also successively senators from Delaware.



**BAYARD, NICHOLAS**, born in Alphen, Holland, in 1644; died in New York city in 1707. His widowed mother was a sister of Governor Stuyvesant, and with her he came to this country in 1647. The old Bayard grounds and mansion in New York city were on the west side of the Bowery, and included the territory now occupied by La Fayette Place, Astor Place, and beyond; originally it comprised about two hundred acres. In 1664 Nicholas became clerk of the common council, thereafter was private secretary to Governor Stuyvesant, and also surveyor of the province. In 1664 he married Judith Véret, who, in 1662, had been imprisoned as a witch by the Puritans of Hartford, Conn. After the re-conquest of New York by Holland, in 1672, Nicholas Bayard again was appointed secretary of the province. In 1685, when great Britain had regained the province and Dongan was made governor, Bayard was mayor of New York city, and a member of the governor's council.

**BAYARD, THOMAS FRANCIS**, son of James A. Bayard, was born in Wilmington, Del., October 29, 1828. He was admitted to the bar in 1851, and was appointed United States district-attorney for Delaware. He practiced law in Philadelphia, and in 1869 he became United States senator from his native state, was re-elected in 1875 and 1881, and resigned in March, 1885, to become secretary of state in Mr. Cleveland's cabinet, which office he held until March 4, 1889. He has several times been proposed as a presidential candidate, and at the Democratic National convention at Cincinnati, in 1880, received 153½ votes on the first ballot. Mr. Bayard was a member of the electoral commission of 1876. In March, 1893, he was sent by President Cleveland as ambassador to England, being the first American ambassador ever appointed.

**BAYLEY, JAMES ROOSEVELT**, born in New York city, August 23, 1814; died October 3, 1877. He was educated for the Episcopal ministry, and in 1840-41 held a rectorship in Harlem, N. Y. In 1842 he became a Roman Catholic, was ordained to the priesthood in 1844, and nine years later became first bishop of Newark, N. J. In 1869 he took part in the deliberations of the Ecumenical Council at the Vatican and in 1872 he was raised to the archiepiscopal see of Baltimore.

**BAZAINE, FRANÇOIS ACHILLE**, born at Versailles, near Paris, France, February 13, 1811; died September 23, 1888, at Madrid. He enlisted in the French army in 1831, served eight years in Algeria, and returned to France a captain. In 1848 he became lieutenant-colonel, and in 1854, at the outbreak of the Crimean war, was given a brigade. He distinguished himself during the siege of Sebastopol, and was appointed governor of that city after its evacuation by the Russians. In September, 1855, he was made general of division and commanded the expedition against Kinburn. His next active service was in Mexico, where he fought his way from Vera Cruz to the capital, drove Juarez to the frontier, and captured the fort of Oajaca. In 1864 he was made a marshal of France, with a seat in the Senate, which he took on his return in 1867. He was given command of the third army corps, and in October, 1869, became commander of the Imperial Guard, the flower of the French army.

On August 9, 1870, Bazaine took command at Metz of the third corps. Political reasons and the interference of Napoleon III., who feared the effect of a retreat upon the populace of Paris, were permitted by Bazaine to overcome his military judgment. Instead of falling back to effect a junction with MacMahon, he delayed until Prince Frederick Charles of Prussia came up. Defeated in the sanguinary battles of Mars-la-

Tour (August 16th) and Gravelotte (August 18th), he fell back on Metz, the strongest fortified town in Europe. He had 173,000 men under his command, but, aside from some abortive sorties, in which he lost thousands of men, he did nothing. Meantime Sedan had fallen and Napoleon III. was a prisoner. Bazaine, who seems to have considered himself as a marshal of the empire rather than a soldier of France, entered into negotiations with the German commanders, and on October 27th, surrendered his entire army as prisoners of war. This opened the way for the Germans to march to Paris and destroyed all hope of victory for France. Bazaine joined the ex-Emperor at Wilhelmshöhe, but on his return to France, at the close of the war, he was arrested and tried by a court-martial, of which the Duc d'Aumale was president. Bazaine was unanimously pronounced guilty of having surrendered his army without doing all that duty and honor required, and was sentenced to military degradation and death. His old companion in arms, Marshal McMahon, was then president of the republic, and commuted the sentence to twenty years' imprisonment. Bazaine was sent to the Isle St. Marguerite, but on August 9, 1874, escaped by the collusion of his jailers. He lived afterward in Italy, Switzerland and Spain, and died in poverty and misery at Madrid.

**BEACONSFIELD, EARL OF (BENJAMIN DISRAELI)**, was born in London, England, December 21, 1804. His father, Isaac Disraeli, was a Jew of the Sephardim and the author of *Curiosities of Literature* and other works. The boy was article to a law firm, but abandoned this for literature, and at the age of twenty-two produced *Vivian Grey*, a work which brought him into immediate notice. He spent several years in continental travel, and in 1832 offered himself as a candidate for Parliament. He was four times defeated, his political ideas at that time being of a radical, if not revolutionary, character; but he soon became a Tory, and as such was returned to Parliament for Maidstone in 1837. His first speech in the House of Commons was a high-flown farrago of nonsense, to which the members refused to listen. At this time Disraeli affected the extravagant in dress and language, and was considered the leader of the "dandies" or "Young England" party. In 1839 he married an elderly widow, possessed of a large fortune, abandoned his eccentric mannerisms and entered upon the upward course which was to lead him to the premiership. Before he had been ten years in parliament he had conquered ridicule and dislike, and had made himself at once respected and feared. During this period he issued, in rapid succession, several romances, of which *Coningsby*, *Sybil*, *Tancred*, *Contarini Fleming*, *Henrietta Temple* and *The Young Duke* are the best known.

Mr. Disraeli made a great reputation as a parliamentary debater by his speeches in opposition to Sir Robert Peel's free-trade measures, and on the death of Lord George Bentinck, in September, 1848, he became the leader in the House of Commons of the Tory-Protectionist party. They had the wealth, and he possessed the brains, and, although they both hated and distrusted him, they could not afford to lose his sarcastic oratory and his keen political prescience. In March, 1852, he obtained his first cabinet appointment, that of chancellor of the exchequer (finance minister) in the Derby ministry. This government was outvoted in December following, and Disraeli remained in opposition for six years. In 1847 he had become member for Buckinghamshire, for which he sat until 1876, when he was elevated to the peerage. On the defeat of Lord Palmerston over the conspiracy act in 1858, Disraeli again became chancellor of the ex-



chequer, with Earl Derby as prime minister. In order to "dish the Whigs," he proposed a bill for electoral reform, but the measure, which was much more ingenious than useful, was rejected, and the ministry resigned in June, 1859. Seven years of a Liberal administration followed. In June, 1866, Lord John Russell was beaten over another reform bill, and Disraeli for the third time became chancellor of the exchequer. In a few months he had converted his party to the necessity of electoral reform, and had introduced and carried a bill for a more radical extension of the franchise than had been proposed by the Liberals and fought to the death by Disraeli and the Tory squires. In February, 1868, Lord Derby resigned and Disraeli succeeded him as prime minister. Two months later Mr. Gladstone introduced his famous resolutions for the disestablishment and disendowment of the state church in Ireland. The government was defeated twice, parliament was dissolved in July, and as a result of the general election which followed in November, Mr. Disraeli resigned without meeting parliament. From that time, until January, 1874, when Mr. Gladstone dissolved the first reform parliament, Mr. Disraeli remained in the cold shade of opposition. In 1870 he broke his long silence as an author by the publication of *Lothair*, a work which, from the fame of its author, attracted an amount of interest not justified by its intrinsic merits. Ten years later he gave to the world *Endymion*, a romance in his earlier style. In 1872 he lost his wife, to whom, notwithstanding the disparity in their ages, he was devotedly attached. In 1873 he was elected lord rector of Glasgow university.

In the early part of 1874 parliament met with a large Conservative majority in place, and Mr. Disraeli began his final and longest lease of power. On August 11, 1876, finding himself no longer equal to the toils of House of Commons life, he made his last speech in that assembly, and next day the prime minister was known as the Earl of Beaconsfield. He had refused the title before, but his wife had been made a countess in her own right. During his last administration, backed by a powerful and compact Conservative majority, Lord Beaconsfield lost no opportunity of cultivating the spirit of what the French call *Chauvinism*, for which the English equivalent is "Jingoism." By a vigorous foreign policy, or in other words, by an interference in every European diplomatic squabble, and a blustering assertion of England's power, he sought to divert the attention of the English people from the neglect or postponement of needed reforms, and the continuance of time-honored abuses. His sensational pilgrimage to Berlin, from which he returned claiming to bring "Peace with Honor," offset in the vulgar mind the costly and unnecessary wars in Afghanistan and South Africa. But when in 1880 the people got a chance to speak, their verdict was one of absolute condemnation, and Mr. Gladstone came back to power with a Liberal majority of 150. The occupation of Cyprus and the presentation to Queen Victoria of the tinsel crown of empress of India could not suffice to outweigh the evils of a trade destroyed and a treasury emptied, discontent at home and distrust abroad. Earl Beaconsfield spoke but a few times in the House of Lords after this. In March following he was seized with combined gout and pneumonia, and on April 19, 1881, he died. Although of Hebrew extraction, he was baptized in the Church of England, and his remains were laid to rest in the parish church of Hughenden, Buckinghamshire.

BEARD, GEORGE MILLER, born at Montville, Conn., May 8, 1839; died in New York, January 23, 1883. He graduated at Yale in 1862, and took his

degree of M.D. four years later. Doctor Beard devoted himself to the treatment of diseases of the nervous system, and wrote extensively on the medical use of electricity and other branches of medical science.

BEARD, WILLIAM HOLBROOK, painter, born in Painesville, Ohio, April 13, 1825. He began his career as a portrait painter about 1841, and after traveling for several years settled in Buffalo in 1850, remaining there until 1857, when he went to Europe and studied in Düsseldorf, Switzerland, Italy and France. In 1860 he established himself in New York city, and became a member of the Academy in 1862. He has painted some *genre* and allegorical pictures, but has devoted himself almost exclusively to the painting of animals, making them the actors in humorous and satirical situations. He died Feb. 20, 1900.

BEAUREGARD, PIERRE GUSTAVE TOUTANT DE, soldier, born near New Orleans, La., May 28, 1818. After graduation at the United States military academy in 1838, he was made second lieutenant in the engineer corps, and remained at West Point as instructor of engineering and artillery for a few months. He was then sent to Newport, R. I., where he assisted in the construction of Fort Adams. In 1840 he was sent to New Orleans to take charge of the Louisiana fortifications, and at the beginning of the war with Mexico constructed the defenses of Tampico. He served with distinction, and at the siege of Vera Cruz March 9-29, 1847, located three of the five batteries which reduced that city. He participated in the battles of Cerro Gordo August 17-18; Contreras, August 19-20; Chapultepec, September 13th; and Mexico, September 13-14, where he was wounded. He was brevetted captain for gallantry at Contreras, and major for bravery and valuable service at Chapultepec, where he led the division which stormed the heights. After the Mexican war he commanded the fortifications of Louisiana, and in 1851 superintended the building of the United States custom house, marine hospital and the repairs of the public buildings in New Orleans. He was appointed captain March 3, 1853, assigned to engineer duty along the gulf coast, and superintended the construction of fortifications in the harbor of Mobile, the Mississippi river and Lake Pontchartrain. In 1860 he became superintendent of the United States military academy, West Point, with the rank of colonel, but resigned on February 20, 1861, to join the Southern Confederacy. He was appointed brigadier-general, and given command of the defenses of Charleston, S. C., and ordered to lay siege to Fort Sumter, April 12-14, 1861. After a cannonade of several hours, during which no lives were lost, Major Anderson, the Federal commander, marched out with the honors of war. Beauregard was then ordered to Richmond to organize the Confederate Army of the Potomac, and was practically in command at the battle of Bull Run, July 21st, after which he was given the rank of general. In January, 1862, he was transferred to the department of the Mississippi, and went to Nashville, Tenn., to strengthen its defenses. On March 5th he assumed command of the Confederate forces in the Mississippi valley, with headquarters at Jackson. After the death of Gen. A. S. Johnston at Shiloh, April 6, 1862, he took command of the Confederate army, but on April 7th, General Grant's reinforced ranks compelled him to fall back to Corinth, Miss., where he destroyed the Union stores, and retreated along the Mobile and Ohio Railroad. After this campaign General Beauregard's health failed, and he was given leave of absence until August, 1862, and again assigned to Charleston, which he defended from September, 1862, till April, 1864, when he went to Petersburg, Va. In May, 1864, he reinforced General Lee and defeated Gen. B. F. Butler at Drury's Bluff,



May 16, 1864. In November, 1864, he was assigned to the military division of the South, and at the close of the war joined Gen. J. E. Johnston and surrendered to Gen. W. T. Sherman at Greensboro, N. C., in April, 1865. From that year he was president of the New Orleans and Jackson railroad company until 1870; was Adjutant-general of Louisiana in 1878 and until his death February 20, 1893, was a manager of the Louisiana state lottery. He was the last surviving full general of the Confederacy.

BEAVER, JAMES A., born in Perry county, Pa., Oct. 21, 1837, practiced law, and, in 1861, joined the volunteer army as a second lieutenant. He was wounded at Chancellorsville, being by that time a colonel, and lost a leg at Petersburg. He was elected governor of Pennsylvania as a Republican in 1887.

BEBEL, AUGUST, German socialist leader, born in 1840 at Cologne, a turner by trade, at first opposed socialist ideas but in 1869 became their active propagandist, and was imprisoned for "spreading opinions dangerous to the State," and again in 1872 for criticising the emperor. On his release he was elected to the reichstag where he has since sat as a frank exponent of socialistic doctrines. He has written *Christianity and Socialism* and *Women in the Past and Present and Future*.

BECK, THEODORE ROMEYN, physician, born in Schenectady, N. Y., April 11, 1791; died in Utica, N. Y., November 18, 1855. He began to practice in Albany in 1811, was principal of the Albany Academy, 1817-48, and held professorships also in the College of Physicians and Surgeons of Western New York, at Fairfield college and in the Albany Medical college. He became a manager of the state lunatic asylum, and in 1854, president of the board of managers. From 1849 to 1853, he edited the *American Journal of Insanity*. He contributed various articles to scientific journals. His work, the *Elements of Medical Jurisprudence*, has been renewed in ten editions.

BEECHER, HENRY WARD, born in Litchfield, Conn., June 24, 1813; died in Brooklyn, N. Y., March 8, 1887. He was the fourth surviving son of the Rev. Lyman Beecher, and was of New England ancestry. He graduated at Amherst in 1834, became pastor of a Presbyterian church at Lawrenceburg, Ind., in 1837, and from 1839 to 1847 had charge of a church at Indianapolis. On October 16, 1847, he became the first pastor of the Plymouth Congregational church, Brooklyn, N. Y., and held this position until his death.

His sermons formed a weekly publication called *The Plymouth Pulpit*. He joined the Republican party in 1856, and in addition to political sermons delivered from his pulpit, he addressed political meetings and took an active part in the canvass, speaking throughout the North and supporting his party with his pen. He was active during the anti-slavery conflict, and in 1863 visited Europe and addressed large audiences in Great Britain on the subject of the civil war. In April, 1865, he delivered an address at Fort Sumter, on the anniversary of its fall. In 1874 Mr. Beecher's former associate and successor in the editorship of the *Independent*, Mr. Tilton, charged him with criminality with Mrs. Tilton, and a committee from the Plymouth congregation reported the charges to be without foundation. Mr. Tilton instituted a civil suit against Mr. Beecher, laying his damages at \$100,000. The trial lasted six months, and the jury, after being locked up for a week, could not agree on a verdict. Mr. Beecher was of strong physique, stout, florid and energetic. In 1884 he supported the Democratic candidate for president, and thereby estranged a number of his political friends. In 1836 Mr. Beecher was editor of the *Cincinnati Journal*, a

religious weekly, and during his residence in Indianapolis he edited *The Farmer and Gardener*, his contributions being published as *Plain and Pleasant Talks about Fruits, Flowers and Farming* (New York, 1859). For nearly twenty years he was an editorial contributor of the *Independent*, of which he was founder and editor in 1861-3, and in 1870 became editor of the *Christian Union*.

BEECHER, LYMAN, clergyman, born in New Haven, Conn., October 2, 1775; died in Brooklyn, N. Y., January 10, 1863. He was graduated at Yale in 1797, having studied theology in addition to the general course. In September, 1798, he was licensed to preach, and filled acceptably the pastorate of the Presbyterian church in East Hampton, L. I., where he remained until 1810, and during that time married Roxana Foote. A sermon on dueling, suggested by the duel between Alexander Hamilton and Aaron Burr (1806), made a great impression, and he soon became one of the best known preachers of New England. In 1810 he was made pastor of the Congregational church in Litchfield, Conn., where he remained until 1826, when he became pastor of the Hanover Street church, Boston, and held this place until 1832. He took a prominent part in the religious controversy which arose at this period, upholding the Puritan doctrine, while Doctor Channing presented the Unitarian views to the people of Boston. From 1832 till 1851 Mr. Beecher was president of the Lane Theological seminary, Walnut Hills, Cincinnati, in which he was professor of theology, and in 1832-42 was pastor of the Second Presbyterian church of Cincinnati. In 1833 he delivered an address before the abolition convention in Philadelphia, which caused great excitement in his seminary and incited a mob. In 1835 Mr. Beecher was arraigned and tried for hypocrisy and heresy by the sterner Calvinists. He defended himself and was acquitted by the general assembly, and on the division of the Presbyterian church into two factions in 1836-8, he joined the new school. Resigning from Lane seminary in 1851 he returned to Boston and spent his time in publishing and revising his works. During his last ten years he lived with his son, Henry Ward Beecher, in Brooklyn. From 1815 till 1851 no preacher in America had greater influence than Lyman Beecher. He was married three times, and his five sons, William Henry, Edward George, Henry Ward, Charles and Thomas Kinnicut, became Congregational clergymen.

BELFORD, CHARLES, journalist, born in Cork, Ireland, April 15, 1837. He received a university education. It had been decided that he should adopt the profession of a draughtsman; but his father and family emigrating to Canada in 1856, that decision was abandoned. He became one of the editorial staff of the *Toronto Leader*, then a prominent Conservative daily, and on the retirement of Mr. Lindsay, Mr. Belford was at once promoted to the chief editorial chair, which he occupied until late in the year 1871, when he was induced to take charge of the *Mail*, a new Conservative daily, the first number of which was issued on March 30, 1872. For six years he labored with unflagging fidelity, but the overwrought frame yielded beneath the undue pressure, and, though he had not yet reached the prime of life he was a confirmed invalid. In 1879 he accepted the position of secretary to the Dominion board of appraisers at Ottawa. Although Mr. Belford was never a violent party man, he was a fearless opponent. He was a staunch supporter of the crown and constitution. He detested all shams, and was always opposed to government interfering in any way with the rights of private citizens. His chivalry and love of truth commanded the esteem and admiration



of even his political antagonists. In religion he was a member of the Church of the Disciples. So high an opinion had President Garfield of his ability and integrity, that he sought to induce him to leave Canada and take charge of a prominent New York daily paper. He was one of the editorial commissioners on confederation, was president of the Canadian Literary Association, and the originator of the national protection policy cry, which carried the Conservative party to victory. In his triumphs he was generous, and in his reverses proud. Notwithstanding his constant arduous labors, the *Canadian Eclectic Monthly* and the *Canadian Belford's Magazine* had the benefit of his clear head and fostering care. He died December 19, 1881, in the forty-fifth year of his age. The only remaining members of his family are his two brothers, Mr. Alexander Belford, of the firm of Belford-Clarke Company, Chicago, and Mr. Robert Belford, now of the State of California.

BELL, ALEXANDER GRAHAM, inventor, born in Edinburgh, Scotland, March 3, 1847; came to the United States in 1872. He introduced into this country the system of instruction for deaf mutes invented by his father, Alexander Melville Bell. But he is best known by his discoveries in connection with the transmission of sound. The first public exhibition of his telephone was given at Philadelphia in 1876, and he has since made many improvements in it. He is a member of several scientific societies, and has written extensively on electricity.

BELL, JOHN, born near Nashville, Tenn., February 18, 1797; died at Cumberland Ironworks, Tenn., September 10, 1869. He was graduated at Cumberland college (now the university of Nashville) in 1814, was admitted to the bar in 1816, and in 1817 was elected to the State Senate. In 1827 he was elected to congress as a Whig, serving until 1841, and winning reputation as a debater. He changed his views as to free trade and became an ardent supporter of the protective tariff, and was active in procuring the improvement of the rivers and harbors by the national government. He supported General Jackson as candidate for the presidency in 1832. Although in favor of a United States bank, he voted against the renewal of its charter, and his protest against President Jackson's removal of the deposits led to his withdrawal from the Democratic party. In 1834 he was elected speaker of the House of Representatives. During his term in congress, he favored the reception of petitions for the abolition of slavery in the District of Columbia, and in 1838 voted against the "gag" resolutions of Mr. Atherton, which required such petitions to be received without debate. In 1841 he was appointed secretary of war by President Harrison, but resigned from his post at an early date, owing to Mr. Tyler's separation from the Whig party, and retired to private life. He was elected to the United States Senate in 1847, and reelected in 1853, serving until 1859. During these terms he opposed the Texas annexation policy, advocated Henry Clay's compromise of 1850, voted against the Kansas-Nebraska bill of 1850, and opposed the repeal of the Missouri compromise and the admission of Kansas under the Lecompton constitution. Mr. Bell was nominated for president, with Edward Everett for vice-president, by a convention of the "Constitutional Union" in 1860, when secession was threatened by the Southern States, and he received the electoral votes of Tennessee, Virginia and Kentucky, and also a large vote from several other Southern States. On April 18, 1861, he, with seven other citizens of Tennessee, issued an address recommending his State to preserve an armed neutrality, and on April 23, 1861, he delivered an address in Nashville in support of

the Southern policy. Mr. Bell did not serve in the civil war.

BELLAMY, EDWARD, born in Massachusetts, March 26, 1850; was admitted to the bar in 1871. He was connected with the Springfield, Mass., and New York press, and in 1888 published *Looking Backward*, a Utopian dream of perfected socialism. Died May, 1898.

BELLOWS, ALBERT F., painter, born in Milford, Mass., November 29, 1829; died November 24, 1883. He studied in Europe, and excelled in water-colors. He became a member of the National Academy in 1861, and in 1868 was made honorary member of the Royal Belgian Society of water-color artists.

BELLOWS, HENRY WHITNEY, born in Boston, Mass., June 11, 1814; died in New York city, January 30, 1882. He was graduated at Harvard in 1832, and at the Divinity School, Cambridge, after which he was made pastor of the First Unitarian church of New York city, January 2, 1839. From 1861 till 1878 he was president of the United States Sanitary Commission. He delivered the Phi Beta Kappa oration at Harvard in 1853, an address in support of the drama in 1857, and Lowell lectures on the treatment of social diseases. He visited Europe in 1848, 1867-8 and 1872, and California in 1872. In 1846 he founded a weekly paper, *The Christian Inquirer*, of which he was the chief writer until 1850, and he was associate editor of the *Christian Examiner* and the *Liberal Christian*. Harvard gave him the degree of D.D. in 1854.

BELMONT, AUGUST, born in Germany in 1816, settled in New York in 1837, and from 1844 to 1850 was Austrian consul-general in that city. From 1854 to 1858 he was United States minister to the Hague, and on his return to New York engaged in banking there. He took a prominent part in politics, and was chairman of the Democratic national committee. He died November 24, 1890. His son, Perry Belmont, born in New York in 1851, served three terms in congress (1881-87) as a Democrat.

BENEDEK, LUDWIG VON, born in Hungary in 1804, entered the Austrian service, fought in the Italian war, 1848-49, and defeated the Hungarian patriots in 1849. In June, 1866, he commanded the entire Austrian force of 200,000 men, and on July 3d of that year was completely overwhelmed by the Prussians at Sadowa, losing 40,000 men and 100 cannon. He died April 27, 1881.

BENEDETTI, VINCENT, born in Corsica in 1815, was French minister at Turin 1861-62, and at Berlin 1864-70. It was he who, by insisting, under the orders of Napoleon III., that the king of Prussia should give pledges in regard to the candidacy of Prince Leopold of Hohenzollern for the Spanish throne, caused the rupture of diplomatic relations and precipitated the war of 1870-71. He died March 28, 1900.

BENEDICT, SIR JULIUS, musical composer, born in Stuttgart, Germany, November 27, 1804; died in London June 5, 1885. He visited the United States with Jenny Lind in 1850. Among his works are the oratorio, *St. Peter*, the operas *The Gypsy's Warning*, *The Crusaders*, and *The Brides of Venice*; and the cantatas, *The Lily of Killarney*, *Undine*, and *Cœur de Lion*.

BENJAMIN, JUDAH PHILIP, lawyer, born in St. Croix, W. I., August 11, 1811; died in Paris, France, May 8, 1884. He was of Jewish parentage. He removed with his family to Savannah, Ga. He studied at Yale, and read law in New Orleans, where he was admitted to the bar in 1834, and became a member of the firm of Slidell, Benjamin & Conrad. In 1845 he was a member of the convention to revise the State constitution. In 1852 he was elected to the United States Senate as a Whig, but during the anti-slavery agitation became



a Democrat, and was reelected to the Senate in 1857, but withdrew with John Slidell at the secession of Louisiana. During his term he advocated the Kansas-Nebraska bill of 1854, but afterward insisted that the principle of popular sovereignty had been definitely set aside by the decision in the Dred-Scott case, which he wished accepted as conclusive. In February, 1861, he was appointed attorney-general of the provisional government of the Confederate States, but resigned this office, and was appointed secretary of state by Jefferson Davis, which office he held until the Confederacy was broken. He fled from Richmond to the Bahamas, and thence to Liverpool in September, 1865. He studied English law, entering Lincoln Inn in 1866, and was called to the bar in the following summer. He was promoted Queen's counsel in June, 1872, and acquired an extensive practice.

**BENJAMIN, PARK**, born in Demerara, August 13, 1809; died in New York city, September 12, 1864. He studied at Harvard and Trinity and practiced law in Boston. He was one of the editors of the *New England Magazine*, and the *American Monthly Magazine*, and edited the *New Yorker* and other periodicals. His son of the same name, born in New York, May 11, 1849, was associate editor of the *Scientific American* from 1872 to 1878.

**BENNETT, JAMES GORDON, JR.**, born in New York city, May 10, 1841; was the only son of the founder of the New York *Herald*, and is the sole proprietor of that paper.

**BENSON, EDWARD WHITE**, archbishop of Canterbury, was born in Birmingham, England, in 1829, and took the highest classical honors at Cambridge in 1852. He was ordained priest in 1857, became headmaster of Wellington college in 1858, and was consecrated Bishop of Truro, April 25, 1877. In 1882, he became archbishop of Canterbury, and died Oct. 11, 1896.

**BENTON, THOMAS HART**, statesman, born near Hillsborough, N. C., March 14, 1782; died in Washington, D. C., April 10, 1858. His father, Col. Jesse Benton, a lawyer of North Carolina, and private secretary to Governor Tryon, died when Thomas was eight years of age. The latter was partly educated at the University of North Carolina, but removed with his mother, Ann Gooch, of Virginia, to Tennessee. Thomas studied law with St. George Tucker, was admitted to the bar of Nashville in 1811, and acquired a large practice. Elected to the legislature, he procured the passage of a law for the reform of the judicial system of the State, and another which gave the right of trial by jury to slaves. In 1810 he entered the United States army, and in 1812 was Jackson's aide-de-camp. Subsequently he had a quarrel with Andrew Jackson, which resulted in a personal combat with knives and pistols, and a long and bitter feud. He also raised a regiment of which he was appointed colonel, and when this was disbanded in 1813 he was made lieutenant-colonel by President Madison, and started for Canada, but peace was declared and he resigned his commission. In 1815 he moved to St. Louis, where he practiced law and founded *The Missouri Inquirer*, a journal of strong pro-slavery proclivities, and became involved in several duels, in one of which he killed a Mr. Lucas. He advocated the admission of Missouri as a slave State, and when it was included in the Union in 1820, he was chosen to the United States Senate, where he served for thirty years. He secured a reform in the disposition of the government lands to settlers; advocated new land laws in 1824, 1826 and 1828; caused the adoption of a bill throwing the mineral and saline lands of Missouri open for occupancy; secured the repeal of the salt tax, 1829-30; was an advocate of a railroad to the Pacific; favored the opening of

trade with New Mexico; encouraged the establishment of military stations in Missouri; gave attention to post-roads, and, during the political agitation caused by President Jackson's determination to overthrow the United States Bank, and to place the currency on a metallic basis, he advocated that measure, and received the name of "Old Bullion." Colonel Benton moved the famous "expunging resolutions" in 1837, which struck from the journal of the Senate a vote of censure against General Jackson at the time of his assumption of power during the battle of New Orleans. He took an active part in the discussions in regard to the Oregon boundary, the annexation of Texas, and other important subjects, and during the Mexican war he was useful to the government. He opposed Henry Clay's compromise measures in 1850, and his struggle against J. C. Calhoun's resolutions cost him his seat in the Senate. In 1852 he was elected to the House of Representatives, where he opposed the policy of President Pierce, and the Kansas-Nebraska bill, and in 1854 was defeated for congress by a coalition of his former political opponents. In 1856 he was defeated as Democratic candidate for governor of Missouri. He then retired from public life, and devoted himself to completing his *Thirty Years' View, or a History of the Working of the American Government from 1820 to 1850* (2 vols., New York, 1854-6). His daughter, Jessie, married Gen. John C. Fremont.

**BERESFORD, WILLIAM CHARLES DE LA POER**, commonly called Lord Charles Beresford, born in Ireland, February 10, 1846. He entered the British navy when a boy, and distinguished himself at the bombardment of Alexandria, in July, 1882, and in the Khartoum expedition three years later. He was a member of parliament, and served a term at the Admiralty Board, but resigned in 1889 to accept a naval command.

**BERGH, HENRY**, founder of the American Society for the Prevention of Cruelty to Animals; born in New York city in 1823. His family, of German origin, came to America about 1740, and settled near Staatsburg, on the Hudson, and his father, Christian, was a shipbuilder in the service of the government. After studying at Columbia college, he went to Europe, where he spent twelve years, traveled extensively in the East, and in 1862 was appointed secretary of the American legation in St. Petersburg, but resigned owing to the severity of the climate. In 1874 he returned to this country, and resolved to devote his time to the protection of animals. The first American society of the class was incorporated, with Mr. Bergh as its president, on April 10, 1866. In 1871, a Frenchman, Louis Bonard, left \$150,000 to the society, and it removed to the corner of Fourth avenue and Twenty-second, New York city. The association has a large and influential membership, and in New York city its officers are constituted special policemen, with authority to arrest any person found practicing cruelty to animals. In the face of ridicule and opposition, Mr. Bergh created a reform recognized as one of the beneficent movements of the age. In 1886 thirty-nine states of the Union, Brazil, and the Argentine Republic had adopted the original laws passed for him by the legislature of New York. Mr. Bergh received no salary for his services. He invented artificial pigeons for the sportsman's gun, and procured an ambulance for removing injured animals from the street. In 1874 he rescued a little girl from brutal treatment, which led to the founding of a Society for the Prevention of Cruelty to Children. Mr. Bergh wrote several tales, sketches and plays. He died March 12, 1888.

**BERKELEY, SIR WILLIAM**, colonial governor of Virginia, born in London, England, about 1610; died July 13, 1677. His father was Sir Maurice Berkeley.



After his graduation at Oxford, in 1629, he traveled extensively on the continent, and in 1630 he was appointed one of the commissioners of Canada. He was sent as governor to Virginia in 1641. When Cromwell attained to the control of the British Government, Governor Berkeley offered an asylum in Virginia to loyalist gentlemen. When the new parliament sent to Virginia several ships of war to enforce his recall, he was compelled to resign. On the death of Samuel Mathews, the governor who had succeeded him, Berkeley was temporarily elected governor, and received his commission from Charles II. after the restoration. Several harsh measures adopted by him caused considerable dissatisfaction among the colonists, particularly so his faithlessness and obstinacy in dealing with Indians. In 1665 the king demanded his return; nevertheless Berkeley continued his authority in Virginia for eleven years longer. He was no friend of educating the masses, and acted the part of an intolerant sectarian religionist. In 1676 he was peremptorily recalled to England. He wrote *The Lost Lady*, a tragic-comedy (London, 1638); also *A Description of Virginia* (1663).

BERNHARDT, SARA, actress, born in Paris of Jewish parents, October 22, 1844. She studied at the Paris Conservatoire, and at first played burlesque parts, but in 1867 began her career as an exponent of the classical drama. She has played engagements in this country and in England, was a *Sociétaire* of the Theatre Français in Paris, and is pronounced by competent judges to be the equal of Rachel at her best. In 1882 she married a Greek actor named Jacques Damala, who died August 18, 1889.

BERT, PAUL, born in France, October 19, 1833; studied chemistry and became professor of physiology in the faculty of sciences at Paris. He was president of the Society of Biology, and in 1882 was elected a member of the Academy of Sciences. His published contributions on anatomy, physiology and other scientific branches are of great value. An ardent Republican, he entered political life at the September (1870) revolution, and from 1874 to 1881 was a member of the Chamber of Deputies. In November, 1881, he became minister of worship and public instruction, and in this capacity incurred the enmity of the Roman Catholic clergy by his efforts to secularize education. He was sent to Tonkin to take charge of French interests there, and died of malaria a few months later, in 1886.

BERTHELOT, PIERRE EUGENE, chemist, born in Paris, October 25, 1827; became in 1864, professor of organic chemistry in the Collège de France, and has published valuable scientific works.

BESANT, ANNIE (*née* Wood), born in London, October 1, 1847, married in 1867, divorced in 1873, in 1874 a Secularist and in 1883 a socialist—in 1889 discarded free thought for theosophy and since Mme. Blavatsky's death has been the leader of the theosophists. She lectured in the United States in 1892, published her autobiography, *Through Storms to Peace*, in 1893 and in 1894 visited India, the birth place of theosophy.

BESANT, WALTER, a voluminous and popular novelist, born in Portsmouth, England, in 1838, wrote novels and plays conjointly with the late J. Rice, and has since written *All Sorts and Conditions of Men*, which inspired the establishment of the People's Palace, London; *The Ivory Gate* (1892), *The Rebel Queen* (1893), and many other novels, besides *A History of London* (1893). He took part in the Congress of Authors at the World's Fair in Chicago in 1893. Died June 1901.

BESSEMER, SIR HENRY, inventor of the Bessemer process of making steel from iron, which reduced the cost from \$250 to \$50 a ton and revolutionized the iron

and steel industry in the United States as well as in England, was born at Charlton, Herts, 1813, and was a prolific inventor, discovering the process noted above in 1856. He was knighted in 1879.

BETHUNE, GEORGE WASHINGTON, born in New York city in March, 1805; died in Florence, Italy, April 27, 1862. Ordained a Presbyterian minister in 1825, he united with the Dutch Reformed church in 1826 and preached at Utica, Philadelphia and Brooklyn, until 1859, when he went to Italy for his health. In 1860 he returned home and became associate-pastor of a New York church, but, his health again failing, he returned to Italy where he died of apoplexy. He was an accomplished literary worker and eloquent orator.

BEUST, FRIEDRICH FERDINAND, BARON VON, born at Dresden, Saxony, in 1809; became minister of foreign affairs in February, 1849. Transferring his allegiance to Austria, he became in 1866 minister of foreign affairs and prime minister of the Austrian empire. He was a protestant, opposed the Roman Catholic hierarchy, abolished the concordat, made all forms of religious belief equal before the law, and admitted the Jews to all civil rights. In 1871 he resigned the chancellorship of the empire of Austro-Hungary, and became minister to England. In 1878 he was transferred to Paris, and he died October 24, 1886.

BIDDLE, JAMES, born in Philadelphia, Penn., in 1783; died there October 1, 1848. After receiving his education at the university of Pennsylvania, he entered the navy as a midshipman in February, 1800; served in the war with Tripoli; was captured in the frigate *Philadelphia*, and confined for four months. During the war of 1812 he was first lieutenant of the *Wasp*, and led in the action against the *Frolic*, which he commanded after its capture. Both vessels were taken by the British ship, *Poictiers*, and conveyed to the Bermudas. After his exchange, in March, 1813, Mr. Biddle was given command of a flotilla of gunboats on the Delaware, and transferred to the *Hornet*, in Decatur's squadron, blockaded at New London, Conn. He escaped and captured the *Penguin* off the island Tristan d'Acunha, on March, 1813, for which congress gave him a gold medal. In February, 1815, he was made captain. During his command of the Mediterranean squadron, 1831, he negotiated a commercial treaty with Turkey, and in 1845 was engaged in diplomatic service in China.

BIDDLE, NICHOLAS, naval officer, born in Philadelphia September 10, 1750; killed in action near the West Indies, March 7, 1778. He entered the British navy as midshipman in 1770, but absconded, and shipping as a seaman sailed under Nelson in the *Carcass* in the exploring expedition of Captain Phipps (Lord Musgrave). At the beginning of the War of Independence he returned to Philadelphia, was made captain of the brig *Andrew Doria*, with fourteen guns and one hundred and twenty men; served in Commodore Hopkins' attack on New Providence, and cruised off Newfoundland, here he captured two transports from Scotland, bringing 400 troops to America, and other prizes. In February, 1777, he was appointed commander of the *Randolph*, a frigate of thirty-two guns, and carried four valuable prizes to Charleston. Soon afterward he was made commander of a small squadron and cruised in the West Indies, where he encountered the *Yarmouth*, a British frigate of sixty-four guns, and was wounded in the action. During the engagement the magazine of Commodore Biddle's vessel exploded, and he and his crew were blown up. Only four of the three hundred and fifteen men escaped.

BIDDLE, NICHOLAS, banker, born in Philadelphia January 8, 1786; died there February 27, 1844. He



studied law, became secretary to James Monroe, who was then minister to England, and was elected to the legislature of Pennsylvania in 1810. In 1819 he became a director, and four years later was made president of the United States bank. He held the latter post until 1839, and had a protracted fight with General Jackson over the withdrawal of the government deposits in 1833. The failure of the bank in 1841 left him poor. He was one of the founders of Girard college.

**BIENVILLE, JEAN BAPTISTE LE MOYNE, SIEUR DE**, governor of Louisiana, born in Montreal, Canada, February 23, 1680; died in France in 1768. He was a son of Charles le Moyne, baron of Longueil, whose family was prominent in Canada, served in the navy under his brother Iberville, and was wounded in an engagement in which three English men-of-war were defeated by the French ship *Pelican*, of forty-two guns. He also accompanied Iberville, who was commissioned by the French Government to explore the mouth of the Mississippi and erect a fort there. They settled at Biloxi, December 7, 1699, and Bienville explored the country and erected a fort fifty-four miles above the mouth of the river in January, 1700. On the death of a brother, Sanvolle, in 1701, he became director of the colony, and removed its capital to Mobile, but was accused of misconduct, and discharged from his office in 1707. He held this office for a time longer on account of the death of the new governor on his way from France, and when Lamotte Cardillac was made governor he was appointed lieutenant-governor. A new colony having been formed by Law's Mississippi company, Bienville was made its governor, and in March, 1718, he founded the city of New Orleans, and placed his brother Châtauguay in command of Pensacola, which he wrested from the Spaniards. He transferred the capital of Louisiana to New Orleans in 1723, and in January, 1724, was called to France. He was removed from his post on August 9, 1726, but in 1733 he was again made governor of Louisiana, with the rank of lieutenant-general. In 1736, 1739, and 1740, he made unsuccessful expeditions against the Chickasaw Indians, in consequence of which he was removed, and he returned to France in 1743. He published a code which regulated the condition of slaves, prohibited every religion except the Roman Catholic, and banished Jews from the colony; this remained in force until Louisiana was purchased by the United States.

**BIERSTADT, ALBERT**, painter, born in Düsseldorf, Germany, January 7, 1830; came to America when a child. He studied art in Europe, but chose California and Colorado as the field for his work. His specialty is mountain scenery, and he painted Laramie Peak, Lander's Peak, Mt. Hood, and other peaks of the Rockies and the Sierra Nevada. He is a member of the National Academy and of the St. Petersburg Academy of Fine Arts, and has been honored by various foreign governments. Died Feb. 18, 1902.

**BIGELOW, JOHN**, journalist, born in Malden, N. Y., November 25, 1817; became part owner of the *New York Evening Post* in 1849, and managed that paper until 1861. In the last-named year he was sent to Paris as counsel, and from 1865 to 1867, was United States minister there. In 1867-68 he went over to the Democratic party, and was elected secretary of state of New York. Mr. Bigelow has written lives of Fremont and William Cullen Bryant, and has edited Franklin's autobiography and Tilden's speeches.

**BIGGAR, JOSEPH**, born at Belfast in 1828; was elected to parliament from Cavan as a Home Ruler in 1874; and became known as the champion obstructionist of the House of Commons. He was twice pros-

ecuted for sedition and conspiracy, but both juries disagreed. He died February 19, 1890.

**BINGHAM, JOHN A.**, lawyer, born in Mercer, Penn., in 1815; became a lawyer, and was elected to congress from Ohio as a Republican in 1854. He sat in the House from 1855 to 1863, then became judge-advocate in the army, and in 1864 solicitor of the Court of Claims. As special judge-advocate he took part in the trial of Lincoln's assassins. He returned to congress in 1865, and sat until 1873, and was one of the managers of the impeachment proceedings against Andrew Johnson. For twelve years from May, 1873, Mr. Bingham was U. S. minister to Japan. Died March 19, 1900.

**BINNEY, HORACE**, lawyer, born in Philadelphia, Penn., January 4, 1780; died there August 12, 1875. After graduating at Harvard in 1797, he studied law, and was admitted to the bar in 1800. He soon became a leader in cases before the higher courts of Pennsylvania, and practiced also in the United States Supreme Court. He opposed President Jackson's administration, and was elected to congress in 1833, serving one term, and he was a trustee in closing the affairs of the United States Bank, in which he had been a director. His most important case was the defense of Philadelphia in 1843 before the United States Supreme Court, against the heirs of Stephen Girard (*Vidal v. the Mayor of Philadelphia*). His argument is exhaustive and final, and is an authority on the law of charitable uses. After this brilliant triumph he retired from practice in the courts. He refused a nomination to the United States Supreme Court offered by President Tyler, and declined many judicial posts. Mr. Binney in early life contributed to *Dennie's Port-Folio*, and published *Reports of Cases in the Supreme Court of Pennsylvania from 1799 to 1814; The Leaders of the Old Bar of Philadelphia* (Philadelphia, 1859); *An Inquiry into the Formation of Washington's Farewell Address*, opposing the claim made for Alexander Hamilton as its author (1859); *The Privilege of the Writ of Habeas Corpus Under the Constitution*, maintaining the president's power to suspend the writ without the authority previously given from congress (1862), and elaborated in 1865; many addresses and legal pamphlets; and eulogiums of Chief Justice Tilghman (1827); of Chief Justice Marshall (1836); and of Hon. John Sergeant (1852). His son Horace (1809-1870) was a lawyer of ability and a prominent citizen of Philadelphia.

**BIRNEY, JAMES GILLESPIE**, abolitionist, born in Danville, Ky., February 4, 1792; died in Perth Amboy, N. J., November 25, 1857. After graduation at Princeton, in 1812, he studied law in Philadelphia with A. J. Dallas, and removed to Kentucky, where he served in the legislature. He removed to Huntsville, Ala., in 1825, practiced law, became district attorney, was elected to the legislature, and aided in organizing a branch of the Colonization Society in 1833. In 1834 he returned to Kentucky, and was made a professor in the university of Danville. He was made president of the Colonization Society, which he organized in Kentucky, and published a letter advocating the emancipation of slaves, setting an example by freeing his own. Mr. Birney could not get his anti-slavery writings printed in Kentucky, and he therefore removed to Cincinnati, where he published *The Philanthropist*, one of the earliest anti-slavery organs. The office from which this was issued was frequently assailed and partially destroyed by mobs. In 1836 he removed to New York, having been made secretary of the American Anti-Slavery Society, and devoted himself to the work. He was a founder of the Liberal party, which nominated him for the presidency in 1840, when he was in England. In 1842 he removed to Sag-



naw, Mich., and two years later was again nominated for the presidency, receiving more than 62,000 votes in thirteen States. This deprived Henry Clay of the electoral vote of Michigan, and secured the election of James K. Polk. After a severe fall from his horse Mr. Birney retired from public life.

**BISMARCK-SCHÖNHAUSEN, OTTO EDUARD LEOPOLD**, prince, was born at Schönhausen in Brandenburg, April 1, 1815. He is of good family, his father being a Junker, or landed proprietor, and descended from a noble house. He was educated at Berlin, Göttingen, and Eldena, and, although one of the wildest of students, passed a successful examination. Having served a year in a volunteer regiment, he settled on the family estate, and in 1847 was elected to the first Landtag of the kingdom of Prussia. He was a strong royalist and bitter opponent of the revolutionary methods proposed in 1848. In 1847 he married the daughter of a Pomeranian proprietor named Puttkamer, by whom he had two sons and one daughter. In 1848 he was rejected at the polls, but a year later became a member of the Landtag which met at Berlin, and in 1851 represented Prussia in the Federal Diet. In 1859 he became minister at St. Petersburg, and on May 26, 1862, was sent as ambassador to Paris. On September 24 of the same year he was recalled and appointed minister of state and president of the council.

The Chambers refused to vote his budget or to adopt his propositions for military reorganization, and Bismarck prorogued them, and governed without a parliament for five sessions. He permitted Austria to take part in the attack on Schleswig-Holstein and secured the Elbe Duchies for Prussia out of the spoils. On May 7, 1866, a half-crazed youth known as Ferdinand Cohen, or Blind, made a daring but unsuccessful attempt to assassinate Bismarck, in Unter den Linden, Berlin, and his life was again attempted in 1874 by an ultramontane tinsmith. In 1866 occurred the war with Austria, and the reorganization of the North German Confederation under the leadership of Prussia. Through all the tortuous mazes of diplomacy and intrigue, and in the teeth of formidable opposition in parliament, Bismarck kept steadily in view his great aim of the unity and aggrandizement of Germany. Austria having been deprived of the Southern German States, it only remained to deal with France. The ill-starred Napoleon under the domination of an ambitious woman and a fanatical priesthood, furnished the necessary pretext for one of the bloodiest wars of modern times, and when peace was finally signed at Versailles, Bismarck's sovereign had become Emperor of Germany, and Otto von Bismarck was the most powerful man in Europe. He was created a prince, presented with an estate, and made chancellor of the newly constituted German empire.

For two decades German history was largely the history of Bismarck. Over and over again, when his schemes were opposed in parliament or by the underground intrigues of courtiers he threatened to resign, but he remained until 1890 the actual governor of Germany. The old King William, whom Bismarck, with the help of Von Moltke's military genius, raised to the rank of emperor, passed away, followed in a few months by his son, but still the Iron Chancellor kept his place in the counsels of the third emperor of reconstructed Germany. Under his guidance that country has become a colonizing power as well as the arbiter of peace or war in Europe. He sternly repressed the socialists, even at the sacrifice of constitutional liberty, and carried out his policy with respect to the army in spite of the protests and obstructive measures of the opposition. Only in his attempt to enforce the laws

against the Catholics did he fail to carry out his views in their entirety. The forceful young emperor, resenting his chancellor's determination to dictate the policy of the empire compelled him to resign, March 17, 1890, after numerous ruptures, and for several years Prince Bismarck was a bitter critic of the imperial policy, but was publicly reconciled to the emperor in 1894. His 80th birthday in 1895, was celebrated as a great national event, Emperor William II. participating. Princess Bismarck died Nov. 27, 1894. Died July 30, 1898.

**BISSELL, WILLIAM H.**, lawyer, born near Coopers-town, N. Y., April 25, 1811; died March 18, 1860. He served in the Mexican war, was in congress as a Democrat, 1849-55, but left the party over the Kansas-Nebraska bill, and was elected governor of Illinois as a Republican in 1856. He was reelected and died in office. During the discussions on the Missouri compromise in congress, Jefferson Davis took exception to a statement made by Mr. Bissell about the actions of certain Southern soldiers in the Mexican war. Davis challenged Bissell, but, when the latter promptly accepted and named muskets at short range as the weapons, Mr. Davis backed down.

**BJÖRNSON, BJÖRNSTJERNE**, poet and novelist, was born in northern Norway, December 8, 1832. He received some education at the university of Christiania, wrote a drama, and began his literary labors in Copenhagen. He has written several romantic plays, based on the Norse Sagas, and as a folk-lorist and popular novelist stands in the front rank of Scandinavian literature.

**BLACK HAWK**, a chief of the Sac and Fox tribes of Indians, born in Kaskaskia, Ill., in 1767; died on the river Des Moines, October 3, 1838. At an early age he became a trusted brave and a successful chieftain in conducting sorties against the Osage and Cherokee tribes. In 1788 he was grand-chieftain of the Sacs. In 1804 the Sacs and Foxes, for an annuity of \$1,000, agreed to cede to the United States lands extending about 700 miles along the Mississippi river. This contract Black Hawk repudiated, averring that the chiefs had been made drunk before they signed the documents. During the war of 1812 Black Hawk, moved by Elskawatawa, the Shawnee prophet, and tempted by British agents with the title of general, joined the enemy with about 500 warriors; but the Indians soon retired from British service. In 1816, at St. Louis, Black Hawk was induced to sign the repudiated treaty of 1804. In 1823 most of the Sacs and Foxes, under the leadership of Keokuk, removed to their reservation beyond the Mississippi river; but Black Hawk, with part of the tribe, refused to emigrate, although most of the chiefs had signed a treaty by which the Indian lands east of the Mississippi river became the property of the whites. When the plantings of his people were destroyed and their lands became seized by white settlers the Indians threatened revenge. On June 25, 1831, General Gaines, at the head of a force of militia, drove the Indians from their settlements. Early in 1832 Black Hawk, with a band of Indians, crossed the Mississippi river, when they began to destroy the whites; but, after several encounters, the Indians were defeated and Black Hawk himself and his two sons became captives. The three were confined in Fortress Monroe until June 5, 1833. Later Black Hawk was deposed from leadership, and Keokuk became grand-chief of the Sacs and Foxes, 3,000 of whom were settled near Fort Des Moines. *A Life of Black Hawk*, by J. B. Patterson, was published in 1834; also one by W. J. Snelling, and another by Benjamin Drake.

**BLACK, JEREMIAH SULLIVAN**, born in Somerset county, Penn., January 10, 1810; died in York, Penn.,



August 19, 1883. He was of Scotch-Irish ancestry and his grandfather James came from Ireland and settled in Somerset county, Penn. After receiving a good education, Jeremiah studied law, was admitted to the bar in 1831, made prosecuting attorney of Somerset county and attained eminence. In 1842 he was raised to the bench and made president judge of his district, and in 1851 became chief justice. He was reelected in 1854 for a term of fifteen years, but in 1857 was called to the cabinet by President Buchanan as attorney general. While serving in this capacity he at the time of secession declared, in answer to the president's request for an opinion, it was the duty of the Union to put down insurrection. He succeeded General Cass as secretary of state in December, 1860, and held this place until the close of James Buchanan's administration. He was appointed a judge of the Supreme Court, but his nomination was not confirmed by the Senate, and he then became reporter of that court for a short time, after which he returned to the practice of his profession in York.

BLACK, WILLIAM, novelist, born at Glasgow, Scotland, November 11, 1841. He began his literary life by writing for newspapers and magazines in London, became editor of the *London Review*, and assistant editor of the *Daily News*, served as a war correspondent in 1866, and visited this country. His novels contain graphic descriptions of scenery and yachting life, and are widely popular. Among the best known are *A Princess of Thule*, *Madcap Violet*, *White Wings*, *In Far Lochaber* (1893) and *Donald Ross and The New Prince Fortunatus* (1894). Died Dec. 10, 1898.

BLACKBURN, JOSEPH CLAY STYLES, born in Woodford county, Ky., October 1, 1838; practiced law in Chicago 1858-60. He entered the Confederate army in 1861, and served through the Civil War. In 1871 and 1873 he was elected to the Kentucky legislature, and in 1875 entered congress as a Democrat; was reelected up to 1882; in March, 1885, became United States senator, and was reelected for the term ending March, 1897.

BLACKIE, JOHN STUART, born in Glasgow, Scotland, in July, 1809; was educated at Aberdeen and Edinburgh, and studied later at Berlin, Rome, and Göttingen. He devoted himself to literature, and, in 1834, published a translation in verse of Goethe's *Faust*. Made professor of Latin literature in Aberdeen, 1841, he was transferred, in 1852, to the University of Edinburgh, where, for thirty years he was professor of Greek. He was an ardent advocate of Scotch nationality, and did more than any other writer to preserve Gaelic literature, in letter and spirit. He died March 2, 1895.

BLACKMORE, RICHARD DODDRIDGE, born in Berkshire, Eng., in 1825; graduated at Oxford in 1847, and was called to the bar. Of his novels, which have become popular both in the United States and in England, the best is *Lorna Doone*, a story of Devonshire life. He published *Percy Cross* in 1894. Died Jan., 1900.

BLACKWELL, ELIZABETH, born in Bristol, Eng., in 1821; came to the United States when a child, and was the first woman to attain the degree of M.D. in this country. She practiced medicine for many years, organized a woman's medical college in New York, and has written on the *Laws of Life* and the education of children.

BLAINE, JAMES GILLESPIE, statesman, born in West Brownville, Washington county, Pa., January 31, 1830. His great-grandfather, Ephraim L. Blaine, was colonel of the Pennsylvania line, and a commissary general in the Revolutionary army. After receiving an education in Lancaster, Blaine was graduated at Washington college, Pa., in 1847, and afterward became a professor in the Western Military Institute, Georgetown, Ky. After two years he returned to Pennsylvania, studied law, was

admitted to the bar, but did not practice, and became a teacher in the Institution for the Blind in Philadelphia. In 1854 he removed to Augusta, Me., entering journalism as the editor of the *Kennebec Journal*. On the formation of the Republican party in 1855 he became noted as a public speaker, and in 1858 was made chairman of the State committee, a post which he held for twenty years. From 1858 to 1862 he served in the State legislature, and was for two years speaker. In 1857 he removed to Portland, Me., to edit the *Advertiser*, and in 1862 entered congress, where he served for eighteen years. He achieved a reputation as a ready debater, his alert perceptions, unflinching memory and accurate knowledge of political history giving him great advantages. After the death of Thaddeus Stevens he became the leader of the Republican party. In all important matters regarding reconstruction after the civil war, he had a very prominent share. Mr. Blaine was chosen speaker of the House in 1869, and twice reelected, serving until March, 1875. He was a candidate for president in 1876, at the convention in Cincinnati, and received the highest number of votes on every ballot, except the last, which gave the nomination to Rutherford B. Hayes. In 1876 he was appointed to the United States Senate, to fill a vacancy, and in the Republican presidential convention held in Chicago in 1880 he was again a candidate.

When General Garfield became president, Mr. Blaine was made secretary of state, and while the president lingered on his deathbed, he was the executive head of the government. On December 19, 1881, Mr. Blaine retired from the cabinet, and was thus, for the first time in twenty-three years, out of public life. In 1884 he was Republican candidate for president, and took the stump in Ohio, Indiana, New York and other States, giving a series of speeches, in which he upheld protection to American industry, and deepened the opinion regarding his powers. After his defeat by Grover Cleveland, he retired to his home in Augusta. He took an active part in the Maine canvass in 1886, opening it on August 24th, in a speech devoted to the fisheries, tariff and third party prohibition movement. In 1887-8 he traveled in Europe, and in 1889 was appointed secretary of state in President Harrison's cabinet. Mr. Blaine was the author of *Twenty Years of Congress* (2 vols., Norwich, Conn., 1884-6). In June 1892 Mr. Blaine resigned the office of secretary of state to seek the Republican nomination for president but was defeated. He died at Washington, January 27, 1893.

BLAIR, AUSTIN, born in Tompkins county, N. Y., February 8, 1818, removed to Michigan in 1839, studied law and became county clerk, member of the legislature (1846), and prosecuting attorney of Jackson county (1852-54). From 1854 to 1856 he served in the State senate and in 1861 was elected governor. He filled this office during the war and lent efficient aid to the Union cause. From 1866 to 1872 Mr. Blair served in congress as a Republican and in 1873 he resumed the practice of law in Jackson, Mich., where he died August 7, 1894.

BLAIR, FRANCIS PRESTON, born in Virginia, April 12, 1791; died October 18, 1876. Originally a Henry Clay Whig, he became editor of the *Washington Globe*, the organ of Jacksonian Democracy (1829-45), and in 1856 was active in the organization of the Republican party, and presided over the Pittsburg convention which nominated Fremont. He was one of the leaders in the Chicago convention of 1860, which nominated Lincoln. In 1864 he had interviews with Jefferson Davis in the hope of affecting a peace, but the negotiations had no satisfactory result. He opposed the reconstruction measures after Lincoln's death, and acted with the Democratic party.



BLAIR, FRANCIS PRESTON, son of the foregoing, born in Lexington, Ky., February 19, 1821; died July 8, 1875. He served in the Mexican war, became a free-soiler, edited the *Missouri Democrat*, and from 1852 to 1856 sat in the legislature of Missouri. In 1856 he joined the Republican party, and was elected to congress. Defeated in 1858, he was reelected in 1860 and 1862. It is claimed, by his instrumentality, Missouri and Kentucky were saved to the Union. He entered the volunteer army as a colonel, became major-general November 29, 1862, and resigned his seat in congress in 1863. He commanded a division at Vicksburg, fought at Lookout Mountain and Missionary Ridge, and at the head of the seventeenth army corps marched with Sherman to the sea. Andrew Johnson nominated him minister to Austria, but the Senate refused to confirm the appointment. He opposed reconstruction, and returned to the Democratic party. In 1868 he was on the presidential ticket with Horatio Seymour, and was defeated. In 1871 he reentered the State legislature, and was then elected to fill a vacancy in the United States Senate. In 1873 he was defeated for reelection, and became State superintendent of insurance.

BLAIR, HENRY WILLIAM, born in New Hampshire, December 6, 1834; served in the civil war, and from 1866 to 1868 in the State House of Representatives and Senate. He was in congress from 1875 to 1879, in the latter year became United States senator and was reelected in 1885. He is a strong advocate of prohibition and female suffrage. In 1891 he was appointed minister to China, but the Chinese government refused to receive him because of his record as an opponent of Chinese immigration. He was elected in November, 1892, to the 53rd congress.

BLAIR, JOHN INSLEY, born in New Jersey, August 22, 1802; organized the Lackawanna Iron and Coal Company, built the Delaware, Lackawanna and Western railroad, organized the railroad system of Iowa, and constructed 2,000 miles of railroad in that State and Nebraska. He was one of the original directors of the Union Pacific, was president of three railroads and a director of twenty. Mr. Blair was a strong Republican but failed to become governor of his State in 1868.

BLAIR, MONTGOMERY, son of Francis P. Blair, Sr., born in Kentucky, May 10, 1813; died July 27, 1883. He graduated at West Point in 1835, and served in the Seminole war. Admitted to the bar in St. Louis in 1839, he became United States district-attorney, and in 1842 mayor of that city. He held various judicial offices in Missouri, and, after 1852, in Maryland; left the Democratic party; was of counsel for the plaintiff in the Dred Scott case, and presided over the Maryland Republican convention in 1860. From March, 1861, to September 23, he was postmaster-general, but afterward acted with the Democratic party.

BLAKE, EDWARD, born in Adelaide, Ontario, in 1833; graduated at the university of Toronto, where he won many prizes, and of which he was elected chancellor in 1876. He was called to the bar in 1856, and was made queen's counsel in 1864. In 1867 he was elected to the Ontario parliament, and in 1871 became premier of Ontario. He was attorney-general of Canada in 1873-74, and in 1878 became leader of the Liberal Opposition in the Dominion parliament. Irish by parentage and an ardent Home Ruler, Mr. Blake was elected to the British House of Commons as an anti-Parnellite, in 1892.

BLAKE, LILLIE DEVEREUX, author and woman's suffrage advocate, was born in Raleigh, N. C., August 12, 1835. She was married in 1855 to F. G. Q. Umsted, who died in 1859, and in 1865 to Grenfell Blake. She is president of the New York Woman's Suffrage Association.

BLAKELEY, JOHNSTON, naval officer, born near Seaford, Ireland, in October, 1781, was lost at sea in 1814. He came to this country with his father when he was a small child, and settled in Wilmington, N. C. In February, 1800, Blakeley obtained the appointment of midshipman in the United States navy; on February 10, 1807, was made lieutenant, and in 1813 became commander of the brig *Enterprise*, employed in protecting our coasting trade. On July 24, 1813, he became master-commander, and in August assumed command of the sloop of war *Wasp*. On May 1, 1814, he sailed from Portsmouth N. H., on a cruise, and on June 28, captured the British brig *Reindeer*. Blakeley saw fit to burn his prize at sea, and Congress awarded him a gold medal in recognition of his exploit. On September 1, he destroyed the brig *Avon*, and a few days later two other vessels were captured and scuttled; on September 21, he also took the brig *Atlanta*, which was sent to Savannah. For these gallant services Blakeley was made captain the same year. His vessel, the *Wasp*, was last seen and spoken at sea on October 9. Probably she foundered in a gale.

BLANC, LOUIS, born at Madrid, October 29, 1811, of French parentage, became a journalist and author in Paris, and wrote the *Histoire de Dix Ans* (1830 to 1840), and the *Histoire de la Revolution Française*. In 1848 he became a member of the provisional government, was instrumental in abolishing the death penalty, and organized the system of national workshops, which proved such a disastrous failure. He fled to Belgium after the riots of June, 1848, and lived there and in England until the establishment of the republic in September, 1870. He resided in Paris during both sieges; was elected to the National Assembly, and led the Extreme Left or Radical party. He died Dec. 6, 1882.

BLANCHARD, EDWARD LAMAN, born in London, England, December 11, 1820; edited *Chambers' Journal*, and wrote for many years for the *Daily Telegraph*. He also wrote the novels *Temple Bar* and *The Man Without a Destiny*, and many farces, extravaganzas and fairy tales. He died September 5, 1889.

BLAND, RICHARD PARKS, born in Hartford, Ky., August 19, 1835; studied law, spent some years in Nevada mining, and in 1865 removed to Missouri, where he practiced his profession. In 1872 he was elected to congress as a Democrat and was reelected every term until 1894. He introduced in the 44th congress his well-known silver bill, providing for the coinage of not less than two million dollars of 412½ grains each every month, and making such coins a legal tender. He was Chairman of the Committee on Coinage of the 53rd Congress.

BLANQUI, LOUIS AUGUSTE, born at Nice in 1805; took part in scores of political plots and insurrections under Louis Philippe, spent many years in prison, and was condemned to death more than once. He returned to France in 1870, participated in the communist revolt, was elected to the chamber and antagonized the republic as he had the monarchy and empire. He died January 1, 1881, and was buried in Pere la Chaise.

BLATCHFORD, SAMUEL, born in New York March 9, 1820; graduated at Columbia in 1837, and in 1842 was admitted to the bar. He was law partner of William H. Seward, in 1867 became United States district judge for Southern New York, and in March, 1882, associate judge of the Supreme Court of the United States. He died July 7, 1893.

BLAVATSKY, HELENE PETROVNA, born in Russia in 1831; spent several years in India studying Buddhism, and in 1875 introduced in New York a system of theosophy, which has some devout adherents. She died in May, 1891.



**BLENNERHASSETT, HARMAN**, scholar, born in Hampshire, England, October 8, 1764; died on the island of Guernsey, February 1, 1831. He was educated at Westminster school, London, and at Trinity college, Dublin; later he studied law, and in 1790 received the degrees of B.A. and LL.B. After spending several years in European travel, he was married to Miss Agnew, daughter of the governor of the Isle of Man, sold his property, and in 1797 sailed for New York city. A year later Blennerhassett purchased Backus island in the Ohio river, which thereafter became known by his name, improved the grounds, and erected a handsome villa that was stocked with a library, works of art, and scientific apparatus of various kinds. In 1805 Aaron Burr, on his way down the Ohio and Mississippi rivers, visited him and succeeded in interesting Blennerhassett in his schemes. He published a number of communications in the *Ohio Gazette*, advocating the plans of Burr, and contributed considerable money for boats, arms, provisions, etc., with which to begin the enterprise. Soon afterward President Jefferson issued a proclamation against the scheme, and Blennerhassett, fearing arrest, left the island to join Burr at the mouth of the Cumberland river. Simultaneously his island was overrun by a party of militia under Colonel Phelps, who wrecklessly damaged house and property. On the failure of Burr's scheme, Blennerhassett was arrested, but discharged; on his way home he was again arrested, and imprisoned. From Lexington, Ky., he was taken to Richmond, Va., for trial. As the government failed to make out a case against Burr, he was discharged in 1807. Meanwhile his estate had been seized by his creditors, and his mansion was used as a storehouse; shortly afterward the dwelling was burned to the ground. Blennerhassett then went to Natchez, Miss., where he bought 1,000 acres of cotton lands near Port Gibson, Miss. This venture, with several others, proved unsuccessful, and in the war of 1812 his means were further diminished. In 1819 he removed to Montreal, where he vainly endeavored to acquire a legal practice. In 1822 he sailed for Ireland, and after many unsuccessful attempts to gain a livelihood, he retired into neglect and obscurity on the island of Guernsey.

**BLIND, KARL**, born at Mannheim, September 4, 1826; studied at Heidelberg and Bonn, and was expelled from Germany in 1848 for participating in a republican rising. Later, in Baden, he joined in another plot and was condemned to eight years' imprisonment. A subsequent revolution set him free and he went as envoy to Paris. Thence he was expelled, lived three years in Belgium, and being compelled to leave that country, established himself in 1852 in London, where he has since resided. He has contributed extensively to magazines and reviews, and for many years was prominent in the International, a socialistic organization.

**BLISS, PHILIP PAUL**, born in Pennsylvania, July 9, 1838; killed in a railway accident near Ashtabula, Ohio, December 29, 1876. In company with the evangelist Dwight L. Moody he held mission services in all parts of the United States, leading in the singing of hymns of his own composition. "Hold the Fort" is the best known of these.

**BLODGETT, HENRY WILLIAMS**, born in Amherst, Mass., July 21, 1821; studied law in Chicago, was elected to the Illinois legislature as an anti-slavery Republican in 1852, and in 1853 became State senator. He was a prominent railroad lawyer, and became president of the Chicago and Milwaukee railroad. In 1870 he was appointed United States district judge for the northern district of Illinois, resigning in 1892 to become counsel for the United States before the Bering Sea commission.

**BLODGETT, RUFUS**, born in Dorchester, N. H., October 9, 1834; became a banker and railroad superintendent, and in 1887 was elected to the United States Senate from New Jersey.

**BLONDIN, EMILE G.**, born in France, 1830; achieved notoriety by crossing the Niagara river on a tight-rope, and for many years gave exhibitions of that character. Died Feb. 22, 1897.

**BLOOMER, AMELIA JENKS**, born in Homer, N. Y., May 27, 1818. She advocated temperance and woman's suffrage, and in 1856 introduced a dress for women, consisting of a short skirt and full trousers, which was mercilessly ridiculed as the "Bloomer costume." She died in Council Bluffs, Iowa, December 29, 1894, having lived long enough to see bloomers generally adopted in that year by women bicycle riders.

**BOARDMAN, GEORGE DANA**, born in Burmah, August 18, 1828, a Baptist clergyman in Rochester, N. Y., and in Philadelphia, who was prominent in the abolition movement and wrote many reviews and essays.

**BOARDMAN, HENRY AUGUSTUS**, born at Troy, N. Y., January 9, 1808; died in Philadelphia, June 15, 1880. He was ordained to the Presbyterian ministry November 8, 1833, held a pastorate for forty-five years, and was leader of the old school branch. He published fourteen volumes on religious subjects.

**BOKER, GEORGE HENRY**, born in Philadelphia, October 6, 1823; died January 2, 1890. He published several volumes of poems, notably war songs, and was the author of the tragedies of *Calynos*, *Anne Boleyn*, and *Francesca da Rimini*. In 1862 he assisted in the formation of the Union club at Philadelphia, and later of the Union league, of which in 1878 he was elected president. In 1872 he became United States minister at Constantinople; in 1876 was sent to St. Petersburg and remained there two years. His last literary work, a volume of sonnets, appeared in 1886.

**BONAPARTE, ELIZABETH PATTERSON**, born in Baltimore, Md., February 6, 1785; died there, April 4, 1879. Her father, William Patterson, emigrated from Ulster, Ireland, to this country. At a ball in Baltimore, she was introduced to Jerome Bonaparte, a youth of nineteen, brother of Napoleon, who had been serving in the French navy in the West Indies. He made a proposal of marriage which she accepted, and her father opposed. The contract was drawn up by Alexander J. Dallas, and the marriage ceremony performed by Archbishop Carroll, in Baltimore, December 24, 1803. Napoleon, was deeply enraged at the marriage and undertook to declare it null and void, excluded Jerome from his dynasty, and threatened him with imprisonment unless he consented to repudiate his wife. In 1805 Jerome and Elizabeth embarked for Europe and arrived in Lisbon, April 2, 1805. She was not permitted to land, and leaving her, Jerome met Napoleon at Alessandria. The emperor remained obdurate, but declared that if Miss Patterson would return to the United States and resume her own name he would give her a pension of 60,000 francs. In the meantime her vessel went to Amsterdam, but was prevented from landing, and Mme. Bonaparte sought refuge in England, where her son, Jerome Napoleon Bonaparte, was born at Camberwell, near London, July 7, 1805. Convinced that her husband was about to yield to a divorce, Mme. Bonaparte returned to Baltimore. Napoleon applied to Pope Pius VII. to annul the marriage, but he refused, and it was dissolved by the imperial council of state. Jerome was created prince of the empire, was promoted admiral, and subsequently received the rank of general. In 1806 he was made successor to the imperial throne in the event of Napoleon leaving no heir, and in 1807 was made king of Westphalia. On August 12, 1807, he married Catherine



Frederica, princess of Württemberg. By this marriage he had three children. Mme. Bonaparte, although obtaining a divorce in the Maryland courts, employed every means to maintain the legality of her marriage, and the legitimacy of her son, but Jerome appealed to the council of state to forbid Jerome "Patterson" from calling himself Jerome Bonaparte. Her last effort was in 1860, after the death of Jerome, when the eloquent Berryer pleaded her cause. Mme. Bonaparte visited Europe after the overthrow of Napoleon at Waterloo, spending the rest of 1815 in England and Paris. Louis XVIII. invited her to court, the Duke of Wellington admired her, and Talleyrand praised her wit. In 1816 she returned to Baltimore; went to Europe in 1819, and visited the Princess Borghese (Pauline Bonaparte) in Rome, by whom she was kindly received. Once again she saw her husband in Florence, in 1822, walking with his second wife. She left a fortune of \$1,500,000 to her grandsons, Jerome Napoleon Bonaparte, a gallant French soldier, who died at Beverly, Mass., September 3, 1893, and Charles Joseph Bonaparte, a lawyer in Baltimore.

BONAPARTE, LUCIEN, cardinal, is a descendant of Lucien Bonaparte, brother of Napoleon I., and was born in 1828, and became cardinal in 1868.

BONHEUR, ROSA, born in Bordeaux, France, March 22, 1822; became a painter of animals, and exhibited for the first time publicly in 1841. In 1855 she produced her magnificent *Horse Fair*, which was exhibited in England and this country, and has been often engraved. Many of her paintings are in the Luxembourg, and examples of her work are to be found in most public collections. Her studio and residence at Fontainebleau were spared in 1870 by the German troops under direct command of the (then) crown prince of Prussia. She died May 25, 1899.

BONNER, ROBERT, born near Londonderry, Ireland, April 28, 1824; came to the United States when a boy, and died July 6, 1899. In 1844 he went to New York, and in 1851 purchased the New York *Ledger*, which he built up to a great circulation. He had a fondness for fast horses, although he would not let them race, and owned Maud S. and Dexter.

BOONE, DANIEL, pioneer, born in Bucks county, Penn., February 11, 1735; died in Charette, Mo., September 26, 1820. His grandfather, George Boone, emigrated from Exeter, England, to Bucks county, Penn., where he joined the Society of Friends; and his father, Squire Boone, removed to Holman's Ford, on the Yadkin, S. C., about 1748. He was a natural hunter, and was equal to any Indian in tracing a scent. Inspired by John Finlay's accounts of the wilds of what is now Kentucky, he set out to explore that country with a party of six, May 1, 1769. He was captured by Indians, but escaped twice, and returned to his home in March, 1771. In 1773 he started for Kentucky with six families, including his own, but was forced to stop at the Clinch river. Having assisted the State surveyors, he was appointed by Lord Dunmore, captain in command of the garrison to resist the hostile Indians, and he erected a fort at Boonesborough, where he settled with his family. In December, 1777, he went on an expedition to the celebrated Blue Licks to procure salt for the garrison, but on his return he was captured by the Indians. He and his party were taken to Detroit. His men were given to the British commander, but Boone was retained, and adopted into the family of Blackfish, a Shawanese chief. He discovered that the Indians, who treated him kindly, intended to attack Boonesborough, and he resolved to warn his comrades. He was chased by 450 Indians, and arrived at his fort after a journey of 160 miles in four days, during which time he had but one meal. He repulsed the attack of 450 men with only fifty, after a

siege of unparalleled hardships, and was rewarded with a major's commission from Virginia. In 1778 he went to North Carolina, where his family had returned during his captivity, brought them back to Boonesborough, and became lieutenant-colonel of Lincoln county, one of the three divisions of Kentucky territory. Excited by the increasing number of the whites, the Indians attacked the settlements, and on August 19, 1782, Boone fought a battle with 400 Indians at Blue Licks, where one of his sons was killed. On the survey of Kentucky, after its admission to the Union, February 4, 1791, the title to Boone's land was disputed, and while he was in Virginia arranging his affairs a large sum of money was stolen from him. The case was decided against him, and having lost his property he visited his birthplace in 1790, and settled at Point Pleasant, on the Kanawha river, now in West Virginia. In 1795 he removed to Missouri, then a Spanish possession, and from 1795 till 1804 lived in the Femme Osage district, of which he was made commandant, and received a grant of 8,000 acres. He also lost this after the United States acquired the land through Napoleon, who had obtained possession of the Spanish grant. Appeal to the legislature of Kentucky, and to Congress, confirmed his title to a tract of 850 acres, in consideration of his public services. The charm of the hunter's life hovered around him, and in his eighty-second year he went on an expedition to the mouth of the Kansas river. He was better adapted for single adventure than for commanding an expedition. An original portrait by Chester Harding (1820) is in the State House of Kentucky. John Filson wrote an account of Boone's adventures as related by himself (1784), reprinted in Finlay's *Description of the Western Territory* (1793).

BOOTH, EDWIN THOMAS, actor, born in Belair, Md., November 13, 1833, died June 7, 1893. The son of Junius Brutus Booth, in his early years he traveled with his father, and, in one of his tours made his first appearance at the Boston museum, as "Tressell" in *Richard III.*, September 10, 1849. He first appeared in New York, at the National theater, as "Wilford" in the *Iron Chest*, September 27, 1850, and at the same theater in 1851, took his father's place as "Richard III.," when the elder tragedian became suddenly ill. In 1852 he went to California, and thence to Australia. In 1856 he appeared in the principal southern cities of the United States and in 1857, played "Sir Giles Overreach," in *A New Way to Pay Old Debts*, and his great success on this occasion is regarded as the turning-point in his career, which had been one of vicissitude and lofty endeavor. In the summer of 1857 he had a most successful season in New York, and became noted for his Shakespearean characters, especially "Iago" and "Hamlet." In 1861 he went to England, where he played, and also starred on the continent. On his return to New York in 1864 he began a series of Shakespearean revivals at the Winter Garden theater, where he acted "Hamlet" for 100 consecutive nights. From 1863 till 1870 Booth was associated with John S. Clarke in the management of the Walnut Street theater, Philadelphia, and after the destruction of his own theater by fire in 1867, he built a splendid building on twenty-third street and Sixth avenue, New York, which he opened with *Romeo and Juliet*, February 3, 1869. Mr. Booth married, in 1860, Miss Mary Devlin, who died in 1863, leaving one daughter, Edwina. On June 7, 1869, he was married to Mary, adopted daughter of James H. McVicker, of Chicago. She died in 1881, leaving no children. Booth's theater had a career of thirteen years, closing in May, 1882, after which it was torn down and a block of buildings erected on the site. Booth remained its manager until 1874. He gathered



a good stock company, and gave most elaborate revivals of Shakespeare's plays, and many other attractions of artistic merit. In 1876 he made a tour through the South, and in 1880, and again in 1882, visited Great Britain, playing with great success in London. In 1882 he appeared in Germany, and was received with enthusiasm. Since 1883 he has engaged in starring tours in America. No actor has played "Hamlet" so often, nor over so wide a range of territory. His name is inseparably associated with the character, and the ideal face, manner, and "pale cast of thought" of "Hamlet," is to most Americans realized in that of Edwin Booth. His acting is highly intellectual, intense and refined, and he is graceful in speech and movement. He has played many parts, but his repertory now consists of "Hamlet," "Macbeth," "King Lear," "Othello," "Iago," "Wolsey," "Richard III.," "Richard II.," "Shylock," "Benedict," "Petruchio," "Richelieu," "Brutus," "Ruy Blas," "Don Caesar de Bazan," and "Bertruccio" in the *Fool's Revenge*, by Tom Taylor. Mr. Booth has published an acting edition of these plays, with an introduction by William Winter. (15 vols., Boston, 1877-78.)

BOOTH, JUNIUS BRUTUS, born in London, England, May 1, 1796; died November 3, 1852. His father was a barrister, and Junius Brutus was the eldest son. He received a good education, studied various departments of art, and was commissioned as a midshipman in the British navy. After several trials as an amateur actor, he made an engagement to play subordinate parts at the theater in Peckham, and in 1814 appeared as a member of an English company of comedians traveling through Holland and Belgium. In 1815 he performed in the Worthing and Brighton theaters. On February 17, 1817, he made his *début* at Covent Garden theater, London, where as "Richard III.," he appeared several times with great success. A little later Booth went to Drury Lane theater, where he appeared in conjunction with Edmund Kean. Disagreement and professional jealousies soon prevented Booth's continuing at this theater, and he returned to Covent Garden. In July, 1818, he performed in Glasgow and Edinburgh; later he traveled through the provinces, performed the part of "Shylock," at Covent Garden theater, and in the winter was engaged at the Coburg theater. In April, 1820, Booth appeared anew at Covent Garden, and in August performed at Drury Lane in connection with Kean, sustaining the parts of "Iago," "Edgar," and "Pierre." In the winter of that year he acted "Cassius," "Lear," and other parts at Drury Lane. In January, 1821, Booth married Miss Holmes, and after their wedding tour the couple landed at Madeira, and from thence sailed for Norfolk, Va., where they arrived June 30, 1821. A week later Booth appeared at the Richmond theater; this was followed by engagements in other cities. At that time he entertained the chimerical notion of becoming a light-house keeper. On October 5th, he made his first appearance in New York city, at the Park Theater. In 1822 he bought a wild tract of land about twenty-five miles from Baltimore, where he engaged in farming with the assistance of several slaves. It remained his retreat during life when he was not professionally engaged. In 1825 he again visited London. On his return to America he opened at the Park Theater, New York, March 24, 1827. In 1828 he became lessee of the Camp Street Theater, New Orleans, where, among others, he studied French parts, and personated several characters in French dramas. In September, 1831, he performed in New York city in connection with Forrest. A little later he became lessee of the Adelphi Theater in Baltimore, where he appeared in several new parts. In January, 1832,

Booth produced at the Chestnut Street theater in Philadelphia, a new play, *Sertorius*, written by David Paul Brown, of Philadelphia. Soon afterward the death of two of his children impaired his reason; after his recovery he acted at the Bowery theater in New York city, and later appeared in New Orleans, Mobile, and other places with his usual success. As he grew older his insane turns were aggravated by occasional intemperance, which rendered him troublesome to managers and unreliable with the public. In 1836 he went to Europe with his family and performed in London and Birmingham. After a brief term he returned to the United States and made his usual professional round throughout the country. It was in this year that the bridge of his nose was broken, and the former beauty of his voice became impaired. During the last ten years of his life he spent much time on his farm, making occasional visits to Boston, New York and New Orleans, and often capriciously playing in out-of-the-way places. In 1852 he went to California, and from there visited New Orleans, where he played a week's engagement. During his passage homeward he became sick from exposure, and died for lack of medical care.

BOOTH, JOHN WILKES, born in Belair, Md., in 1838; died near Bowling Green, Va., April 26, 1865. He was a son of Junius Brutus Booth, and brother of Edwin Booth. As an actor he never rose to distinction. He inherited from his father a touch of insanity that rendered his life erratic. During the civil war his sympathies were for negro slavery, and early in 1865 he formed a conspiracy with others to murder President Lincoln and the principal officers of the government. On the evening of April 15th he entered Ford's theater, in Washington, where the president was sitting in a private box, and shot him. He shouted "*Sic semper tyrannis*," leaped on the stage below, breaking his leg in the effort, and in the confusion escaped through a back door, mounted a horse that was held in waiting, and fled to Virginia. Here he was concealed for a time by Southern sympathizers; but, on being discovered in a barn, he refused to surrender, and was shot.

BOOTH, WILLIAM, born at Nottingham, England, April 10, 1829; became a Methodist minister in 1850, but withdrew from that communion in 1861. Seven years later he organized the Salvation Army, a religious propaganda of a semi-military character, of which he is styled "General." Devoted to evangelization among the lower classes and in the slums of large cities, the Salvation Army has done great good in England, the United States, France and India. General Booth is a man of powerful individuality, and his book *Darkest England*, which in 1891 called attention to the condition of the lower classes in cities, created a profound impression and led to the subscription of \$1,000,000 for his schemes of amelioration. Charges that he diverted the money to personal ends were made and refuted in 1893. His wife, sons and daughters are all prominent in the work. He visited the United States in 1894.

BORDEN, GAIL, inventor, born in Norwich, N. Y., November 6, 1801; died in Borden, Texas, January 11, 1874. In early life a teacher and surveyor in Mississippi and Texas, in 1835 he published the *Telegraph and Texas Land Register* at San Felipe. When the republic of Texas was established became the first collector of the port of Galveston, in 1837. A land agent for a time, in 1849 he produced "peemmican" and the "meat-biscuit." The latter gained him a medal at the World's Fair in London, and he was chosen an honorary member of the London Society of Arts. Unsuccessful, pecuniarily, with his biscuit, he lost his entire means. In 1853 he applied for a patent for



not receive it until 1856. Soon afterward the New York condensed milk company was formed, and its works were established at Brewster's Station, N. Y., and Elgin, Ill. This enterprise resulted in an immense success, and enriched the inventor. Some time later Mr. Borden established an extract-of-beef factory at Borden, Texas, and also produced condensed preparations of tea, coffee, cocoa, and various kinds of fruit.

**BOTETOURT**, NORBORNE BERKELEY, born in England in 1738; died in Williamsburg, Va., October 15, 1770. In 1761 he was colonel of militia, and became a peer in 1764. After losing most of his means at the gaming-table he sought a government appointment. In July, 1768, he became governor of Virginia, succeeding Mr. Jeffrey Amherst. In November, 1768, he arrived on the James river. In May, 1769, the Virginia assembly complained of parliamentary taxation, and of sending accused persons to England for trial; in reply Lord Botetourt dissolved the legislature. On the next day the people met in convention at the Raleigh tavern, and passed resolutions against the use of any merchandise imported from Great Britain. However, the trouble between the governor and the people gradually subsided, and Lord Botetourt represented to his friend, Lord Hillsborough, that the colonists would stand by the mother country on requisitions, but would not assent to parliamentary taxation. Lord Hillsborough having failed to fulfill his promise of repeal, Lord Botetourt asked to be relieved, and soon died.

**BOUCAULT**, DION, born in Dublin, December 20, 1822; produced at the age of nineteen a five-act comedy called *London Assurance*, the brightest play of its time. He first appeared as an actor in London, in 1852, and some years later married Agnes Robertson, an actress. The two acted together for years and Mr. Boucault managed theaters in New York and elsewhere. He wrote a large number of Irish plays, of which the *Colleen Bawn* and *The Shaughraun* are the best known, many sensational dramas, such as *The Long Strike*, *Flying Scud*, *After Dark*, and *Formosa*, dramatized Dickens and Thackeray, and adapted scores of plays from the French. He died Sept. 18, 1890.

**BOUDINOT**, ELIAS, patriot and philanthropist, born in Philadelphia, Penn., May 24, 1740; died in Burlington, N. J., October 4, 1821. He practiced law in New Jersey until the Revolution, became commissary-general of prisoners and delegate to congress from New Jersey in 1777, and president of congress in 1782, as such signing the treaty of peace with Great Britain. He served in congress from 1789 to 1795 and was then director of the mint in Philadelphia, until 1805. He was a trustee of Princeton and first president of the American Bible society, to which he gave \$10,000.

**BOUGHTON**, GEORGE H., artist, born in Norfolk, England, in 1834; came to the United States when a child and studied in Paris and London. At the Columbian World's Fair he exhibited *An English Spring Day*, *Dancing Down the Hay*, *Winter Sunrise* and *Love in Winter*.

**BOUGUEREAU**, WILLIAM ADOLPHE, a French artist, best known from his beautiful figures from the nude, was born at La Rochelle, November 30, 1825, gained the *Grand Prix de Rome* in 1850 and has painted many well-known pictures, among them *The Bather* (1870), *Nymphs and Satyrs* (1873), *Holy Family* (1875) and *Triumph of Venus* (1879). Later pictures, exhibited at the Columbian Fair in 1893, were: *The Women at the Tomb*, *Our Lady of the Angels* and *The Wasp's Nests*.

**BOULANGER**, GEORGE ERNEST JEAN MARIE, born at Rennes, France, in 1837; was educated at the military school of St. Cyr. He served in Algeria,

Italy, and Cochin China, fought under the republic during the Franco-Prussian war, and became brigade-general in 1880. He afterward commanded in Tunis, but was recalled, and from January, 1886, to May, 1887, was minister of war. In this capacity he was active in procuring the expulsion of the Orleans princes from the army and from France. Becoming imbued with the idea that he was to be the "savior of France," General Boulanger permitted his political aspirations to outweigh his sense of military duty, and he was deprived of his command for disobedience. He successfully contested several seats in the Chamber of Deputies, and on January 27, 1889, was elected deputy for Paris by a very large vote. Two months later the government, claiming to have evidence of his intended treason, began a prosecution, and Boulanger fled to Brussels, and thence to the Isle of Jersey. He was convicted in his absence, and sank into insignificance. It was shown that he had made an arrangement with the Orleans Princes and had received vast sums of money to advance their cause and his own. On September 30, 1891, he shot himself on the grave of his mistress at Brussels.

**BOUTWELL**, GEORGE SEWALL, born in Brookline, Mass., January 28, 1818. In 1842 he was elected as a Democrat to the State legislature, where he sat until 1851, running in the meantime on several occasions for congressman and governor, and each time sustaining defeat. In 1851 and again in 1852 he was elected governor on the Free Soil ticket, and after the repeal of the Missouri compromise he joined the Republican party. In 1862 he organized the Internal Revenue department, of which he was first commissioner. In March, 1863, he became member of congress and was twice reelected. He was chairman of the committee to report articles of impeachment against Andrew Johnson, and one of the seven managers of the trial. In March, 1869, he became secretary of the treasury in Grant's cabinet, which office he held until March, 1873, when he was chosen United States senator to fill the vacancy caused by the election of Henry Wilson to the vice-presidency. Mr. Boutwell, who is a lawyer by profession, afterward practiced in Washington D. C., and in 1877 codified and edited the statutes at large.

**BOWDOIN**, JAMES, statesman, born in Boston, August 8, 1727; died there November 6, 1790. He was a grandson of Pierre Baudouin, a French Huguenot, who came to Portland, Me., in 1687, and went to Boston in 1690. James was graduated at Harvard in 1745, and two years later, on the death of his father, he came into possession of a fortune. He early manifested a scientific tendency of mind, and corresponded on several subjects with Benjamin Franklin. From 1753 until 1756 he was a member of the general court of Massachusetts, and at the end of that year he became councillor. As such he opposed the governor's decrees, and when, in 1767, he was again chosen for the same office, he was negatived by Governor Bernard; the Bostonians thereafter elected him to the assembly. In 1770 the newly-appointed governor, Hutchinson, permitted him to sit among the council. In 1774 he was elected a member of the Continental Congress; in 1775 he became president of the Massachusetts council, and in 1779 presided over the State constitutional convention. In 1785 he became governor of the State of Massachusetts, continued as such in 1786, and during his term of office crushed out Shay's rebellion. In 1786 he was succeeded as governor by John Hancock; in 1787 he became a member of the convention that framed the Federal constitution. He was one of the founders and became the president of the American Academy of Arts and Sciences, and also a founder of the Massachusetts



Humane Society. In 1779 he was made a fellow of Harvard, was a fellow of the Royal societies of London and Edinburgh, and was given the degree of LL.D. by the university of Edinburgh. His publications include a poetical paraphrase of Dodsley's *Economy of Human Life* (1759), an *Address* delivered before the American academy (1780), and sundry minor productions. Bowdoin college was named for him.

BOWELL, MACKENZIE, Canadian minister of trade and commerce, who suggested and promoted the Inter-colonial Conference of delegates from all British colonies held in Ottawa in July, 1894. He was born in Suffolk, England, December 27, 1823, emigrated to Canada and entered Parliament in 1867 as a Conservative.

BOWEN, FRANCIS, born in Charlestown, Mass., September 8, 1811; graduated at Harvard in 1833, and, in 1843, became editor and proprietor of the *North American Review*, which he conducted until 1853. In that year he became Alford professor at Harvard, and wrote extensively on political economy, philosophy, and constitutional questions. He died January 22, 1890.

BOWIE, JAMES, born in Georgia in 1790; killed at the Alamo, March 6, 1836. He was notorious as a duelist, and, in 1827, was engaged in a *mélee* at Natchez, in which six men were killed, and fifteen wounded. The knife with which he killed his opponent on this occasion was fashioned from a blacksmith's file, and was the original bowie-knife.

BOWLES, SAMUEL, journalist, born in Springfield, Mass., February 9, 1826; died there January 16, 1878. From his boyhood he was connected with the *Springfield Republican*, and made that paper a power in politics.

BOWMAN, THOMAS, D.D., born in Pennsylvania, July 15, 1817; entered the Methodist ministry in 1839, became president of Asbury university in 1858, and was chosen bishop in May, 1872.

BOYD, ANDREW K. H., born in Ayrshire, Scotland, in 1825; obtained high honors at the university of Glasgow, and held pastorates in Edinburgh, St. Andrews, and other towns. He wrote in *Fraser's Magazine* over the signature of "A. K. H. B." and published *The Recreations of a Country Parson* and other essays. He died March 1, 1899.

BOYDEN, SETH, inventor, born in Foxborough, Mass., November 17, 1788; died in Middleville, N. J., March 31, 1870. His early life was spent on his father's farm; later he engaged with a blacksmith. Subsequently he improved a machine for leather-splitting. In 1813 he and his brother established a leather-splitting business in Newark, N. J., and in 1819 made improved patent leather, which he sold until 1831. From 1831 until 1835 he engaged in producing malleable iron castings, and became interested in steam-engines, for which he invented several important improvements. In 1849 he disposed of his many inventions and went to California, where he was unsuccessful in his projects. Two years afterward he returned to the East, and turned his attention to agriculture. Here he produced a variety of strawberries unequalled in size and flavor. He patented a hat-body doming machine.

BOYESEN, HJALMAR HJORTH, born in Norway, September 23, 1848; came to the United States in 1869. He was professor of languages at Urbana university, Ohio, from 1874 to 1880, then professor of German at Cornell, and since that time has filled a similar post at Columbia college, New York. He has published *Gunnar* and other novels, *Idyls of Norway*, and many translations from the Scandinavian. Died Oct. 4, 1895.

BRABOURNE, LORD (EDWARD KNATCHBULL-HUGESSEN), born in England, April 29, 1829; sat in the House of Commons as a Liberal from 1857 until 1880. During this time he held several under-secre-

taryships and became a privy councillor. Mr. Gladstone gave him a peerage in 1880, but in 1885 he went over bodily to the Conservatives. He wrote some delightful fairy stories. He died February 6, 1893.

BRADDOCK, EDWARD, British soldier, born in Perthshire, Scotland, about 1695; died near Pittsburgh, Penn., July 13, 1755. He was the son of Maj.-Gen. Edward Braddock, who was retired from the British army in 1715. He entered the Coldstream Guards, October 11, 1710, and was made lieutenant in 1716. After more than forty years of service he was made major-general, March 29, 1754, and in September, commander of all his majesty's troops in America. He arrived at Hampton, Penn., February 20, 1755, and debarked at Alexandria, where he met the Virginia levies, and on April 24th reached Frederick, Md., when he was forced to wait for wagons to transport his stores. He was joined there by Washington, whom he invited to be his aide-de-camp, and Benjamin Franklin, then postmaster-general of the colonies. He scorned the advice of Franklin regarding danger from the ambuscades of the Indians, saying: "These savages may, indeed, be a formidable enemy to raw American military, but upon the king's regular and disciplined troops, sir, it is impossible that they should make an impression." He set out for Fort Cumberland, where all the forces were to assemble, and on June 7th they started by the path marked out by Washington two years earlier. Braddock's army consisted of 1,000 regulars, thirty sailors, 1,200 provincials, and a few friendly Indians, and on July 9th the advance division under Colonel Gates (afterward General Gates) was attacked by a band of French and Indians. Frightened by the war-whoop, which they heard for the first time, the British fell back in confusion, and Braddock tried to rally them against their invisible foes. Familiar with Indian warfare, the Virginians separated, and sought shelter behind rocks and trees, but Braddock, dispensing with the "military instruction of a Virginia colonel," named George Washington, kept his men drawn up in platoons, and they fired at random into the forest, killing many of the Americans, and falling themselves with great rapidity. Braddock's personal bravery was conspicuous. Five horses were killed under him, and he was mortally wounded and borne from the field to die. The battle ended in a rout, and of 1,460 men, including eighty-nine commissioned officers, who had entered the field, 827 were killed or wounded. Of Braddock's aides Washington alone escaped, and he covered the retreat.

BRADDON, MARY ELIZABETH (Mrs. John Maxwell), born in London in 1837; has written over seventy novels, among which are *Lady Audley's Secret*, *Aurora Floyd*, *John Marchmont's Legacy*, *Henry Dunbar*, and *Ishmael*. For several years she edited *Belgravia*, a London magazine in which many of her novels first appeared.

BRADFORD, WILLIAM, painter, born in New Bedford, Mass., in 1827. He was intended for a mercantile life, but became interested in painting, and resolved to make it his profession. His principal works are marine pieces and sketches of Arctic scenery, and to obtain material for these he made several voyages to Labrador and Melville Bay. He died April 25, 1892.

BRADLAUGH, CHARLES, born in London, England, September 28, 1833; enlisted as a private soldier in the Seventh Dragoons, and in 1853 became a solicitor's clerk. He was the leader of the Secularist party in England, a Republican, and held Malthusian doctrines. He wrote for many years over the signature of "Iconoclast," published *The Impeachment of the House of Brunswick* and other attacks on royalty and aristocracy, and for many years edited the *National*



*Reformer.* He was prosecuted on account of the latter publication, and for publishing, in connection with Mrs. Annie Besant, a work called *Fruits of Philosophy*, but the judgments against him were quashed by the Court of Appeal. Four times he contested the borough of Northampton, as a Radical, and in 1880 was elected. He refused to take the oath of allegiance, and was over and over again expelled from the House of Commons. His constituency reelected him every time, and in 1885 he took his seat. The prolonged fight resulted in the passage of an affirmation bill. Mr. Bradlaugh, who was an orator of the highest grade, had an enormous influence with the masses of the English people. He waged perpetual war against sinecures and pensions, and stood at the head of the English Radical party. In 1889 he was compelled to take a voyage to India for his health, and on January 30, 1901, he died.

**BRADLEY, EDWARD**, known in literature as "Cuthbert Bede," was born in England in 1827, and died December 12, 1889. He is best known by his first novel, *The Adventures of Verdant Green*, an amusing but overdrawn picture of the life of an Oxford undergraduate. He died Dec. 12, 1889.

**BRADLEY, JOSEPH P.**, born in Berne, N. Y., March 14, 1813; graduated at Rutgers college in 1836, and was admitted to the bar in 1839. He practiced as a railroad and insurance lawyer, and on March 21, 1870, was called to the supreme bench of the United States. In early days he was a Whig in politics, became a Republican about 1856, and contested the sixth congressional district of New Jersey unsuccessfully in 1862. Justice Bradley was a member of the Hayes-Tilden electoral commission. He died January 22, 1892.

**BRADSTREET, ANNE**, poet, born in Northampton, England, about 1612; died September 16, 1672. She was a daughter of Gov. Thomas Dudley, and was married to Gov. Bradstreet in 1628. Her complete works, prose and verse, have been published in Charlestown, Mass., 1868. In 1666 a fire destroyed her entire library. Her verses are founded on good English models, but lack originality, ease and novelty.

**BRADSTREET, SIMON**, born in Horbling, England, in March, 1603; died in Salem, Mass., March 27, 1697. He was educated at Emanuel college, Cambridge, and emigrated in 1630. He was chosen assistant judge of the court to be established in Massachusetts, and later was appointed secretary and agent of the colony, and commissioner of the united colonies. He became one of the founders of Cambridge and of Andover, himself residing at Salem, Ipswich, and Boston. In 1653 he opposed the proposed making of war on the Hollanders of New York and the eastern tribe of Indians. In 1660 he went to England on the restoration of King Charles II., and acted as agent for the colony. From 1630 until 1679 he served as assistant, and from 1679 until 1686 he was governor of the colony. He was opposed to the severe measures of Governor Andros, after whose imprisonment he again became governor, and continued in office until 1692. When Sir William Phipps arrived with a new charter he became first counselor.

**BRAGG, BRAXTON**, soldier, born in Warren county, N. C., March 22, 1817; died in Galveston, Texas, September 27, 1876. He was graduated at the United States military academy in 1837, appointed second lieutenant of the third artillery, and served against the Seminoles in Florida. In 1843-4 he was stationed in Fort Moultrie, in Charleston harbor, after which he was sent to Texas. In May, 1846, he was brevetted captain for gallant conduct in defending Fort Brown, Texas, and in June was made captain. He served in the Mexican war, was brevetted major for gallantry at Monterey,

September 21-23, 1846, and lieutenant-colonel for gallantry at Buena Vista in 1847. Subsequently he was on frontier duty at Jefferson Barracks, Mo., Fort Gibson, and Washita, and in 1856 resigned from the army and engaged in planting in Louisiana. At the beginning of the civil war he was appointed brigadier-general in the Confederate army, and placed in command at Pensacola, Fla. In February, 1862, he became major-general in command of the second division of the Confederate army. At the battle of Shiloh, April 6-7, 1862, he commanded the entire Southern forces after the death of Gen. A. S. Johnston. After the evacuation of Corinth he succeeded General Beauregard in command of the department. In August, 1862, he marched into Kentucky with 45,000 men, and captured Munfordsville, Ky., but declined to fight with Buell, who recaptured that town. After the battle of Perryville, October 8th, he retreated to Tennessee. He was removed from his command, and placed under arrest, but was restored to his division, and fought with Rosecrans at Stone River, at Murfreesboro, December 31, 1862, and January 2, 1863, and was defeated. He encountered Rosecrans again at Chickamauga, September 19-20, 1863, and was victorious. General Grant defeated him at Chattanooga, November 23-25, 1863, and in December General Bragg was relieved from command at his own request. He was called to Richmond to act as military adviser to Jefferson Davis, with whom he was a favorite. In 1864 he led a small force from North Carolina to Georgia to operate against General Sherman, but was unsuccessful. After the war he passed his life in retirement, but at one time he was chief engineer for the State of Alabama, and he superintended the improvements in Mobile bay. His brother Thomas (1810-1872), was governor of North Carolina in 1854-58, United States senator in 1859, and attorney-general of the Confederacy 1861-63.

**BRAGG, EDWARD S.**, born in Unadilla, N. Y., February 20, 1827; removed to Fond du Lac, Wis., in 1849, practiced law there, and in 1854 became district attorney. He was commissioned captain May 5, 1861, fought in the Army of the Potomac, and came out of the war a brigadier-general. Bragg's "Iron Brigade" will belong remembered. General Bragg, who is as good a talker as he showed himself a fighter, was always a Democrat, and in 1877 served a term in the Wisconsin legislature. He served in congress, 1877-83, and was elected in 1884, but resigned to become minister to Mexico, through President Cleveland's first term.

**BRAINARD, DANIEL**, born in Oneida county, N. Y., May 15, 1812; died in Chicago, October 10, 1866. He was surgeon of the marine hospital in Chicago, and for twenty-three years occupied the chair of surgery at Rush Medical college, which he assisted in founding.

**BRANT, JOSEPH**, Indian chief, born in Ohio about 1742; died at Lake Ontario November 24, 1807. It is thought that he was a grandson of one of the five Indian kings, who visited England in 1711, and are mentioned by Addison in the *Spectator*. At the age of thirteen he accompanied his two elder brothers, who, under the Mohawk king Hendrick, participated in Sir William Johnson's campaign against the French at Lake George. He was sent to the Rev. Eleazar Wheelock's Indian school at Lebanon, Conn., became interpreter to a missionary in 1772, and was frequently employed by Sir William Johnson as an agent among various tribes. On the death of Sir William, he became secretary to his son-in-law, Col. Guy Johnson. During the revolution the Mohawks adhered to the British, and Brant went to England, where he had access to the nobility, and his portrait was painted by Romney for the Earl of War-



wick. In 1776 he returned to Canada, and received a commission in the British army, in which he attained the rank of colonel, but was always known as captain. He participated in the battle of Oriskany, August 6, 1777, one of the bloodiest engagements of the war, and led the Indians in many raids on the borders of New York; but he was not present at the massacre of Wyoming as has been supposed. In revenge for the destruction of Newtown (near Elmira) by General Sullivan in 1779, Brant laid waste the Mohawk valley with 300 Indians and Tories. After the war the Six Nations found that they had no mention in the treaty, and Brant asked for a tract of land on the north shore of Lake Erie, which was granted. Here he labored for the improvement of his people, and tried to form a confederacy of tribes in Western Canada, but failed. He visited England again in 1785, raised funds to build a church, and received compensation to repair the losses his nation had incurred in supporting the English. He held that his people had a right to the territory northwest of the Ohio. In 1791 he was present at the defeat of Gen. Arthur St. Clair on the Miami river. In his late years he was troubled with efforts made to drive the Mohawks from their settlement, and by conspiracies, in which Red Jacket was conspicuous. Later he visited the United States, but those who had suffered from his raids feared and hated him, and his life was often threatened. His youngest son, John, became a chief, and took part in the War of 1812. See *Life of Joseph Brant*, by W. L. Stone.

BRASSEY, THOMAS, Lord, born in England in 1836; was elected to parliament as a Liberal in 1865, and held various offices in the Admiralty. He is a son of Thomas Brassey, a railroad contractor, who began life as a laborer and amassed an immense fortune. Lord Brassey is an enthusiastic yachtsman, and, accompanied by his wife, made a voyage around the world in his own yacht, the *Sunbeam*, in 1876-77. Lady Brassey, who died at sea, September 14, 1887, wrote an account of the voyage.

BRAZZA, PIERRE SAVORGNAN DE, born in Rome in 1852; explored the Congo region in 1876-78, made another journey through Central Africa in 1883, and became governor of the French possessions there in 1886.

BRECKENRIDGE, CLIFTON R., cotton planter, congressman and diplomat, born in Lexington, Ky., November 22, 1846, served in the Confederate army, settled in Arkansas in 1870, and sat in the 48th to the 53rd congresses, resigning in 1894 to accept the appointment of minister to Russia, succeeding Andrew D. White, resigned.

BRECKENRIDGE, JOHN CABELL, vice-president of the United States, born near Lexington, Ky., January 21, 1821; died May 17, 1875. He practiced law, served in the war with Mexico as major of a volunteer regiment, was elected to the Kentucky legislature, and to congress in 1851 as a Democrat. In 1856 he was elected vice-president, and in 1860 was nominated for president by the extreme Southern Democrats, who withdrew from the national convention that was held in Charleston, S. C. He received the electoral vote of the slave States, except Virginia, Kentucky, Tennessee and Missouri, but was defeated by Abraham Lincoln. In 1861 he took his seat in the United States Senate as successor to John J. Crittenden, but was expelled December 4, 1861, on account of his political opinions, and went south to enter the Confederate army, in which he was appointed a brigadier-general. He was appointed a major-general on August 5, 1862, and commanded the Confederate reserve at Shiloh, April 6, 1862. He commanded the right wing of Gen. Braxton Bragg's reserve at Murfreesborough December 31, 1862; served

at Chickamauga and Chattanooga, 1863; defeated Gen. Franz Sigel at Newmarket, Va., May 13, 1864; joined General Lee's army, and served at Cold Harbor, June 3, 1864; served under Gen. Jubal Early in his advance on Washington, and shared in his defeat by Sheridan near Winchester, Va., September, 1864. From January till April, 1865, he was secretary of war in Jefferson Davis' Cabinet, and after the downfall of the Confederacy he went to Europe by way of Cuba. He returned to Kentucky in 1868, and devoted himself to his profession.

BREESE, SIDNEY, jurist, born at Whiteboro, N. Y., July 15, 1800; died June 27, 1878. He served in the Black Hawk war and held various judicial offices in Illinois until elected United States senator, as a Democrat, in 1843. He was speaker of the Illinois House of Representatives in 1850, became circuit judge in 1855, justice of the Supreme Court in 1857 and chief justice in 1873.

BRENTANO, LORENZ, born in Baden, November 4, 1813; died in 1891. He was a member of the Frankfurt parliament in 1848, and president of the provisional government of Baden in 1849. On its overthrow he fled to America, and in 1859 came to Chicago. He was elected to the legislature in 1862, was United States consul at Dresden, 1872-76, and sat in congress, 1877-79.

BRETON, JULES ADOLPHE, well known French painter of peasant life, born in 1827, first took his subjects from the French revolutionary period, but soon found his *metier*. He is represented in the Luxembourg by *La Bénédiction des Blés* (1857); *Le Rappel des Glaneuses* (1859), and *Le Soir* (1861). His well known *Young Girls Going to the Procession*, *Breton Woman*, and *The Pardon of Kergoat*, were exhibited in the World's Fair of 1893. He is also known as a poet.

BREWER, DAVID JOSIAH, born in Asia Minor, June 20, 1837; son of an American missionary. He graduated at Yale in 1856, studied law with his uncle, David Dudley Field, graduated at Albany law school in 1858, and practiced in Leavenworth, Kan., where in 1862 he was elected probate judge, and in 1864 judge of the first judicial district of Kansas. In 1870 he became associate justice of the State Supreme Court, was re-elected in 1876, and again in 1882, and resigned in 1884, to become United States circuit judge for the eighth circuit. On Dec. 4, 1889, President Harrison nominated him associate justice of the United States Supreme Court, in succession to the late Stanley Matthews.

BREWSTER, BENJAMIN HARRIS, born in Salem county, New Jersey, October 13, 1816; graduated at Princeton in 1834, and was admitted to the bar in 1838. From 1867 to 1869 he was attorney-general of Pennsylvania, and from December 19, 1881 to March 4, 1885, was attorney-general of the United States. He died April 4, 1888.

BRIDGMAN, FREDERICK ARTHUR, painter, born in Tuskegee, Ala., November 10, 1847. His parents were from Massachusetts. At the age of sixteen he removed to New York, and became an apprentice to the American Bank Note Company, where he remained two years, studying meanwhile at the Brooklyn Art School and the Academy of Design, New York. In 1866 he went to Paris and entered the studio of Gérôme. He also studied in the École des Beaux Arts, and traveled in Brittany, Algiers and Egypt. He has contributed almost yearly to the French Salon, and his *Funeral of a Mummy* (1878) was awarded a medal of the second class at the Paris international exhibition of that year. At the same time he was decorated with the Legion of Honor. In 1875 he was made an associate of the National Academy, New York, and a member of the National Academy of Design in 1881. His works in-



clude: *Jen Bréton* (1868) *The Breton Children in Carnival Time* (1869), *The American Circus in Brittany* (1870), *A Moorish Interior* (1876), *Procession of the Bull Apis*, in the Corcoran Art Gallery, Washington (1879) and *My Last Price* (1884). Mr. Bridgman came to America in 1880, and exhibited his works in New York. At the Columbian World's Fair of 1893, in Chicago he exhibited *Passage of the Red Sea; Women at the Mosque, Algiers; Day Dreams; A Hot Day at Mustapha, Algiers*, and other paintings in oil. He has his studio in Paris.

BRIDGMAN, LAURA DEWEY, blind and deaf mute, born in Hanover, N. H., December 21, 1829; died May 24, 1889. At the age of two a severe illness deprived her of sight, hearing and speech. Her senses of smell and taste were also impaired. She was placed in the Perkins institution for the blind, Boston, at the age of eight, and the superintendent, Dr. Samuel G. Howe, undertook her education. The first step was made by giving her some familiar object with its name in raised letters, and teaching her at the same time the qualities of that article and its use or relation to other things. She was also taught to spell by means of movable types. She made rapid progress, and in the course of time acquired a knowledge of geography, arithmetic, learned to do household work and also to sew, both by hand and on the machine. After receiving her education, Miss Bridgman taught in the Perkins institution. It is thought that her facility in learning was due to her having had the possession of her senses for twenty-six months, although at that time she was unable to use them intelligently, and unable to remember anything at that period. Her moral sense was well developed, and she was a member of the Baptist church. In 1873 Doctor Howe wrote: "She enjoys life quite as much, probably more, than most persons do. She reads whatever book she finds in raised print, especially the Bible. She makes much of her own clothing, and can run a sewing-machine. She seems happiest when she can find some person who knows the finger alphabet, and can sit and gossip with her about acquaintances, the news, and general matters." See *Life and Education of Laura Dewey Bridgman* by her instructor, Mary S. Lamson (Boston, 1878).

BRIGHT, JESSE D., born in Chenango county, N. Y., December 18, 1812; died May 20, 1875. He removed to Indiana, practiced law there, sat in the legislature in 1836, and in 1841 was elected lieutenant-governor of the State. In 1845 he was elected to the United States Senate as a Democrat, and sat until February 5, 1862, when he was expelled for disloyalty. In 1866 he was a member of the Kentucky legislature.

BRIGHT, JOHN, born near Rochdale, England, November 16, 1811; of Quaker parentage. His first appearance in national politics was in 1839, when, with Richard Cobden, he founded the anti-corn-law league. In 1843 he entered parliament, where he sat, with the exception of a brief period during the Crimean war, for forty-five years. Mr. Bright was prominent in the free-trade movement, was an active member of the Peace society, and until near the close of his career an enthusiastic advocate of electoral reform and economy in public affairs. Possessed of a voice which rang like a silver bell, and of a diction sublime in its simplicity and Anglo-Saxon directness, he became one of the foremost orators in a House of Commons which numbered Gladstone and Disraeli among its members. After the passage of the reform bill of 1867, he entered Mr. Gladstone's cabinet, from which he retired in 1870 on account of ill-health. He held office again in 1873 and in 1881-82, but retired in the latter year as he disapproved of the English policy in Egypt. In 1886 he broke away from the traditions

of half a century to oppose the liberal policy of home rule for Ireland, and he died March 27, 1889.

BRIGHT, RICHARD, born in Bristol, England, in 1789; became a leading physician, and was the first to describe a disease of the kidneys since known by his name. He died December 16, 1858.

BRIGNOLI, PASQUALE, born in Italy in 1824; died in New York city October 30, 1884. He came to the United States in 1855 and for nearly thirty years his magnificent tenor voice was heard in opera and concert music in this country and in Europe.

BRINTON, DANIEL GARRISON, born in Chester county, Penn., May 13, 1837; became a division surgeon during the war, and in 1884 was appointed professor of ethnology and archaeology in the Philadelphia Academy of Natural Sciences. He has written on aboriginal myths and anthropology. Died July, 1899.

BRISBIN, JAMES S., born in Pennsylvania in 1838; entered the volunteer service as a private in 1861, and came out major-general of volunteers and brevet colonel in the regular army. He was transferred to the cavalry and was promoted colonel of the first cavalry in August, 1880. He died in Philadelphia, January 14, 1892.

BRISTOW, BENJAMIN H., born in Todd county, Ky., June 20, 1832; was admitted to the bar in 1853, joined the Union army and was wounded at Shiloh; served in the Kentucky Senate 1863-1865, was United States district-attorney at Louisville, 1865-1870, and became solicitor-general of the United States in October, 1870. In 1872 he resigned, and in December, 1873, was nominated for attorney-general, but not confirmed. From June, 1874, to June, 1876, he was secretary of the treasury, and was active in the prosecution of the whisky ring. At the Cincinnati Republican convention of 1876, he received 113 votes on the first ballot for president, but failed to get the nomination. In 1876 he returned to his law practice in New York city, and died June 22, 1896.

BROCK, SIR ISAAC, soldier, born in the island of Guernsey, October 6, 1769; killed in battle at Queenston, Canada, October 13, 1812. At fifteen years of age he was an ensign in the British army, became lieutenant in 1790, served in the West Indies until 1793, later rose to be lieutenant-colonel, was with the expedition in Holland in 1799, and at the battle of Copenhagen, and other operations in the Baltic in 1801. In 1802 he went to Canada, where in 1803 he suppressed a troublesome conspiracy. In 1805 he visited England, but in the year following returned to his regiment. In 1810 he commanded the troops in Upper Canada, and became lieutenant-governor of that province. When war was declared between this country and Great Britain, General Brock moved his command to Detroit, where, on August 16, 1812, he captured General Hull with his entire army. Meanwhile a United States force of 6,000 men was gathered on the frontier of Niagara. These were attacked by General Brock, who fell at the head of his troops.

BRODERICK, DAVID C., born in Washington, D. C., February 4, 1820; killed in a duel in California, September 16, 1859. He went to the Pacific slope in 1849, became State senator the next year, and in 1856 was elected United States senator. Originally a Democrat, he broke with that party over the slavery question in 1858. He got into a difficulty with David S. Terry, then chief justice of the State Supreme Court, who challenged him, and Broderick fell at the first fire. Terry made an assault upon Justice Field of the United States Supreme Court in 1889, and was shot dead by a United States marshal named Nagle.

BROGLIE, CHARLES JACQUES VICTOR, DUC DE, born in Paris June 13, 1821; became a member of the



French Academy in 1862, and was elected to the Assembly in 1862. Under the republic he was, in 1872, minister to England for a short time, returned to lead the opposition to the Thiers government, and became minister of foreign affairs under MacMahon, 1873-74. He was elected senator in 1876; became president of the council and minister of justice in the Conservative cabinet in 1877, and did all in his power to secure the return of Orleanist deputies at the election of that year. An overwhelming Republican majority in the Chamber drove him from power. He has written some important historical essays. He died Jan. 19, 1901.

BROOKS, CHARLES TIMOTHY, author, born in Salem, Mass., June 20, 1813; graduated at Harvard in 1832 and became a Unitarian minister. He translated Schiller's *William Tell*, the first part of Goethe's *Faust*, and several works of Jean Paul Richter. He died June 14, 1883.

BROOKS, JAMES, born in Portland, Me., November 10, 1810; died April 30, 1873. He was, in 1832, the first Washington correspondent of a daily paper, founded the *New York Express* in 1836 and served many terms in Congress.

BROOKS, PHILLIPS, D.D., one of the first of pulpit orators, was born in Boston, December 13, 1835, and died there January 23, 1893. He graduated at Harvard in 1855, and became an Episcopalian clergyman, first in Philadelphia and later at Trinity Church Boston. He was, in 1874, the first American clergyman to preach in Westminster Abbey. In 1891 he became fifth bishop of the diocese of Massachusetts.

BROOKS, PRESTON S., born in South Carolina in 1819; died in January, 1857. He became a member of congress in 1853, and attained an unenviable notoriety in May, 1856, by making a ferocious assault upon Charles Sumner in the United States Senate chamber.

BROUGHTON, RHODA, born in Wales, November 29, 1840; has written many novels of which *Cometh Up as a Flower*, and *Not Wisely, but Too Well*, are the best known.

BROWN, BENJAMIN GRATZ, born in Lexington, Ky., May 28, 1826; died in 1885. He was a member of the Missouri legislature (1852-1858); from 1863 to 1867 was United States senator from Missouri, and in 1870 was elected governor of the State. In 1872 he ran on the Greeley ticket for the vice-presidency.

BROWN, GEORGE, born in Edinburgh, Scotland, November 29, 1818; died May 9, 1880, in Toronto, Canada. He was educated in Scotland, came to New York in 1838, and published there the *British Chronicle*. In 1843 he went to Canada and founded the *Toronto Globe* in 1844. He was a strong Liberal, entered the Dominion parliament in 1851, and the Senate in 1873, and in 1874 negotiated a reciprocity treaty with the United States, which fell through. He was killed by a discharged employé.

BROWN, HENRY BILLINGS, Associate Justice of the Supreme Court of the United States, was born in South Lee, Mass., March 2, 1836; admitted to the Michigan bar in 1860; appointed Assistant United States Attorney by President Lincoln; and appointed Judge of the State Circuit Court of Wayne County. He returned to active practice until 1875, when President Grant appointed him District Judge for the Eastern District of Michigan. On December 23, 1890, he was appointed Associate Justice of the Supreme Court to succeed Justice Samuel F. Miller.

BROWN, HENRY KIRKE, sculptor, born in Leyden, Mass., February 24, 1814; died in Newburg, N. Y., July 10, 1886. At an early age he showed a talent for painting and sculpture, studied in Boston and Cincinnati, and in 1842 went to Italy, remaining there until 1846.

In this time he modeled a *Ruth*, a *Rebecca*, a *David*, which was destroyed, and a boy and a dog now owned by the New York Historical society. He returned to New York and opened a studio, where the first bronze-casting was done in this city. In 1850 he removed to Brooklyn, and for two years was engaged with the statue of De Witt Clinton for Greenwood cemetery. This was the first bronze statue cast in America. In 1857 he was invited by South Carolina to make the pediment for the State-house in Columbia. It represented a colossal figure of South Carolina, with Justice and Liberty at either side, and industries represented by negro slaves at work in the cotton and rice plantations. This work, nearly finished, was destroyed by Sherman's soldiers in 1865. Mr. Brown's principal statues are: *Dr. George W. Bethune*, in Packer Institute, Brooklyn (1865); *Abraham Lincoln*, Prospect park, Brooklyn (1866); *Gen. Nathanael Greene*, for the State of Rhode Island, presented to the National Gallery in the capitol, Washington (1867); *Abraham Lincoln*, Union Square, New York; *Equestrian Statue of General Scott*, Scott Circle, Washington (1872); *Gen. George Clinton*, presented by the State of New York to the United States Government (1873); *Gen. Philip Kearny*, in Newark, N. J.; *Richard Stockton*, for New Jersey (1874); an *Equestrian Statue of Gen. Nathanael Greene*, for the United States Government (1875-6); and *Resurrection* (1877).

BROWN, JOSEPH EMERSON, born in Pickens county, S. C., April 15, 1821; graduated at Yale in 1846, and became a lawyer in Georgia. He was elected to the State Senate in 1849, became judge in 1855, and was governor of Georgia from 1857 to 1865. At the outbreak of the civil war Governor Brown, who was an active secessionist, seized the United States forts and the arsenal at Augusta, Ga. After the war he advised his State to accept the terms of reconstruction offered, and for a time he acted with the Republican party. He was defeated for United States senator in 1868, and was appointed chief justice of the State Supreme Court in the same year. In 1872 he again joined the Democratic party during the Greeley campaign; in 1880 was elected United States senator for the unexpired term of General Gordon, and was reelected in 1884 for the term ending March 3, 1891. He died November 30, 1894.

BROWNING, ROBERT, poet, born in London, England, May 7, 1812; died at Venice, December 12, 1889. He studied at the University college, London, but left without taking a degree. At nineteen years of age he wrote *Pauline*, and in 1835 produced *Paracelsus*, a much greater work. *Sordello* appeared in 1840, and then followed a series of plays, tragic and otherwise. On September 12, 1846, Browning married Elizabeth Barrett, who died in 1861. The wedded poets made their home at Florence, where Mr. Browning wrote *Mén and Women*, *The Ring and the Book*, and other works. His style is involved, and to the ordinary mind obscure, but, while his poems have been attacked on this ground, half the literary world stands ready to pronounce them the most powerful works of the century.

BROWNLOW, WILLIAM G., born in Virginia, August 29, 1805; died April 29, 1877. He became a Methodist preacher, and afterward edited various newspapers in Tennessee. He became governor of that State in 1864, served two terms, and was in 1869 elected to the United States Senate. "Parson Brownlow," as he was called, edited the *Knoxville Whig* until it was suppressed by the Confederacy, and was always loyal to the Union cause.

BROWN-SEQUARD, EDOUARD, physician, born in the Mauritius in 1818; graduated in medicine at Paris in 1840. His father was an American sea-cap-



tain, his mother a French woman. He was a professor in the medical department of Harvard university, 1864-68, and was connected with the Virginia Medical college. In January, 1869, he was appointed professor of pathology in the School of Medicine at Paris, in 1873 established a medical journal in New York, and in August, 1878, succeeded Claud Bernard as professor of medicine in the College of France. He has written hundreds of scientific papers, and in 1889 made public the results of some experiments which he had made on human subjects with subcutaneous injections of an infusion prepared from the testes of animals. The effect of this treatment was claimed to be powerfully tonic and stimulant but faith in its effect was killed by the death of the experimenter, April 2, 1894.

BROWNSON, ORESTES AUGUSTUS, clergyman, born in Stockbridge, Vt., September 16, 1803; died in Detroit, Mich., April 17, 1876. He was educated at Ballston, N. Y., where he joined the Presbyterian church in 1822, but changed his views and became a Universalist in 1825. He conducted the *Gospel Advocate*, the organ of the latter church, and was afterward editor of the *Philanthropist*. Making the acquaintance of Robert Owen, he adopted his ideas of socialism, and in 1828 tried to form in New York a workingman's party. He was drawn to the Unitarians by Doctor Channing, and in 1832 became pastor of a congregation of this denomination. In 1836 he formed in Boston a society for Christian union and progress, of which he had charge until 1843. In 1838 he established the *Boston Quarterly Review*, of which he was the proprietor and almost sole writer. This was afterward merged into the *Democratic Review* of New York. In 1844 he became a Roman Catholic, and afterward remained a layman in that faith. Subsequently he founded *Brownson's Quarterly Review*, in which his ideas of theology were discussed. This was the first American periodical reprinted in England, where it had a circulation among Roman Catholics. Mr. Brownson was offered a chair in the new Catholic university of Dublin, but he declined this post. In 1873 he revived his review for a time.

BRUCE, BLANCHE K., born a slave in Virginia, March 1, 1841; came North during the civil war, and studied at Oberlin. In March, 1875, he became United States senator from Mississippi, and on May 19, 1881, was appointed register of the treasury by President Garfield.

BRUSH, CHARLES FRANCIS, inventor, born in Ohio, March 17, 1849; graduated at the university of Michigan in 1869. He became an analytical chemist, and in 1875 turned his attention to electric lighting. He invented a dynamo and an electric lamp, which were successfully introduced in 1876, and he has more than fifty patents relating to these inventions.

BRYAN, THOMAS B., first vice-president of the World's Columbian Exposition, was born at Alexandria, Va., December 22, 1828, settled in Chicago in 1852, practicing law, was president of the Northwestern Fair for the relief of the soldiers of the Union in 1865 and was prominent in securing the Fair for Chicago and active in promoting its interests abroad.

BRYANT, WILLIAM CULLEN, poet, born in Cummington, Mass., November 3, 1794; died in New York city, June 12, 1878. His earliest poetic efforts date from his eighth year. One, on the advance of knowledge, was published in the *Hampshire Gazette* in 1805. In his thirteenth year he wrote a satire on President Jefferson's embargo on American shipping, published under the title of *The Embargo; or Sketches of the Times* (Boston, 1808). He studied at New Brookfield and Plainfield, Mass., and at Williams college, but left

school to begin the study of law. At this period, Bryant being in his eighteenth year, his best poem, *Thanatopsis*, was written, and was found by his father after he had left Cummington to begin his law studies. It was first published in the *North American Review* (September, 1817). Admitted to the bar in Plymouth, he practiced in Plainfield, near Cummington, and moved to Great Barrington, in Berkshire, where he met Miss Frances Fairchild, whom he married in 1821. In 1825 he abandoned the legal profession, went to New York and assumed the editorship of the *New York Review*, afterward merged into the *New York Literary Gazette*. This again became the *United States Literary Gazette*, and afterward the *United States Review*. In the meantime Mr. Bryant had taken a temporary place on the staff of the *Evening Post* of New York, and was also associated with Robert C. Sands and G. C. Verplanck in the editorship of an annual called *The Talisman*. On the death of William Coleman, the proprietor of the *Evening Post*, in 1829, Mr. Bryant became editor-in-chief and part proprietor of that journal. His sympathy was with the Democratic party and his support of General Jackson during the National bank warfare affected the prosperity of his paper. In 1834 he went to Europe, but was speedily recalled, owing to the illness of his assistant, Mr. William Leggett, and the losing fortunes of the *Evening Post*. He opposed the annexation of Texas and the war with Mexico; aided in founding the Free Soil party in 1848, and in 1856 took an active part in the formation of the Republican party. In 1860 he was a presidential elector of Abraham Lincoln. During the war he supported the cause of the Union and was an advocate of the emancipation of slaves. He contributed several series of letters to his newspaper on his travels; visited Cuba three times; Europe, six times, once including a trip to the East, and traveled widely through this country. These letters were published as *Letters of a Traveler* (New York, 1850). Mr. Bryant possessed facility of speech and delivered many public addresses. He spoke at the banquet to Kossuth, in 1851; at the Burns centennial, in 1859; at the Schiller festivities, in 1859; at those of Goethe, in 1875 and at the dedication in Central Park, New York of the statues of Morse (1871), of Shakespeare (1872), Scott (1872), and Halleck (1874). These *Oration and Addresses* were published in book form (1873). In 1870 and 1872 he published translations of the *Iliad* and *Odyssey*. His last public address was delivered on May 28, 1878, at the unveiling of the statue of Mazzini, in Central Park, where he was overcome by heat, and injured by a fall from which he never recovered. He was buried at his country-seat in Roslyn, L. I.

BRUCE, JAMES, distinguished author and member of Parliament for Aberdeen, was born in Belfast, Ireland, in 1838, educated at Glasgow and Oxford, and entered Parliament in 1880. He is an advanced Liberal and deeply interested in Irish questions. He was a member of Gladstone's fourth cabinet, 1892-94, and of Lord Roseberry's cabinet and appointed President of the Board of Trade in May, 1894. His critical and scholarly work, *The American Commonwealth* (1889, revised ed. 1895), the result of twenty years' study of American institutions, is a standard authority.

BUCHANAN, ROBERT WILLIAM, poet and author, born in England in August, 1841, and died on the 10th of June, 1901. He was for many years a writer for the *Contemporary Review*, has published several novels and some good poetry and plays.

BUCK, DUDLEY, musical composer, born in Hartford, Conn., March 10, 1839. He studied in Leipzig, Dresden, and Paris, settled in Chicago for several



years, then became organist of Boston Music Hall, and afterward of Trinity church, Boston. He wrote a cantata, which was performed under the direction of Theodore Thomas at the inauguration of the Centennial exhibition of 1876, and is the author of some popular operettas and several compositions for the organ.

BUCKALEW, CHARLES R., born in Pennsylvania, December 28, 1821; was admitted to the bar in 1843, and became prosecuting attorney of Columbia county in 1845. He was in the State Senate from 1850 to 1856, and in 1858-61 was United States minister to Ecuador. In 1863 he became United States senator, and in 1869 returned to the State Senate. He was a prominent member of the Constitutional Convention of 1872; in 1886 was elected to congress and reelected in 1888 as a Democrat.

BUCKLAND, FRANCIS T., born in England, December 17, 1826; died December 19, 1880. He wrote several valuable works on ichthyology and natural history.

BUCKLE, GEORGE EARLE, born June 10, 1854; won the Newdigate prize at Oxford, 1875, and graduated B.A. in 1876, and M.A. in 1879. He was a fellow of All Soul's College, 1877-85, and in 1884 became editor of the *London Times*.

BUCKNER, SIMON BOLIVAR, born in Hart county, Ky., April 1, 1823; was educated at West Point, and served with distinction in the Mexican war. He joined the Confederacy in August, 1861, and surrendered Fort Donelson, February 16, 1862. He afterward commanded a division at Chattanooga, and an army corps at Chickamauga. On May 26, 1865, he surrendered the last army corps of the Confederates to General Canby of the Federal army.

BUELL, DON CARLOS, born near Marietta, Ohio, March 23, 1818. After graduation at the United States military academy in 1841, he became first lieutenant, 3d infantry, June 18, 1846, and won the brevet of captain at Monterey, and that of major at Contreras and Churubusco, where he was wounded. In 1848-9 he was assistant adjutant-general at Washington, and until 1861 was at the headquarters of various departments. On May 11, 1861, he was made a lieutenant-colonel and appointed brigadier-general of volunteers May 17, 1861. After organizing troops in Washington he was assigned to a division in the army of the Potomac, which became noted for its discipline. He succeeded Gen. W. T. Sherman in the department of the Cumberland, which was reorganized as that of the Ohio. On March 21, 1862, he was made major-general of volunteers, and his department united with that of the Mississippi, commanded by Major-general Halleck. By the aid of his division, which arrived at Shiloh April 6th, the Confederates, under General Beauregard, were driven to Corinth. On June 12, 1862, he assumed command of the district of Ohio. Owing to Gen. Braxton Bragg's advance into Kentucky, he was obliged to evacuate Central Tennessee, and to retreat to Louisville, where his army arrived September 24th, in great excitement, for it was feared that Bragg would reach there first. On September 30th, by order from Washington, General Buell gave up his command to Gen. G. H. Thomas; but he was restored on the same day. Part of his army fought the Confederates at Perryville, October 8th, but were defeated. A court-martial was held and Buell was acquitted. Andrew Johnson, then military governor of Tennessee, protested against his ever holding duty in that State, and he was transferred to the department of the Gulf. He declined this command, and resigned June 1, 1864. He was mustered out of the volunteer service May 23, 1864. In 1865 he became president of the Green River iron-works of Kentucky, and subsequently held the post of pension agent at Louisville, Ky. Died Nov. 19, 1899.

BULL, OLE BORNEMANN, violinist, born at Bergen, Norway, February 5, 1810; died August 18, 1880. He made many tours through the United States and gained and lost several fortunes. In 1870 he married a German lady in Wisconsin.

BÜLOW, HANS GUIDO, VON, pianist, born in Dresden, Saxony, January 8, 1830; studied under Liszt, and married his daughter, who afterward got a divorce from Von Bülow and married Richard Wagner. Bülow gave concerts in the United States and almost all European countries, and wrote several musical compositions. He died February 13, 1894.

BUNSEN, ROBERT WILHELM, born in Göttingen, March 31, 1811. He graduated at the university of his native city in 1831, and filled the chair of chemistry successively at Marburg, Breslau and Heidelberg. He invented the magnesium light, and discovered a new antidote for arsenical poisoning. But his greatest scientific work was in connection with the spectroscope and the introduction of the spectrum into chemical analysis.

BURDETT-COUTTS, BARONESS, youngest daughter of Sir Francis Burdett, born in England, April 25, 1814. In 1837 she came into possession of an enormous fortune, and for nearly fifty years her name was identified with charitable movements of every kind. As a slight recognition of her good deeds, Queen Victoria made her a baroness in 1871. In 1882 she married J. Ashmead Bartlett, a man less than half her age, who assumed her name and is now a member of Parliament.

BURDETTE, ROBERT J., humorist, born at Greensborough, Pa., July 30, 1844, served in the war and made a national reputation by his humorous sketches on the *Burlington Hawkeye*. He has delivered lectures and recently became a Baptist clergyman.

BURKE, THOMAS N. (Father Tom), born in Galway, September 8, 1830; died in Dublin, July 2, 1883. He became a Dominican friar, and in 1881 lectured through the United States in answer to J. A. Froude's attacks on Ireland.

BURLINGAME, ANSON, born in New Berlin, N. Y., November 14, 1820; died February 23, 1870. He graduated in law at Harvard in 1846, became a State senator in Massachusetts in 1853, entered congress in 1854, and sat until March, 1861. He was challenged in 1856 by Preston S. Brooks, whose brutal assault upon Charles Sumner he had denounced in fitting terms, but the duel did not come off. In March, 1861, Burlingame was nominated minister to Austria, but the government of the empire refused to receive him. He was then sent as United States minister to China, and when he was recalled, in 1867, the Chinese government engaged his services as their diplomatic representative in Europe and the United States. He negotiated, in 1868, the treaty known by his name, by which China subscribed to the principles of international law.

BURNABY, FREDERICK, born in England, March 3, 1842; killed in battle at Abu Klea, Nubia, January 17, 1885. He was a distinguished soldier and a great traveler, and wrote *A Ride to Khiva*, *On Horseback through Asia Minor*, and *A Ride Across the Channel*, the latter being a description of a balloon voyage.

BURNAND, FRANCIS COWLEY, born in England in 1837; educated at Eton and Trinity college, Cambridge, and admitted to the bar in 1862. In 1880 he became editor of the *London Punch*, to which he had contributed for several years. He has written many burlesques, of which *Ixion* and *Black-Eyed Susan* were very successful.

BURNE-JONES SIR EDWARD, born Birmingham, England, August 28, 1833; is an associate of the Royal Academy, and one of the leaders of the pre-Raphaelite



school of painters, and a brilliant colorist. *The Mirror of Venus* (1877), *Le Chant d'Amour* (1878), and *The Brazen Tower* are among his best paintings. He died June 17, 1898.

BURNETT, FRANCES ELIZA HODGSON, novelist, born in Manchester, England, November 24, 1849. She came to this country in 1865, and in 1873 married Dr. S. M. Burnett. Her best-known works are *That Lass o' Lowrie's* (1876), *Haworth's* (1878), *A Fair Barbarian* (1881), *Little Lord Fauntleroy*, which was successfully dramatized, *The One I Knew the Best of All* (1893), and *Piccino* (1894).

BURNHAM, DANIEL HUDSON, architect, born in Henderson, N. Y., September 4, 1846, came to Chicago in 1855, studied architecture and began its practice in 1871. In October, 1890, he was appointed chief of construction and supervising architect of the World's Columbian Exposition, and to him belonged much of the credit for the magnificence of the general plan, the beauty of the different Exposition buildings and the rapidity with which they were erected.

BURNHAM, SHELBOURNE W., born in 1840. For many years a shorthand reporter in Chicago, he devoted his leisure to astronomy, making a special study of double stars, and when the Lick observatory in California was erected took charge of it. He became director of the Yerkes observatory, Lake Geneva, Ill., 1895.

BURNS, JOHN, was born in 1858 at Vauxhall, England; when ten years of age went to work at a candle factory and then became an engineer's apprentice. He first attracted public attention by his speeches on Socialism; played a leading part in the unemployed agitation of 1886, and was imprisoned for resisting the police. He was twice elected a member of the London County Council for Battersea, and in July 1892 was elected to the House of Commons. He won the great victory of the dock laborers in 1889, and in all labor questions is an authority. Late in 1894 he visited the United States, addressing labor unions and socialists and making himself unpopular by his frank criticisms of American ways and institutions.

BURNSIDE, AMBROSE EVERETT, soldier, born in a log cabin at Liberty, Ind., May 23, 1824; died in Bristol, R. I., September 3, 1881. He was first a tailor but went to West Point, graduated in 1847, and served in Mexico. He took a Rhode Island regiment to Washington in 1861, commanded a brigade at Bull Run, July 21, 1861, and later, General Hunter's division. August 6, he was made brigadier-general of volunteers, organized a "coast division," and on February 5, 1862, captured the Confederate garrison of 2,500 men on Roanoke Island. The surrender of Forts Macon and Beaufort followed. Burnside was then transferred to the Army of the Potomac with his old division reorganized as the ninth corps. He was twice offered the chief command and declined. He was sent with command of the first and ninth corps to meet General Lee at Sharpsburg, and encountered the Confederate force at South Mountain, September 14, 1862. His force, the ninth corps, held, with great loss of life, the stone bridge at Antietam, September 17, 1862, which was the important post of that battle. On November 10th, after General McClellan had been relieved, Burnside reluctantly took the command. He was superseded by Major-General Hooker, and transferred to the department of the Ohio, with headquarters in Cincinnati, where, forced to take measures against the Southern sympathizers, he issued the famous order defining treasonable offenses and declaring that they would not be tolerated. Numerous arrests followed. In August, 1863, he crossed the Cumberland mountains to Knoxville, where he lay fortified for a siege. Relieved from

duty by the approach of General Sherman he devoted himself to recruiting and reorganizing the ninth corps. He resumed command in April, 1864, at Annapolis, with nearly 20,000 men, and was again attached to the Army of the Potomac under General Grant. He led his force at the Wilderness, Cold Harbor, and Petersburg, and suffered severe defeats. General Meade brought charges of disobedience against General Burnside and ordered a court-martial, which found him "answerable for the want of success." Burnside asserted that his plans of assault were always interfered with. He resigned from the army on April 15, 1865, and became at once identified with railroad construction and management. He was elected governor of Rhode Island in 1866, 1867, and 1868, but declined a reelection, and devoted himself to railroad interests. He went to Europe during the Franco-Prussian war, and was called upon to act as envoy between the two forces endeavoring to negotiate peace. Returning to this country in 1875 he was elected to the United States Senate from Rhode Island and was reelected in 1880. In 1852 he married Mary Richmond, the daughter of Nathaniel Bishop, of Providence, R. I. See *Life and Public Services of Ambrose E. Burnside*, by Ben Perley Poore. (Providence, 1882.)

BURR, AARON, born in Newark, N. J., February 6, 1756; died on Staten Island, N. Y., September 14, 1836. His father, Aaron, was a clergyman, and his grandfather was Jonathan Edwards. Left orphan at an early age, Aaron and his sister Sarah were brought up in the family of their uncle, the Rev. Timothy Edwards, of Elizabethtown, N. J. In 1769 Burr entered Princeton, and was graduated in 1772. At the beginning of the Revolution he joined the patriot army near Boston, and enlisted as a private. He accompanied Benedict Arnold to Quebec, and returned with the rank of major and a brilliant reputation. Washington invited him to remain at his headquarters in New York, but Burr was dissatisfied and left him to become aide to General Putnam. This was the cause of a break in Washington's friendship; Burr affected to despise the military ability of the commander-in-chief, and Washington's impressions of Burr ripened into distrust. In July, 1777, Burr became lieutenant-colonel, with the command of his regiment, and joined the main army when it was about to go into winter quarters at Valley Forge. He distinguished himself at the head of a brigade in the battle of Monmouth, June 28, 1778, and in the following winter guarded the American lines in Westchester county above New York city. For a short time he commanded at West Point, but in March, 1779, resigned on account of impaired health. He then studied law with Judge Patterson of New Jersey, and afterward with Thomas Smith of Haverstraw, N. Y., and was admitted to the bar in Albany in 1782. In July of that year he married Theodosia, widow of Augustine Prevost, a British officer, and when the Americans regained possession of New York city, settled at Richmond Hill. In 1784 he was a member of the State assembly, and in 1789 was appointed attorney-general of New York, which office he held two years. After the adoption of the constitution in 1788, he was a candidate of the Anti-Federal party, and his political influence steadily increased. He gathered many ambitious young men around him as satellites, and they were known as "Burr's Little Band." In 1791 he was elected to the United States Senate over General Philip Schuyler, and served for six years, acting with the Republican party, as the Anti-Federalists were called. In 1797 the Federal party gained control again, and Burr was made a member of the New York assembly. He threw himself with great



zeal into the presidential contest of 1800, and his talent for political manipulation came into full play. The Republicans were victorious, but there was a tie between the highest candidates and Burr, who had been supported for the vice-presidency, began intriguing to supplant Jefferson for the higher office, but was defeated in the House of Representatives and loudly condemned for his cool and daring plot. Toward the close of his service as vice-president he endeavored to recover popularity, and forced himself as a candidate for governor of New York, but was defeated through the influence of Alexander Hamilton. They had long been rivals, and Hamilton's opinions regarding Burr having appeared anonymously in the newspapers, the latter seized upon this for a challenge. His opponent endeavored to avoid extremities, but finally accepted, and they met on the bank of the Hudson at Weehawken, N. J., on July 7, 1804. Hamilton fell at the first fire. The tragedy caused great excitement, and Burr fled to South Carolina and took refuge with his daughter, Theodosia, who had married Joseph Alston, afterward governor of that State. Later he returned to Washington, and completed his service as vice-president. His political prospects now destroyed and his fortune dissipated, in 1805 he turned his attention to the great west, and on his way down the Ohio fell in with Harman Blennerhassett, who was moved by Burr's talk of empire, and readily entered into his schemes for mutual aggrandizement. Burr returned to Washington, and once again sought some appointment, but, failing, entered more earnestly into his western project. His scheme of "Filibusterism" was to form a body of men and conquer Texas, and perhaps Mexico, and to establish a republic of which he was to be the head. His adherents were adventurous young men of the east and hardy western pioneers. Blennerhassett's island was made their rendezvous, while Burr traveled through Kentucky and Tennessee. He bought a vast tract of land on the Washita river for which \$40,000 was paid. At last Gen. James Wilkinson, a veteran of the Revolution, then stationed at New Orleans as a senior officer, who had promised Burr his assistance and carried on a cipher correspondence with him regarding his enterprise, informed the president of Burr's purposes. President Jefferson then issued a proclamation, October 27, 1806, warning the people to withdraw from the project. On January 14, 1807, Burr was arrested in the Mississippi territory, escaped, was rearrested in Alabama, and taken to Richmond, where he was imprisoned. His trial, beginning May 22, 1807, lasted for six months. The counsel was of distinguished lawyers, including William Wirt, who delivered one of his finest speeches for the prosecution, and Luther Martin, Edmund Randolph, and Burr himself for the defense. At length he was acquitted, and afterward went to Baltimore. He sailed for England under an assumed name and there made efforts to procure the aid of European governments to establish his empire in Mexico. Expelled from England he then went to Sweden, thence to Germany and Paris. In the latter city he was kept under government surveillance and refused permission to return to the United States. At last he secured a passport and sailed from Amsterdam, but his ship was captured by a British frigate and carried to Yarmouth. He finally escaped from London, where he had lived in poverty for five months, and arrived penniless in Boston in May, 1812, under the name of Arnot. He settled in New York and practiced law with brightening fortune, but in 1813 he met with a great affliction. His daughter Theodosia, one of the most accomplished of American women, was lost at sea while traveling from Charleston to New York to visit her father. At the age of seventy-eight Burr married Madame Jumel, the widow of a

French merchant. They were finally separated, though not divorced.

BURRITT, ELIHU, born in New Britain, Conn., December 8, 1810; died there March 6, 1879. He began life as a blacksmith, but studied mathematics and languages and became familiar with classic literature and many modern tongues. He was a great traveler, and wrote accounts of his journeys. From 1865 to 1870 he was United States consul at Birmingham.

BURROUGHS, JOHN, author, born in Roxbury, N. Y., April 3, 1837; has written extensively on natural history.

BURROWS, JULIUS C., born in Erie county, Penn., January 9, 1837; served in the Union army 1862-64, and after the war became prosecuting attorney of Kalamazoo county, Mich. In 1875-76 he served in congress as a Republican, and again from 1879 to 1881. He represented the fourth Michigan district from 1884 until his election to the United States Senate in 1895.

BURTON, SIR RICHARD FRANCIS, born in Ireland in 1821, entered the Indian army and served nineteen years. He acquired a familiarity with nearly all the Oriental languages, and, disguised as a pilgrim (Hadji), visited Mecca and Medina in 1853. He served with credit in the Crimea, and from 1856 to 1859 was engaged in Central African explorations. Subsequently he was English consul at Damascus and Trieste. He wrote more than thirty volumes of travels, and, in 1885-1888, published a literal translation of the *Arabian Nights*, of which only a limited number of copies were issued. His wife, Lady Burton, accompanied him in many of his expeditions. She has written some books of travel, and published an expurgated edition of the *Arabian Nights*. Sir Richard died October 20, 1890.

BURTON, WILLIAM EVANS, actor, born in London, England, September 24, 1804; died in New York, February 10, 1860. He began his theatrical career in England, and in 1834 came to the United States and appeared in standard comedies in Philadelphia and New York. In 1848 he became manager of the theater in Chambers street, where his stock companies included all the leading actors of the time. Burton's "Falstaff," his "Aminadab Sleek" and his "Toodles" dwell in the memory of veteran play-goers to this day. He wrote several works, established in New York the *Gentleman's Magazine* and collected a fine library of Shakespearean literature.

BUTLER, BENJAMIN FRANKLIN, born in Deerfield, N. H., November 5, 1818; graduated at Waterville university, Maine, in 1838; admitted to the bar in 1840. He was in those days a Democrat and was elected to the Massachusetts legislature in 1853 and to the State Senate in 1859. He practiced law in Lowell, Mass., and became prominent in his profession. Previous to the civil war he was twice a candidate for the governorship of Massachusetts. He was a delegate to the National Democratic Convention, held in Charleston, S. C., in 1860, and took part in the proceedings of the adjourned convention, held in Baltimore, until there was a second secession of the Southerners on account of the admission of the Douglas delegates to the vacant seats, when he retired. At the beginning of the civil war he was appointed brigadier-general of the State militia, and, on April 17th, marched to Annapolis, Md., with the 8th Massachusetts regiment, to command the district of Annapolis, including Baltimore, which city he entered on May 13, 1861, at the head of 900 men, and occupied without opposition. On May 16, 1861, he was appointed major-general of volunteers, and given command of the department of Eastern Virginia, with headquarters at Fortress Monroe. While he was here some runaway slaves took refuge in his lines and he re-

fused to deliver them to their masters, saying that they were contraband of war. This was the origin of the term "contraband," as applied to negroes.

General Butler captured Fort Clark and Fort Hatteras in August, 1861. In March, 1862, he led an expedition to the Gulf of Mexico. After Farragut's capture of New Orleans, Butler commanded there from May to December, and administered affairs with great vigor. He preserved order and public health, and armed the free colored men. Resentment was caused by his hanging William Mumford for hauling down the United States flag from the mint, and by the issue of "Order No. 28," his famous "woman order." Jefferson Davis, in December, 1862, issued a proclamation declaring him to be an outlaw. While in New Orleans he seized \$800,000, which had been deposited in the office of the Dutch consul, claiming that it was intended to buy arms for the Confederates with this money, but the government ordered him to return it. On December 16, 1862, he was recalled, but in 1863, was placed in command of Virginia and North Carolina, his troops being afterward known as the Army of the James. He formed a plan to capture Richmond by operations from the south side of the James, intending to cooperate with the Army of the Potomac from the north, but he was checked by General Beauregard, and many of his troops were transferred to the Army of the Potomac. In October, 1864, he was in New York suppressing the anti-draft riots, and afterward was sent to Fort Fisher, North Carolina. He was removed from command by General Grant, and returned to Massachusetts. In 1866 he was elected to congress as a Republican, and served until 1879, with the exception of the year 1875-6. He took an active interest in the reconstruction of the Southern States, and also in the impeachment of President Johnson. He was the unsuccessful Republican nominee for governor of Massachusetts in 1871, and in 1878 and 1879, was again defeated for the same office on the ticket of the Greenback party and of an Independent Democratic wing. In 1882 he was elected by the Democrats, but was defeated in 1883. In 1884 he ran as the Greenback-Labor candidate for president. He died January 11, 1893.

BUTLER, ELIZABETH S., born in Switzerland, of English parents, in 1844; achieved fame by her pictures, *The Roll-Call*, *Balaklava*, and *Inkermann*, the first of which was shown at the World's Fair in 1893.

## C.

CABANEL, ALEXANDRE, artist, born in Montpelier, France, in 1823; first exhibited in 1844 at the "Salon" of Paris, and afterwards produced many paintings, the finest of which are in the Luxembourg collection. He was elected to the Academie de Beaux Arts in succession to Horace Vernet in 1863, and was an officer of the Legion of Honor. He died January 23, 1889.

CABLE, GEORGE WASHINGTON, novelist, born in New Orleans in 1844; served in the Confederate army 1863-65, and after the war engaged in business. In 1879 he published the first of the sketches of Creole life which have made him famous. He possesses a thorough mastery of the Louisiana dialect, and his stories have the merit of novelty and interest.

CALDERON, PHILIP H., born in 1833; studied painting in Paris and became A. R. A. in 1863, and an academician four years later. He is a successful figure and portrait painter, and is a knight of the French Legion of Honor. He died April 30, 1898.

CALDWELL, HOWARD H., poet, born at Newbury,

In June 1877, she married Major-general W. F. Butler of the British army.

BUTLER, WILLIAM FRANCIS, born in Tipperary, Ireland, in 1838; entered the British army in 1858, and served in the Red River and Ashantee expeditions. He also held high command in the Soudan, and is a major-general and commander of the Bath. He is the author of *The Great Lone Land* (1872) and *The Wild North Land* (1873).

BUTLER, WILLIAM ALLEN, born in Albany, N. Y., in 1825; son of B. F. Butler, who was attorney-general in Jackson's cabinet. Mr. Butler wrote, in 1857, a society satire in verse—*Nothing to Wear*—and has been a liberal contributor to the magazines.

BUTT, ISAAC, born in Donegal, Ireland, in 1813; died May 5, 1879. He was professor of political economy in the university of Dublin, 1836-41, and sat in parliament as a Liberal-Conservative from 1852 to 1865. He was a prominent member of the Irish bar, and defended Smith O'Brien in 1848, and the Fenian prisoners, 1867-69. In 1871 he was elected as a Home Ruler, and for a time led that party. His methods, however, were too slow for the Parnell-Dillon wing of the Irish nationalists, and Doctor Butt lost his influence.

BUTTERWORTH, BENJAMIN, born in Warren county, Ohio, October 22, 1837; was educated at Ohio university, admitted to the bar in 1861, and practiced law in Cincinnati. In 1870 he became United States district attorney, and in 1873-74 State senator. He was elected to congress in 1878 and 1880, became commissioner of patents in September, 1883; and in 1884 was again elected to congress, where he represented the first district until 1890. Mr. Butterworth was elected, in 1890, Secretary of the Chicago World's Fair.

BYFORD, WILLIAM HEATH, born in Ohio, March 20, 1817; graduated at Ohio medical college in 1844. In 1857 he became professor of obstetrics in Rush Medical college, Chicago, and in 1880 professor of gynecology. In 1862 he was chosen president of the Woman's Medical college of Chicago. Doctor Byford died on May 21, 1890.

BYRON, HENRY JAMES, dramatist, born in Manchester, England, in 1835; died April 13, 1884. His dramatic works number over 150, and include comedies, farces, melodramas and burlesques, many of which were very popular.

S. C., in 1831; has contributed largely to periodicals, and published two volumes of poems.

CAMBRIDGE, GEORGE WILLIAM, DUKE OF, born in Hanover, March 26, 1819. He is the son of Adolphus Frederick, first duke of Cambridge, is grandson of George III. and first cousin of Queen Victoria. Since 1856 he has been commander-in-chief of the British forces, and in 1862 was made a field-marshal.

CAMERON, ANGUS, born in Livingston county, N. Y., July 14, 1826; removed to La Crosse, Wis., in 1857, and served several terms in both branches of the State legislature. From 1875 to 1885 he was United States senator from Wisconsin. Died Mar. 30, 1897.

CAMERON, JAMES DONALD, son of Simon Cameron, born in Middletown, Penn., May 14, 1833; became connected with railroads and iron manufacturing. From May 22, 1876, to March 3, 1877, he was secretary of war under President Grant, and was then chosen United States senator in succession to his father. Senator Cameron was reelected in 1879, 1885, and 1891.



**CAMERON, SIMON**, born in Lancaster county, Penn., March 8, 1799; died June 26, 1889. He became a printer and edited a newspaper in Harrisburg in 1822. He was interested in banking and railroad building, and amassed a great fortune. Originally a Democrat, he was elected to the United States Senate in 1845, and supported the Mexican war. He afterward joined the Republican party, and in 1857 was again elected senator. He was a formidable candidate in the Chicago convention of 1860, but the Pennsylvania delegation changed to Lincoln, who, on becoming president, made Cameron secretary of war. He resigned in April, 1862, to become minister to Russia. He was again United States senator from 1866 to 1877, when he turned the office over to his son. For many years he was the dictator of Republican politics in Pennsylvania.

**CAMERON, VERNEY LOVETT, CAPTAIN**, a distinguished naval officer and African traveler, was born in 1844, entered the Royal Navy, took part in the Abyssinian campaign; went with Stanley to the relief of Livingstone; made important explorations in Central Africa, and was the first European to cross tropical Africa from east to west. He wrote *Across Africa*. He died March 26, 1894.

**CAMPBELL, ALEXANDER**, theologian, born in Ireland, September 12, 1788; died in Bethlehem, W. Va., March 4, 1866. His father Thomas, came to this country in 1807, and ministered to destitute congregations in Western Pennsylvania. Following his father in 1809 he became pastor of a Presbyterian church in Washington county, Penn., but became dissatisfied with that sect and held that the Bible should be the sole creed. With his father, in 1810, he founded a new religious society at Bush Run, Penn. Believing in immersion they joined the Baptists and were immersed in 1812, but owing to the independence of their doctrines they were disfellowshipped in 1827. They then formed a sect of their own, which they called the "Disciples of Christ," better known as "Campbellites." In 1840-41, he founded Bethany college, of which he was the first president, holding this office until his death.

**CAMPBELL, BARTLEY**, dramatist, born in Allegheny City, Penn., August 12, 1843; died July 30, 1888. He began life as a newspaper reporter in Pittsburg, and founded the *Evening Mail* of that city in 1868. In 1871 he began writing for the stage, and produced *Through Fire*, and the following year *Peril*. Among his later plays, several of which still keep the stage, were *The Big Bonanza*, *My Partner*, *The Galley Slave*, *My Geraldine* and *Siberia*. Campbell derived a great deal of money from his plays, but lost most of it through dissipation and mismanagement, and died insane.

**CAMPBELL, JOHN ARCHIBALD**, born in Wilkes county, Ga., June 24, 1811; died March 12, 1889. He graduated at the university of Georgia in 1826, practiced law in Alabama, and was several times a member of the legislature of that State. President Pierce made him an associate justice of the United States Supreme Court in 1853, and he resigned in 1861 to become assistant secretary of war of the Confederacy under Jefferson Davis.

**CAMPBELL, SIR ALEXANDER**, born in Yorkshire, England, in 1822; came to Canada when a boy, and in 1843 was called to the bar of Upper Canada. In 1856 he was created queen's counsel. He sat in the Legislative Council of Canada before the union. In 1867 he took office under Sir John Macdonald, first as postmaster-general and afterward as minister of the interior. In 1878 he was postmaster-general and minister of militia in the Liberal-Conservative administration. Entering the Senate he became leader of the government party in that body; in 1881 was made minister of justice, and in 1885 postmaster-general.

In 1887 he became lieutenant-governor of Ontario. He died May 22, 1892.

**CANBY, EDWARD RICHARD S.**, born in Kentucky, in 1819; killed by Indians in Oregon, April 11, 1873. He graduated at West Point in 1839, served several years on the frontier, and took an active part in the Mexican war. In May, 1861, he became colonel of the nineteenth United States infantry, and, in 1862, defeated the Confederate General Sibley in New Mexico. During the draft riots in New York city in 1863, Canby, then a brigadier-general, had command of the United States troops. As major-general of volunteers, he captured Mobile April 12, 1865, and received brevets of brigadier and major-general in the regular army. Gen. Richard Taylor surrendered to him the last Confederate army in the field. In 1873 he was sent, with two others, to treat with the Modoc Indians under "Captain Jack," in Oregon, and they were killed under a flag of truce. Their Indian murderers were caught and hanged.

**CANNON, JOSEPH G.**, born in Guilford, N. C., May 7, 1836; removed to Illinois and practiced law; was states attorney March, 1861, to December, 1868. In 1874 he was elected to congress as a Republican from the fifteenth district of Illinois and reelected continuously until 1890, and again in 1892 and 1894.

**CANOVAS DEL CASTILLO, ANTONIO**, statesman, born February 8, 1828, at Malaga, Spain. He became a journalist, in 1854 was elected to the cortes, and is still a member of that body. He held cabinet positions during Isabella's reign, and opposed the republic in 1868. In 1874 he was instrumental in placing Alfonso XII. on the throne. He was prime minister of Spain three times, from 1874 to 1895, when he again became premier. He has written many historical works. He died Aug. 8, 1897.

**CANROBERT, FRANÇOIS-CERTAIN**, marshal of France, born in the department of Lot, June 7, 1809; entered the military school of St. Cyr in 1826, and later enlisted as a private soldier. He served many years in Africa, and was wounded in the siege of Constantine. In the Crimean war he commanded a division and was wounded at Alma. Promoted commander-in-chief he headed a charge of zouaves at Inkerman, and was again wounded. He commanded the third corps at Magenta and Solferino, and was made marshal of France and grand cross of the Legion of Honor. In the Franco-Prussian war his corps was cut to pieces by the crown prince of Prussia at Woerth, August 6, 1870. He was shut up in Metz with Bazaine, and sent a prisoner to Germany. In 1876, and again in 1879, he was elected to the Senate. He died January 28, 1895.

**CAPRIVI, GENERAL VON** (George Leo von Caprivi de Caprera de Montecuculli), ex-chancellor of the German empire, was born in Berlin, February 24, 1831, entered the Prussian army in 1849; served in the war of 1866 and the Franco-Prussian war, and became major-general in 1877. In December, 1882, he was given command of the third army division, with headquarters at Metz, and from March, 1883, to June, 1888, was at the head of the admiralty. He then held command of the tenth army corps until March 19, 1890, when he became chancellor, succeeding Prince Bismarck. General Caprivi's skillful conduct of the yearly army bills was warmly approved by the emperor, and his resignation, in October, 1894, were surprises. Died Feb. 6, 1899.

**CAREY, HENRY CHARLES**, political economist, born in Philadelphia, December 15, 1793; died there, October 13, 1879. He was the oldest son of Matthew Carey, publisher and political economist (1760-1839), who gave him a liberal education. He entered his father's bookstore at the age of eight, and was called



"the little bookseller." He was successful in business, and made a special study of economic questions. He was a member of the Republican party from its formation, supported the Union during the civil war, was a trusted adviser of Mr. Lincoln and Mr. Chase, and was a member of the constitutional convention of Pennsylvania, in 1872. He bequeathed his valuable library to the University of Pennsylvania. Mr. Carey advocated a new system of political economy, and wrote extensively on protection and the currency.

CARLETON, WILL, poet and author, born in Michigan, October 21, 1845; has published several volumes of popular poetry and ballads.

CARLISLE, JOHN GRIFFIN, born in Kentucky, September 5, 1835. He became a lawyer in 1858, served several terms in the State legislature, and was State senator, 1866-71. From 1871 to 1875 he was lieutenant-governor of the State, and in March, 1877, took his seat in congress, serving from December 3, 1883, to March 4, 1889, as speaker of the House of Representatives, and retiring on May 17, 1890, when he was elected United States senator, to succeed Mr. Beck. In March, 1893, he became Secretary of the Treasury in President Cleveland's second cabinet.

CARLOS I., KING OF PORTUGAL, son of King Louis I., was born September 28, 1863, married Marie Amélie, daughter of the Comte de Paris, May 22, 1886, and succeeded his father on the throne, Oct. 19, 1889.

CARLOS, DON, duke of Madrid, born March 30, 1848. He claims the crown of Spain, as the eldest male descendant of Charles IV., and styles himself Charles VII. From 1872 to 1878, his followers raised rebellions but were finally defeated.

CARLOTTA, ex-empress of Mexico, daughter of Leopold I., of Belgium, was born July 7, 1840. In 1857 she married Archduke Maximilian of Austria, usurper of Mexico, and his execution made her insane.

CARLYLE, THOMAS, born at Ecclefechan, Scotland, December 4, 1795; died at Chelsea, London, February 5, 1881. The son of a stonemason, he received his early education in the village school and at Annan Academy. When fourteen years old he walked a hundred miles, to enter Edinburgh university. Here, like the early Edinburgh reviewers, he "cultivated literature upon a little oatmeal" for four years. He took no prizes, either in classics or mathematics, although he made great progress in geometry. In 1813 he entered as a divinity student, and in the following summer became teacher of mathematics at Annan academy. His stipend was very small—about \$330 per annum—but he supported himself and sent money to his father out of this meager wage. In 1816 he became master of a grammar school in Kirkcaldy, Fifehire, where he met Edward Irving. In November, 1818, Carlyle removed to Edinburgh, gave private instruction in classics, and wrote for the *Edinburgh Encyclopedia*. The next year he joined a law class, but soon abandoned this study as he had previously given up divinity. He became absorbed in the study of German literature, especially the writings of Goethe and Schiller, which had a powerful effect upon his later style.

In 1822 Carlyle became a private tutor, and wrote a *Life of Schiller* and a translation of Goethe's *Wilhelm Meister*. In 1826 he married Jane Welsh, a descendant of John Knox, and a woman of high character and considerable literary ability. Their married life could scarcely be called a happy one. Carlyle's irritability, the result of his dyspeptic condition, was aggravated by his wife's uncompromising insistence upon her rights and her unreasoning jealousy. Froude's *Life of Carlyle* tells in detail the sad story of their mutual misunderstandings, and bears witness also to the sincere

affection with which Carlyle regarded his life-partner, and the melancholy which oppressed him after her death.

The Carlyles spent the years from 1822 to 1828 on a lonely farm called Craigenputtock. While residing there the author wrote his famous essays on Burns, Schiller, Johnson, Voltaire, Goethe, and Diderot. In 1833-34 *Sartor Resartus*, the most characteristic work of this unique creator of character, was given to the world through *Fraser's Magazine*. In 1834 Carlyle removed to London, and established himself in the house No. 5 Cheyne row, Chelsea, which he inhabited until his death. Here he wrote the *French Revolution*, *Heroes and Hero-Worship*, *Chartism*, *Past and Present*, and his magnum opus, the *History of Frederick II*. Mrs. Carlyle died suddenly April 21, 1866, and Carlyle wrote little after her death. He was elected lord rector of Edinburgh university in 1865, defeating Benjamin Disraeli by more than two to one of the votes cast. Prussia gave him the *Order pour la Mérite*, which he accepted, and Disraeli offered him a baronetcy or the grand cross of the Bath and a pension, all of which he refused. On his death, at the age of eighty-six, it was proposed to bury him in Westminster Abbey, but in accordance with his own wishes, his remains were interred in the churchyard of his native village.

CARNEGIE, ANDREW, was born in Scotland, November 25, 1835, of poor parents. The family came to the United States in 1845, and the boy became a telegraph operator, railroad employé, and in time superintendent of a division of the Pennsylvania railroad. Speculation in oil lands made him wealthy, he organized rolling mills and steel works and became the largest manufacturer of iron and steel in the world. He is known for his benefactions, his work on *Triumphant Democracy* and the bloody strike forced at his works at Homestead, Pa., in 1892, by his refusal to arbitrate complaints of workmen.

CARNOT, MARIE FRANÇOIS SADI, born in France, August 11, 1837, the grandson of the Carnot of the Directory, "the organizer of victory," entered political life in 1871 as a member of the assembly, was finance minister in 1879 and again in 1887, and in December, 1887, was elected president of France to succeed M. Grévy. His life and his conservative and honorable administration were cut short by the dagger of an assassin, Santo, an anarchist, at a fête at Lyons, June 24, 1894.

CARON, SIR ADOLPHE, born in Quebec in 1843; practiced law and became queen's counsel in 1879. He entered the Dominion parliament as a Conservative in 1873, became minister of militia in November, 1880, and postmaster-general in 1893.

CARPENTER, MATTHEW HALE, born in Vermont December 22, 1824; died February 24, 1881. He spent two years at West Point, but did not graduate, and was admitted to the bar in Vermont, in 1847. The next year he settled at Beloit, Wis., from whence he removed to Milwaukee in 1856. Originally a Democrat, he was a strong supporter of the war, and became affiliated with the Republican party. He was considered the greatest constitutional lawyer of his time, and tried several of the most important cases before the United States Supreme Court. From March, 1869, to 1875, he was United States senator from Wisconsin, but was beaten for renomination. He defended W. W. Belknap, ex-secretary of war, and appeared as counsel for Mr. Tilden before the electoral commission. In 1879 he was again elected to the Senate, and died in office.

CARPENTER, WILLIAM B., born in England in 1812; graduated in medicine at Edinburgh in 1839. He wrote *Principles of Human Physiology* and monographs on the microscope and zoölogy. Doctor Carpenter was



professor of medical jurisprudence in University College, London, and fellow of the Royal society. He died in 1885.

CARROLL, CHARLES, of Carrollton, statesman, born in Annapolis Md., September 20, 1737; died in Baltimore, Md., November 14, 1832. He was descended from one of the most ancient septs of Ireland, which traced its ancestry to the kings of Munster. He was educated at the Jesuit college of St. Omer, in French Flanders, at Rheims, and in the college of Louis Le Grand, Paris; studied civil law in Bourges and in the Middle Temple, London. In 1765 he returned to Maryland, and in 1768 married Mary Darnall. At the outbreak of the Revolution he was the wealthiest man in the colonies, and he was ever ready to use his influence and means for the aid of liberty. As early as 1770, he had protested against arbitrary taxation, and under the name of the "First Citizen," he carried on a controversy with Daniel Dulany, the secretary of the province, who wrote under the signature of "Antilon." In December, 1774, he was appointed one of the committee of correspondence for the province, and in 1775 was elected a member of the Council of Safety.

About this time he adopted the designation of Charles Carroll, of Carrollton, to distinguish himself from a relative, Charles Carroll, a barrister of Annapolis. He was a delegate to the Revolutionary Convention from Anne Arundel county, Md., which met in Annapolis, December 7, 1775, and in January, 1776, he was appointed by the Continental congress to visit Canada, with a number of commissioners, and induce those colonies to unite in the common cause of independence. On July 4, 1776, he was elected to represent Maryland in the Continental congress, and signed the Declaration of Independence. The story that he first affixed the addition "of Carrollton" then is disputed. He was again a delegate to congress in 1777, and served on the committee which visited Valley Forge to investigate complaints about General Washington. In 1788 he was elected the first senator from Maryland under the constitution of the United States, serving until 1791. He was again elected to the State Senate, and served until 1801. In 1797 he was one of the commissioners to determine the boundary-line between Maryland and Virginia. On April 23, 1827, he was elected a director of the Baltimore and Ohio railroad company, which he inaugurated July 4, 1828. He was the last surviving signer of the Declaration of Independence. His only son, Charles, married Harriet, the daughter of the Hon. Benjamin Chew, chief justice of Pennsylvania; his daughter Catharine was married to Robert Goodloe Harper, a distinguished Federalist of Maryland, and his daughter Mary was married to Richard Caton, of Maryland, whose four daughters, who were noted for their beauty, were known at the court of George IV. as "The American Graces." Three of them were married to English noblemen, the fourth, Emily, to Mr. John McTavish, of Baltimore, Md.

CARROLL, JOHN, R.C. Archbishop, born in Upper Marlborough, Md., in 1735; died in Georgetown, D. C., December 3, 1815. He was a cousin of Charles Carroll, of Carrollton, being descended from the Carrolls who emigrated to Maryland about the year 1689. He was educated in the college of St. Omer, in French Flanders, and at the Jesuit college at Liège, where he was ordained priest in 1759. Until 1771 he was professor of moral philosophy at St. Omer's and Liège, and when the Society of Jesus was suppressed, in 1773, he was forced to leave the continent and went to England, where he conducted important negotiations with the French Government regarding the property owned by the society in France. He was appointed

chaplain to his kinsman, Lord Arundel, and performed missionary duties in the vicinity of Wardour Castle until 1774. He then returned to Maryland, whose resistance to the crown enlisted his sympathies. The condition of the Roman Catholics was unhappy there at this time. The celebration of mass was prohibited, Roman Catholic schools were forbidden, and the members of this church were not allowed to bear arms. In February, 1776, he was appointed by the Continental Congress commissioner with Charles Carroll, of Carrollton, Samuel Chase and Benjamin Franklin, to visit Canada in order to secure the coöperation of that country in our struggle for independence. After the Revolution, the Roman Catholics of the United States were anxious to have ecclesiastical jurisdiction of their own, independent of the vicar-apostolic of London, and petitioned the Pope to appoint a superior, whose allegiance would be to the Federal Government alone.

In 1784 Father Carroll was appointed to this post, and he then settled in Baltimore. In 1789 he was appointed first bishop in the United States, with his see in Baltimore. He was consecrated in England on August 15, 1789, and returned immediately to discharge the duties of his diocese, which embraced all of the United States. In 1788 he laid the foundation of Georgetown college, which was completed in 1791, and he established a theological seminary in connection with this which was merged into that of St. Mary's, Baltimore, in 1792. He was also a founder of St. John's college, Annapolis, which subsequently gave him the degree of LL.D. In 1806 he laid the foundation of the cathedral of Baltimore, which he also dedicated. Owing to the increasing number of Catholics he caused Baltimore to be erected into an archiepiscopal see, with four episcopal sees as suffragans, and in 1808 he was made archbishop. His diocese then embraced Maryland, Virginia, and the Southern States as far as the gulf and the Mississippi. He was an ardent Federalist, and one of the most powerful factors of his church in this country. Pious, learned, patriotic, and eloquent, he represented one of the oldest families of Ireland and Maryland and its union with the Jesuits. Congress invited him to deliver a panegyric on Washington, on February 22, 1800. His writings, which are chiefly controversial, include: *An Address to the Roman Catholics of the United States of America; A Concise View of the Principal Points of Controversy Between the Protestant and Roman Churches; and A Review of the Important Controversy Between Doctor Carroll and the Rev. Messrs. Wharton and Hawkins.*

CARSON, CHRISTOPHER, better known as "Kit," born in Kentucky, December 24, 1809; died in Colorado, May 23, 1868. He became famous as a scout and trapper, and guided Fremont across the Rocky mountains.

CARTWRIGHT, PETER, clergyman, born in Amherst county, Va., September 1, 1785; died near Pleasant Plains, Ill., September 25, 1872. His father, a soldier in the Revolutionary war, removed to Logan county, Ky., in 1793, and Peter's youth was spent in the hardships of frontier life. He describes himself as a "wild and wicked boy, delighting in horse-racing, card-playing, and dancing." He became converted at a camp-meeting at Cane Ridge, and at once began to preach as a "local," but in 1803, he was received into the regular ministry of the Methodist Episcopal church, and in 1806 was ordained an elder by Bishop Asbury. In 1816 he was chosen a delegate to the General Conference, in Baltimore, Md., and many times subsequently. In 1823 he removed from the Cumberland district to Sangamon county, Ill., and after a few years was elected to the legislature.

He was an early opponent of slavery, but adhered to the Democratic party, and in 1846 was a candidate for congress in opposition to Abraham Lincoln, who defeated him by a majority of 1,500. He was an original character, an energetic and powerful preacher, and read men with intuition. His wit was keen and rough, and his quaint eccentric habits and fund of stories made him popular wherever he went. His strong hard sense often shaped the policy of his denomination, and he was not afraid to attack men on moral ground from the pulpit or to manage disorderly crowds with the arm of flesh. He published several pamphlets, the most famous of which was *The Controversy with the Devil* (1853). His *Autobiography* was edited by William P. Strickland (New York, 1856). See Dr. Abel Stevens' *Observations on Dr. Cartwright*, and his many books on the history of Methodism and *The Backwoods Preacher*.

CARTWRIGHT, SIR RICHARD, born in Kingston, Ont., December 4, 1835; entered the Dominion parliament as a Conservative in 1863, and in 1870 identified himself with the reform party. He became minister of finance in 1873 under Mr. Mackenzie. He is a free trader and a liberal.

CARY, ALICE, born near Cincinnati, April 6, 1820, died in New York, February 12, 1871. She published several novels including *Clovernook* (1851); *Pictures of Country Life* (1859); and *The Bishop's Son* (1867), and wrote many domestic poems, some of which were published with verses by her sister. The latter, PHEBE CARY, born September 4, 1824, died July 31, 1871.

CASSAGNAC, PAUL A. DE, see Granier de Cassagnac.

CASIMIR-PERIER, JEAN PIERRE PAUL, born at Paris, November 8, 1847, of a family of statesmen, distinguished himself during the siege of Paris and entered public life as a member of the Chamber of Deputies in 1874. Holding various government offices he was president of the chamber from 1885, except for an interim in 1894 as Premier, until his election, June 27, 1894, as President of the Republic to succeed Carnot. He resigned January 15, 1895, in irritation at venomous newspaper attacks, adverse influences in the chamber and a railroad scandal affecting his ministry, but in no way reflecting upon him. A suit for divorce pressed by his wife, also influenced his action, but two months later a reconciliation was effected between them.

CASTELAR, Y RISSOL, EMILIO, statesman and orator, born in Spain, in 1832; became a journalist and professor of history and philosophy in the university of Madrid, but was removed by Isabella on account of his radical views. After the revolution of September, 1868, he became the Republican leader in the cortes, opposed the government of Amadeus, and after his abdication in 1873, became successively minister of foreign affairs, president of the cortes, and president of the Spanish Republic. He left Spain in 1875, but after Alfonso XII. had been inaugurated returned and sat in the cortes as deputy for Madrid. He has written extensively on history and politics. Died May 25, 1899.

CAVENDISH, LORD FREDERICK, younger son of the seventh duke of Devonshire, was born November 30, 1836, and graduated at Trinity college, Cambridge, in 1858. He sat in the House of Commons as a liberal for a Yorkshire district from 1865 until the spring of 1882, when he succeeded W. E. Forster as chief secretary of Ireland. On May 6th he reached Dublin, and on that evening he and Mr. Burke, a subordinate government official, were stabbed to death in Phoenix park by "Invincibles." Eight months later twenty men were tried for the murders, of whom five were hanged, three sentenced for life and nine to various terms of imprisonment. James Carey, the chief plotter, and two

others, turned queen's evidence, and were discharged. Carey emigrated to South Africa, but was shot on board ship by an "avenger" named O'Donnell, who had been detailed for that purpose by one of the Irish secret societies. O'Donnell was taken back to England and hanged.

CESNOLA, LUIGI PALMA, COUNT DI, born in Italy, June 29, 1832; served in the United States army during the civil war, and was United States consul in Cyprus from 1865 to 1875. During this time he discovered and purchased many interesting Cypriote antiquities, which are now at the Metropolitan museum at New York, of which Cesnola is secretary and director.

CETEWAYO, king of the Zulus, was distinguished by the desperate resistance which he made to the English forces who invaded his country in 1879. On January 22 of that year he defeated Lord Chelmsford at Isandula and attacked Rorke's Drift. On June 1 Prince Napoleon, son of the ex-emperor, who had joined the British army as a volunteer, was killed by Zulus. On July 4 the English troops defeated Cetewayo, who was captured and imprisoned, and afterward sent to England. He was restored to a part of his dominions in 1882, but in the following year his subjects drove him out. He gave himself up to the English, who imprisoned him until his death in 1884.

CHADBOURNE, PAUL ANSEL, born in Maine, October 21, 1823; died February 23, 1883. He graduated in 1848 at Williams college, of which he became president in 1872, succeeding Mark Hopkins.

CHALLEMEL-LACOUR, PAUL AMAND, born May 19, 1827; became a college professor and was banished by Napoleon III. after the *coup d'état*. He was a strong Republican, and lectured on the continent of Europe on political, social, and scientific subjects, returned to France after the amnesty of 1859 and established the *Revue Politique*, in which he had Gambetta and Brisson as collaborators. After the downfall of the empire he was made Prefect of the Rhône, with headquarters at Lyons. He was elected to the Chamber as a Radical in 1872, and in 1876 became a senator. In 1879 he was sent as ambassador to Switzerland, and from June, 1880, until February, 1882, represented France in London. In 1883 he became minister of foreign affairs. He founded and edits the *République Française*, and in 1893 was elected president of the Senate. He died at Paris, Oct. 26, 1896.

CHAMBERLAIN, JOSEPH, born in London, England, in 1836; made a great fortune in the manufacture of screws, retired from business in 1874, and entered politics as a member of the Birmingham town council. He was three times mayor of Birmingham, and in 1876 became one of its members of parliament. Re-elected in 1880 and 1885 as a Radical Liberal, he was given the post of president of the Board of Trade, with a seat in the cabinet in 1880, and was president of the local government board in 1886. In that year he resigned, and at the general election stood for West Birmingham as a Liberal Unionist. The Tory government rewarded him for his political change of front by sending him on a mission to this country in regard to the fisheries question, but the negotiations proved futile. Mr. Chamberlain married in 1888 a daughter of W. C. Endicott, secretary of war under Grover Cleveland.

CHANDLER, WILLIAM EATON, born in Concord, N. H., December 28, 1835; graduated at Harvard law school in 1855, and in 1862 was elected to the New Hampshire House of Representatives, of which he was speaker in 1863-64. He held various positions under the United States, including that of first assistant secretary of the treasury, and was active in politics, attending all important conventions. From 1868 to 1876



he served as secretary of the Republican national committee. On March 23, 1885, he was nominated for solicitor-general of the United States, but the Senate refused to confirm him. In April, 1882, he became secretary of the navy, and held that office until March, 1885. In June, 1887, he was elected to fill a vacancy in the United States Senate, and was reelected in 1889 and 1895.

CHANDLER, ZACHARIAH, born in Bedford, N. H., December 10, 1813; died in Chicago, November 1, 1879. He became a merchant in Detroit, Mich., and in 1851 was elected mayor of that city. He assisted in organizing the republican party, and in 1857 was elected United States senator to succeed Gen. Lewis Cass. He was reelected in 1863 and 1869, and in 1874 President Grant made him secretary of the interior, which post he held until March 1, 1877. Senator Chandler was an enthusiastic and thorough-going supporter of the Union cause during the civil war. In 1876 he was chairman of the Republican national committee, and in that capacity, when the country at large believed Mr. Tilden had won, Senator Chandler sent out his famous telegram, "Mr. Hayes has 185 votes, and is elected." He was reelected to the United States Senate in February, 1879.

CHANGARNIER, NICOLAS, born at Autun, France, in 1793; died February 14, 1877. He distinguished himself in the Algerian campaigns from 1830 to 1847, and became general of division and *maréchal-de-camp*. In May, 1848, he succeeded Cavaignac as governor-general of Algeria. In the same year he was recalled and became commander-in-chief of the national guard of Paris. Louis Napoleon, then prince president, deprived him of his command in January, 1851, and at the *coup d'état* of December 2d of that year he was arrested and exiled. During the Franco-Prussian war he offered his sword to France and was sent to Metz. He strenuously opposed the surrender of that fortress and of Bazaine's army, but was overruled. After the war he became a senator.

CHANZY, ANTOINE EUGENE ALFRED, born in France, March 18, 1823; died January 5, 1883. He distinguished himself in Italy and Algeria, and in 1870 commanded the army of the Loire, which had been raised by the government of the national defense. He met with some minor successes but was defeated at Le Mans, January 12, 1871. In 1873 he was appointed governor-general of Algeria, in 1875 was made a life senator, and in 1879 became ambassador at St. Petersburg.

CHAPIN, EDWIN HUBBELL, clergyman, born in Union Village, Washington county, N. Y., December 29, 1814; died in New York city, December 27, 1880. His parents removed to Bennington, Vt., where he received his first education. He studied law in Troy, New York, and removing to Utica, edited *The Magazine and Advocate*, a periodical devoted to the interests of Universalism. He was ordained a minister in 1827, and held charge of a church in Richmond, Va., for three years, removing thence to Charlestown, Mass. After six years of service there he became the colleague of Hosea Ballou in the School Street Universalist church, Boston. In 1848 he became pastor of the Fourth Universalist church in New York city, then near the City Hall park and attracted large audiences. In 1866 his congregation removed to the Church of the Divine Paternity, Forty-fifth street and Fifth avenue, where it has since remained. Dr. Chapin's sympathies were broad, and, although not a scholarly man, he was a great interpreter of human nature in its relation to the questions of the time. He became one of the most popular and prominent of the

preachers of New York. In 1850 he was a delegate to the Peace Congress at Frankfort on the Main. He was a trustee of Bellevue Medical College and Hospital, and a member of many societies. The Chapin Home, for aged men and women was named in his honor. He succeeded Doctor Emerson as editor of the *Christian Leader* in 1872, and with James G. Adams compiled *Hymns for Christian Devotion* (1870). His works are:—*Hours of Communion* (New York, 1844); *Discourses on the Lord's Prayer* (1850); *Characters in the Gospel* (1852); *Moral Aspects of City Life* (1853); *Discourses on the Beatitudes* (1853); *True Manliness* (1854); *Duties of Young Men* (1855); *The Crown of Thorns* (1860); *Living Words* (Boston, 1861); *Humanity in the City*; *Discourses on the Book of Proverbs*, and *Providence and Life*.

CHAPLEAU, JOSEPH ADOLPHE, born in Quebec, November 9, 1840; became a lawyer, and in 1873 solicitor-general of the province. He is a strong conservative, and is considered the leading French-Canadian orator of the time. In 1879 he was premier of Quebec, and in 1882 became member of the privy council and secretary of state for Canada. He is leader of the party opposing the ultramontanes, or Castors. In June, 1891, he again became secretary of state of the Dominion, holding office two years. Died June 13, 1898.

CHARLES I., king of Roumania, born April 20, 1839; is of the Hohenzollern family, and served in the Prussian army. He became prince of Roumania in April, 1866. In 1877 he assisted the Russians against the Turks, and in 1881 became king. He married in 1869 Pauline, daughter of Prince Hermann of Wied, who has written some novels and verse under the *nom de plume* of *Carmen Sylva*.

CHARLES I., king of Württemberg, born March 6, 1823; succeeded to the throne June 25, 1864. He married in 1846 a daughter of the late Czar Nicholas of Russia. He died in July, 1891.

CHARTRES, DUC DE (Robert Philippe d'Orleans), grandson of King Louis Philippe, born at Paris, November 9, 1840. He married, in 1863, the eldest daughter of the Prince de Joinville.

CHASSEPOT, ANTOINE ALPHONSE, inventor, born March 4, 1833; invented the rifle named after him, which was adopted by the French army.

CHAUNCEY, ISAAC, born in Connecticut, February 20, 1772; died January 27, 1840. He became captain of a merchant ship in 1791, and in 1798 entered the United States navy as a lieutenant, was promoted in 1802, and distinguished himself at Tripoli in command of the *Chesapeake*. In the war of 1812 he commanded on the lakes, assisted in the capture of Toronto and Fort George, and defeated the British fleet under Sir James Yeo. He afterward commanded in the Mediterranean, and was many years president of the board of navy commissioners.

CHELMSFORD, FREDERIC AUGUSTUS THESIGER (Lord), born May 31, 1827; served in the Crimea, in India during the mutiny, and in Abyssinia. He was commander-in-chief of the British forces in Zulu-land in 1879, was defeated at Isandula, but wiped out this disgrace at Ulundi. He was superseded by Sir Garnet (now Lord) Wolseley.

CHENEY, CHARLES EDWARD, born in Canandaigua, N. Y., February 12, 1836; graduated at Hobart college in 1857, and entered the Episcopal ministry. In 1873, he, under the leadership of Bishop Cummins, of Kentucky, organized the Reformed Episcopal church, of which he was made bishop December 14.

CHERBULIEZ, VICTOR, born at Geneva, of French parentage, in July, 1829; studied at Paris, Bonn and Berlin, and wrote romances of notable excellence which

were published in the *Revue des Deux Mondes*. On November 8, 1881, he was elected a member of the French Academy. He died July 1, 1899.

CHEVALIER, MICHEL, born in Limoges, France, January 13, 1806; died November 28, 1879. He became a follower of St. Simon and Enfantin, and suffered six months' imprisonment for his writings on social questions. In 1838 he became counselor of state, and in 1845 was elected to the chamber of deputies. In 1848 he opposed the socialistic doctrines of Louis Blanc. Under the empire he became a senator of France, and in 1860 completed the great work of his life, the negotiation of a commercial treaty between France and England.

CHEVES, LANGDON, born in South Carolina, September 17, 1776; died June 25, 1857. He was elected to congress in 1811, and succeeded Clay as speaker in 1814.

CHEVREUL, MICHEL EUGENE, born at Angers, France, August 31, 1786; died April 8, 1889, at the age of nearly 103. For many years he was chemical director of the Gobelin tapestry factory; held the chair of chemistry in the museum of natural history, and was a fellow of the Royal society, and commander of the Legion of Honor.

CHICKERING, JONAS, manufacturer, born in New Ipswich, N. H., April 5, 1797; died in Boston, Mass., December 8, 1853. His father was a blacksmith. Young Chickering received a common school education and was apprenticed to a cabinet-maker. In 1818 he went to Boston, became employed with a piano-forte maker, and in 1823 set up for himself, in a small way, as a manufacturer of pianos. This business, in course of time, became greatly extended, until he furnished annually about 2,000 instruments. In 1852 his factory was burned, and before the new one had been completed Mr. Chickering died. He made many valuable improvements and for many years kept the lead of all other makers in this country and in Europe.

CHILD, LYDIA MARIA, born in Medford, Mass., February 11, 1802; died in Wayland, Mass., October 20, 1880. She was educated in common schools and by her brother, the Rev. Convers Francis, D. D. She taught for one year in a seminary in Medford, Mass., and kept a private school in Watertown, Mass., from 1824 till 1828, when she was married to David Lee Child. With her husband she became early interested in the Anti-Slavery movement and she published *An Appeal to that Class of Americans Called Africans* (Boston, 1833), which was the first anti-slavery work printed in America in book-form. In 1841 she removed to New York where she was editor of the *National Anti-Slavery Standard* until 1843, when her husband became editor-in-chief, and she acted as assistant until 1844. Mr. and Mrs. Child spent the remainder of their lives in Wayland, Mass. She contributed largely to aid the Union soldiers during the civil war, and afterward helped the freedmen and gave lavishly for the support of schools for the negroes. Her anti-slavery writings contributed greatly to the formation of public sentiment, and her letters replying to rebukes from Governor Wise and Mrs. Mason, published in Boston in 1860, had a circulation of 300,000.

CHILDERS, HUGH CULLING EARDLEY, born in London, June 25, 1827; was educated at Cambridge, went to Australia and sat in the legislature of Victoria. In 1857 he returned to England as agent-general of that colony, and in 1859 was elected to parliament as a Liberal from Pontefract. He was a lord of the admiralty under Palmerston and Gladstone; became chancellor of the duchy of Lancaster in 1872, secretary of war in 1880, chancellor of the exchequer in 1882 and home secretary in 1886. He died Jan. 29, 1896.

CHILDS, GEORGE W., born in Baltimore, 1829, became a bookseller and publisher in Philadelphia, and in 1864 bought the *Public Ledger* which made him rich. Noted for his charities, his last benefaction was the establishment of a home for aged printers at Colorado Springs. He died February 3, 1894.

CHISHOLM, JULIUS J., M.D., LL.D., eminent specialist, born in Mississippi in 1825; graduated from Maryland university in 1850, served in the Confederate army as surgeon, and after the war established an eye, ear, and throat infirmary at Baltimore.

CHOATE, RUFUS, statesman, born in Essex, Mass., October 1, 1799; died in Halifax, Nova Scotia, July 13, 1859. His ancestor, John Choate, settled in Massachusetts in 1667, and his grandfather of the same name was a member of the State legislature from 1741 till 1761, and for five years a member of the council. At an early age he was remarkable for his memory, and when he entered Dartmouth in 1815, he was a good Greek and Latin scholar. He was graduated in 1819, studied law with William Wirt, in Washington, at Ipswich and Salem, was admitted to the bar in 1823, and practiced in Danvers until 1828. In 1828, he removed to Salem, and in 1830 he was elected to congress, where he distinguished himself in a speech on the tariff. He was reelected the following term, but resigned in 1834, and removed to Boston, where he soon acquired fame as a lawyer, and occasionally delivered lectures on literary and historical subjects. In 1841 he was chosen to succeed Daniel Webster in the United States Senate, and delivered speeches on the McLeod case, the bank bill, the confirmation of Mr. Everett as minister to England, the bankrupt law, on Mr. Clay's resolution for retrenchment and reform, the naval appropriation bill, the tariff, the bill to provide further remedial justice in the courts of the United States, on the ratification of the Webster-Ashburton treaty, the Oregon boundary, the Smithsonian Institution, and the annexation of Texas, which he opposed. He left the Senate in 1845, and resumed the practice of his profession, and from that time until his death there was no case involving great legal difficulties or pecuniary responsibility to which he was not summoned. In 1850 he traveled through Europe. He was a delegate to the National Whig convention held in Baltimore in 1852, and he urged the nomination of Daniel Webster for the presidency.

In 1853 he was a member of the convention for revising the Constitution of Massachusetts, and in the two years succeeding he took much interest in national politics, and supported Mr. Buchanan for president. He delivered an address at a Union Meeting in Faneuil Hall, Boston, and one on Washington in February, 1851, and in July, 1853, read at Dartmouth college a eulogy on Daniel Webster, which remains unsurpassed in that style of eloquence. His last public oration was given on July 4, 1853, on "American Nationality." Owing to impaired health he planned a visit to Europe in 1859, but became so ill that he left his steamer at Halifax, where he died a few days after landing. Mr. Choate was an eloquent orator, who rarely indulged in invective, but excelled in quaint humor. He possessed great personal magnetism, a musical voice, wealth of learning, and a sweet and gentle nature. He was frequently compared to Lord Erskine. His writings have been edited by S. G. Brown (2 vols., Boston, 1862). See *Recollections of Eminent Men*, by Edwin P. Whipple (Boston, 1886). Mr. Choate married Miss Helen Olcott of Hanover, N. H., in 1825, and their son, RUFUS, born in Salem, Mass., in 1834, died January 15, 1866; was graduated at Amherst in 1855, was admitted to the bar in Boston in 1858, and



served in the Civil war, he was promoted to the rank of captain, and resigned in 1862.

CHRISTIAN IX., King of Denmark, born April 8, 1818; succeeded to the throne on the death of Frederick VII., in 1863. His eldest daughter, Alexandra, is married to the prince of Wales; his second daughter, Dagmar, is the widow of Czar Alexander III., and his second son, George, is king of the Hellenes.

CHRISTIAN, prince of Schleswig-Holstein, born January 22, 1835; married July 5, 1866, the Princess Helena, third daughter of Queen Victoria. He is a general in the British army.

CHRISTINA, queen-regent of Spain, born July 21, 1858; second daughter of the late Archduke Charles of Austria. In November, 1879, she was married to Alfonso XII. of Spain, to whom she bore two children, the Infanta Mercedes, and Alfonso, present king of Spain.

CHRISTOPHE, HENRI, king of Hayti, born October 6, 1767; died October 16, 1820. He was born in Grenada, a small island belonging to the British West Indies, the son of a free mulatto and a slave negress. In 1791 his master sold him to a tavern keeper at Cape Haytien. By his savings he bought his freedom and afterward went as an overseer of slaves to Santa Domingo. On the uprising of the negroes he became the leader of a band of insurgents; and later was made brigadier-general and governor of the northern part of the island. In 1802 a French army which arrived under General Leclerc, overcame the revolutionists, when Christophe and Dessalines were denounced as outlaws. In 1803 the slave uprising was renewed, and at the end of two years the former slaves had driven out their French masters from all parts of the island. During the administration of Dessalines, Christophe was general-in-chief, and on the death of the former, succeeded him as president for life. Meanwhile Petion had organized another republic in the northern part of Hayti and a civil war ensued of eleven years' duration, in which Christophe headed the negroes against the rule of the mulattoes led by Petion. On March 28, 1812, Christophe was proclaimed king of Hayti, and on June 2d was crowned as Henri I. at Cape Haytien. As such he governed the country for nine years in an absolute manner. He published the "Code Henri," founded on that of Napoleon. In 1818 there was a revolution, and in October, 1820, his ministers pronounced against him. Unwilling to surrender he shot himself.

CHULALONGKORN I., King of Siam, or what French aggression has left of that country, was born in 1853 and became King October 1, 1868.

CHURCH, FREDERIC EDWIN, artist, born in Hartford, Conn., May 4, 1826. His first master was Thomas Cole, in Catskill, N. Y., where he painted his first pictures. He settled in New York, and in 1849 was elected a member of the National academy. In 1853-7 he traveled in South America, where he made sketches that were afterward extended into large canvases. Afterward he went on an expedition to the coast of Labrador, and on his return painted his great picture *Icebergs*, which attracted much attention on its exhibition in London, in 1863. In 1866 he traveled through the West Indies, Europe, and Palestine, subsequently painting important pictures. His best work is the *Great Fall at Niagara* (1857), from the Canada side, and this is the only painting which gives an adequate representation of this wonderful natural scene. It was sold in 1876, from the John Taylor Johnson collection to the Corcoran art gallery in Washington, District of Columbia. In 1867 it received a medal of the second class at the Paris exposition, and it was exhibited elsewhere in Europe. For many years Mr. Church has

spent his winters in Mexico, and also has studios in New York and on the Hudson. His works include: *The Andes of Ecuador* (1855); *Niagara* (1857); *Heart of the Andes* (1859); *Icebergs* (1861); *St. Thomas in the Vale, Jamaica*; *Niagara from the American Side* (1866); *Damascus* (1869); *Rainy Season in the Tropics, Jerusalem* (1870); *Tropical Moonlight* (1874); *Morning in the Tropics* (1877); *The Monastery* (1878); and *the Valley of Santa Maria* (1879). Died April 7, 1900.

CHURCHILL, LORD RANDOLPH, second son of the sixth duke of Marlborough, was born February 13, 1849. He entered parliament in 1874, sat until 1885 for Woodstock, and then for South Paddington. In 1880 he formed a clique in the House of Commons, known as the "Fourth party," whose objects were the active obstruction and abuse of the government, and made a reputation as a brilliant parliamentarian. In 1885 he became secretary for India in the Salisbury government, and annexed Upper Burmah. When Lord Salisbury again took office in 1886, Lord Randolph became chancellor of the exchequer, but resigned in a few months, without having prepared a budget, in the hope of forcing a dissolution of the ministry, and becoming premier. Disappointed in this he practically retired from public life. He traveled in Africa in 1891, and took part in the Home Rule bill debates of 1892, but disease had destroyed his brilliancy and he died January 24, 1895. He married, in 1874, Jennie, daughter of Lawrence Jerome, of New York.

CIALDINI, ENRICO, born in Modena, August 8, 1811; fought in the Austro-Italian war of 1849 and in the Crimea. In 1860 he defeated the Papal troops under Lamoricière and in 1861 took Gaeta and Messina. He became general of the army and viceroy of Naples, was made senator in 1864 and fought against the Austrians in 1866. In 1870 he annexed the States of the Church to Italy and in 1876 became ambassador at Paris, and in 1881 general of the army. He died September 8, 1892.

CLAIBORNE, WILLIAM, colonist, born in Westmoreland, England, about 1589; died in Virginia about 1676. He came from a distinguished family, and was appointed, under the London Company, surveyor of the Virginia plantations. In October, 1621, he arrived in Jamestown and located in James City. Soon afterward he acquired an estate amounting to 45,000 acres. On March 24, 1625, he became secretary of state for the colony, and on March 13, 1628, was commissioned by the governor to make discoveries southward, and open trade with the Indians. He settled the Isle of Kent, where he established a trading post, bought out the interest of all the natives in that island, and induced many settlers to locate on his lands. When Lord Baltimore's first colony arrived at St. Marie's, in March, 1634, they claimed control over the Isle of Kent and all its settlers, the Roman Catholics being on one side, and the English churchmen on the other. The dispute was continued between the two parties for many years, until Virginia, in 1776, released all claims to the territory of Maryland beyond the Potomac river. When Lord Baltimore's colony had been founded on St. Mary's river, trouble began between the colonists and the party of Claiborne, and in time the latter's settlement on the Isle of Kent became a failure. Claiborne by that time had become involved in serious difficulties, and in 1637 sailed for England. Defeated in his enterprise on the Isle of Kent he bought Palmer's Island from the Indians, but was unable to maintain his right thereto by license from the government. Governor Calvert soon possessed himself of it as a part of the Maryland grant. On April 6, 1642, Claiborne was made treasurer of the colony of Virginia for life by King Charles I. When the Cromwellian revolution began to make headway in

Great Britain, both Maryland and Virginia declared their loyalty to the royal government; but Claiborne saw fit to join the Parliamentary party, and on September 26, 1651, with others, was appointed a commissioner by parliament to reduce Virginia and the plantations on Chesapeake Bay. An English expedition arrived in Virginia in March, 1652, overthrew the government of the Cavaliers and established a Roundhead one, with Claiborne as secretary of state.

CLAIBORNE, WILLIAM CHARLES COLE, governor of Louisiana, born in Virginia, in 1775; died in New Orleans, La., November 23, 1817. After studying law, he removed to Tennessee, then a territory, where he was elected a judge. He was a member of the convention which prepared the State constitution of 1796, and in 1797 was elected to congress, where he served two terms. In 1802 he was appointed governor of the Territory of Mississippi, and in 1803, when Louisiana was bought from the French, he was appointed a commissioner with Gen. James Wilkinson to take possession of the new Territory, of which he was made governor in 1804. His administration was especially difficult owing to the heterogeneous character of the people; but he preserved harmony between the Creoles and the American planters, and exercised great tact in dealing with the adventurers of Aaron Burr's expedition. When Louisiana was made a State in 1812, he was elected governor, and during the war with Great Britain aided in the defense of his State. In 1816 he was elected to the United States Senate, but was prevented by impaired health from taking his seat. Other members of his family served in congress at various times.

CLARK, ALVAN, born in Ashfield, Mass., March 8, 1804; died August 19, 1887. He and his son, ALVAN GRAHAM CLARK, born July 10, 1832, became the leading manufacturers of object-glasses for telescopes, and made the thirty-six inch refractor for the Lick observatory. Alvan Graham died January 1, 1892.

CLARK, GEORGE ROGERS, pioneer, born in Albemarle county, Va., November 19, 1752; died in Locust Grove, near Louisville, Ky., February 13, 1818. He began life as a land surveyor, and commanded a company of militia in Lord Dunmore's war with the Indians. In 1772 he visited Kentucky, and commanded a force of armed settlers there. In 1776 he returned to Kentucky and called an assembly of people at Harrodsburg, June 6, 1776, when Clark and Gabriel Jones were elected to the Virginia assembly. Although not admitted to the legislature, these delegates were received by Patrick Henry, and secured the formation of Kentucky. Military posts belonging to the British were frequently the source of Indian hostilities, and in December, 1777, Major Clark obtained permission and means from Virginia to attack the fort at Kaskaskia, which he captured on July 4, 1778. He then took that of Vincennes, and while engaged in negotiations with the Indians on the Mississippi, learned that this had been retaken by Governor Hamilton of Detroit. He returned, captured Vincennes, February 24, 1779, and sent Hamilton a prisoner to Virginia. To retaliate for an invasion of Kentucky by 600 Canadians and Indians, he destroyed an Indian town in Ohio in June, 1780.

In December, 1780, he went to Richmond to obtain approval from the authorities for his plans for the capture of Detroit, and while there took a command under Baron Steuben to defend Virginia against an invasion by a British force under Benedict Arnold. In 1781 Clark became brigadier-general, but he could not obtain sufficient aid to carry out his plans against Detroit, as the state was then maintaining itself against Lord Cornwallis. In 1782 he gathered a large force and marched

against Indian towns on the Miami and Setoto, five of which were destroyed. He participated in an unsuccessful expedition against the Indians on the Wash, in 1786, and about 1794 he accepted a commission as major-general in the French army, to conduct an expedition against the Spanish possessions on the Mississippi, but when Genet, the French minister to the United States, who gave him the commission, was recalled, this was annulled. General Clark's latter years were spent in impaired health and poverty.

CLARKE, ADAM, born in the north of Ireland about 1760; studied under Wesley, and became an itinerant Methodist preacher. He prepared a translation of the Bible in Arabic, and became a diligent student of Hebrew and other Oriental languages. The first volume of his well-known *Commentary on the Holy Scriptures* appeared in 1810, the eighth and last in 1826. He also published a *Biographical Dictionary* (six volumes, 1802), and wrote the memoirs of the Wesley family. Doctor Clarke died in London, August 16, 1832.

CLARKE, CHARLES COWDEN, born in England December 15, 1787; died March 13, 1877. He was an intimate friend of Shelley, Keats, and Charles Lamb. In collaboration with his wife, Mary, a daughter of Vincent Novello, the composer, he published an annotated edition of Shakespeare and an admirable *Concordance to the poet's works*.

CLARKE, JAMES FREEMAN, clergyman, born in Hanover, N. H., April 4, 1810. He was named for his grandfather, the Rev. James Freeman, pastor of King's chapel, Boston, who introduced Unitarianism into his congregation. He was also a grandson of Col. William Hull. After graduation at Harvard in 1829, and at the Cambridge divinity school in 1833, he became pastor of the Unitarian church in Louisville, Ky., serving from 1833 till 1840. From 1836 till 1839 he was also editor of the *Western Messenger*, published in Louisville. Returning to Boston he founded in 1841, the Church of the Disciples, of which he was the pastor until 1886. This became one of the leading religious institutions of Boston, and its service-book includes responses from the congregation as in the English service, extemporaneous, and silent prayer. From 1867 till 1871 he was professor of natural religion and Christian doctrine in Harvard, and in 1876-7, lecturer there on ethnic religions. He was an overseer of Harvard, a member of the State board of education, and a trustee of the Boston public library. With William H. Channing and Ralph Waldo Emerson he prepared the *Memoirs of Margaret Fuller D'Ossoli* (Boston, 1852), and he was the author of several historical works and theological essays. He died at Jamaica Plain, Mass., June 8, 1888.

CLARKE, JOHN S., actor, born in Maryland in 1835; began his theatrical career in 1852 in Philadelphia, and was speedily recognized as the best exponent of low comedy then on the boards. He starred the country for years, owned and managed theaters in Philadelphia and Boston, and from 1867 to 1870 played in London and other English cities with great success. He has often revisited this country, but makes England his home, and has played in all important towns there. His "Doctor Ollapod," "Toodles," "Doctor Pangloss," and "Major Wellington de Boots," are among his leading creations.

CLAY, CASSIUS MARCELLUS, born in Madison county, Ky., October 19, 1810; graduated at Yale in 1832. He adopted anti-slavery views, then very unpopular in Kentucky, and published in 1845 an abolitionist paper entitled *The True American*. His press was seized by pro-slavery mobs, and he was threatened



with assassination. He was a member of the Kentucky legislature in 1835, 1837 and 1840, and supported General Harrison for the presidency. During the Mexican war, in which he served as captain of a volunteer company, he was taken prisoner. In 1850 he broke away from the Whigs and ran as anti-slavery candidate for governor; but got few votes. He supported Fremont in 1856, and Lincoln in 1860, and in March, 1861, was appointed minister to Russia. In June, 1862, he was commissioned major-general of volunteers, but resigned the following March, and was again sent to St. Petersburg, where he remained until September, 1869. In 1872 he supported Greeley and the hybrid Democratic-Liberal-Republican ticket, and in 1876 was active in his work for S. J. Tilden. In 1877 he shot and killed a negro who had threatened his life, and was tried and acquitted. In 1894, at the age of 84, he married a seventeen year old ward, of poor family, against the opposition of his sons, and their attempted abduction of the girl, because of which he armed his servants, put his house in a state of siege, and threatened death to any one who should interfere. He was a noted duellist.

CLAYTON, JOHN MIDDLETON, born in Sussex county, Del., July 24, 1796, died November 9, 1856. In 1829 he became United States senator and in 1837 chief justice of Delaware. From 1845 to 1849 he was again United States senator, and then became secretary of state under President Taylor, negotiating the Clayton-Bulwer treaty with Great Britain. He served again in the senate from 1851 to his death.

CLÉMENCEAU, EUGÈNE, born in Vendée, France, September 28, 1841; studied medicine at Nantes and Paris, and practiced as a physician in Montmartre, the workingman's quarter of Paris. He was appointed mayor of the eighteenth arrondissement of Paris and a member of the commission of communal education after the Revolution of September 4, 1870. In February, 1871, he was elected representative in the Assembly for the department of the Seine, and took his seat with the members of the Extreme Left, or Radicals. He was shut up in Paris during both sieges, and came near falling a victim to the suspicions of the Communist central committee. He tried to save the lives of Generals Lecomte and Clement Thomas, who were murdered by the Communists, and being charged later with lukewarmness in this matter, challenged and wounded his slanderer. In 1871 he became a member, and in November, 1875, president of the Municipal Council of Paris, and in 1876 again became a deputy. He showed himself an aggressive Radical, bitterly opposed De Broglie and MacMahon, and energetically supported Gambetta, who was his cousin. When in 1879 Grévy became President and Gambetta speaker of the Assembly, M. Clémenceau became leader of the Extreme Left, and remained a Radical when Gambetta became an Opportunist. He helped exclude the clergy from educational affairs and expel the Jesuits, and obtained an amnesty for banished Communists. He made and unmade ministries by the dozen, is an expert swordsman and his newspaper, *La Justice*, is a political power. During the Panama scandal he was charged with selling his country, but the charges were shown to be based on forgeries and he was vindicated, but defeated for reelection in September, 1894. M. Clémenceau, who lived in Connecticut from 1865 to 1870, married an American lady, Mary G. Plummer.

CLEMENS, SAMUEL LANGHORNE (Mark Twain), humorist, born in Florida, Mo., November 30, 1835. He was educated in the village school in Hannibal, Mo., and was apprenticed to a printer. After learning his trade, he journeyed from town to town until

he reached New York. Afterward he went to New Orleans, and became a pilot on the Mississippi river steamboats. In 1861 he went to Nevada, as private secretary to his brother, who had been made secretary of the Territory. He engaged in mining in Nevada, and in 1862 became city editor of the *Virginia City Enterprise*. In 1865 he went to San Francisco, where he was engaged as a reporter on the *Morning Call*. After experimenting in gold-mining, he resumed his work for the California press, and visited the Hawaiian Islands as newspaper correspondent. After his return he delivered humorous lectures in California and Nevada, and went to the East, where he published *The Jumping Frog and other Sketches* (New York, 1867). In 1867 he went with a party of tourists to the Mediterranean, Egypt, and Palestine, publishing on his return *The Innocents Abroad* (Hartford, 1869), of which 125,000 copies were sold in three years. For a time he edited the Buffalo (N. Y.) *Express*, and after his marriage settled in Hartford, Conn., in 1870.

In 1872 he lectured in England, and a London publisher issued an unauthorized collection of his writings, in which were published sketches which he did not write. His pen-name "Mark Twain," was suggested by the familiar cry of the sailors on the Mississippi steamboats, where in sounding a depth of two fathoms the leadsmen calls out "mark twain!" Among his writings are *Roughing It* (Hartford, 1873); *Sketches Old and New; Adventures of Tom Sawyer*, a story of boy life in Missouri (1876); *Punch, Brothers, Punch* (1878); *A Tramp Abroad* (1880); *The Stolen White Elephant* (Boston, 1882); *The Prince and the Pauper* (1882); *Life on the Mississippi* (1883); *Huckleberry Finn*, a sequel to *Tom Sawyer* (New York, 1885); *A Yankee at King Arthur's Court* (1889) and *Pudd'n'head Wilson* (1895). He also wrote, with Charles Dudley Warner, *The Gilded Age*, which was dramatized in 1879. He is a popular lecturer and achieved the novel distinction in 1895 of being challenged to a real duel by Max O'Rell, the French humorist. In 1884 he founded the publishing house of Charles L. Webster & Co., which failed in 1894.

CLEVELAND, GROVER, president of the United States, born in Caldwell, Essex county, N. J., March 18, 1837. His ancestor, Moses Cleveland, emigrated from Ipswich, England, to Woburn, Mass., in 1635, and his father, Richard F., was a Presbyterian clergyman, who named his son for the Rev. Stephen Grover, his predecessor in the Presbyterian church in Caldwell. After the death of his father Grover became a clerk and assistant teacher in the New York institution for the blind, and in 1855 he went to the West in search of employment. While passing through Buffalo he was persuaded to remain with his uncle, Lewis F. Allen, whom he assisted in preparing the *American Herd Book*. Afterward he became a clerk in the law firm of Rogers, Bowen & Rogers, studied law, and was admitted to the bar in 1859. In 1863-1866 he was district attorney of Erie county. He became the law partner of Isaac V. Vanderpool, and in 1869 a member of the firm of Lanning, Cleveland & Folsom, practicing until 1870, when he was made sheriff of Erie county. In 1873 he became a member of the firm of Bass, Cleveland & Bissell, and he was noted for the logic and mastery with which he conducted his cases. In 1881 he was elected mayor of Buffalo, and soon became known as the "Veto Mayor," checking unwise, illegal, and extravagant expenditure of public money and saving the city \$1,000,000 in the first six months of his service. In 1882 he was elected governor of New York, and among the chief acts of his administration were his approval of a bill to submit



to the people a proposition to abolish contract labor in the prisons; the veto of a bill, which permitted wide latitude in which the directors of savings banks might risk deposits; the veto of a similar bill respecting the securities of insurance companies, and the veto of a bill to establish a monopoly by limiting the right to construct certain street railways to companies heretofore organized to the exclusion of such as should hereafter obtain the consent of property owners and local authorities.

He was nominated for president of the United States on the second ballot at the National Democratic convention held in Chicago in 1884, and he was inaugurated March 4, 1885, serving until 1889. Chief Justice Waite administered the oath of office, and in his address the president declared his approval of the Monroe doctrine as a guide in foreign relations; of strict economy in the administration of the finances; of the protection of the Indians, and their elevation to citizenship; of the laws against Mormon polygamy and the importation of a servile class of emigrants, and of the securing of the negroes in their rights. On March 13, 1885, Mr. Cleveland issued a proclamation to remove the white intruders from Oklahoma, Indian Territory, and after the burning of Aspinwall, Panama, by the revolutionists, March 31, 1885, ordered a naval expedition to protect the Americans and their property.

In 1888 he was renominated for president, but was defeated by the Republican candidate, Benjamin Harrison. Mr. Cleveland then removed to New York to practice law. On June 2, 1886, he had married Miss Frances Folsom, the daughter of his early law-partner, Oscar Folsom, in the White House.

In 1892 Mr. Cleveland was again nominated for president by the Democrats and elected over President Harrison on a tariff reform platform and campaign. Both houses being Democratic, the Wilson bill, a tariff for revenue only, measure, was passed in 1894, but the Democratic party was held responsible for the hard times by the country, and the Republicans won a protective tariff victory in November, 1894, so that President Cleveland has to deal with a Republican Congress the last two years of his administration.

In the meantime, at a special session called by him August 7, 1893, President Cleveland had secured the repeal of the act of 1890, calling for the purchase of \$4,500,000 of silver bullion monthly, against the opposition of the silver wing of his party, on the ground that this act was responsible for the financial depression.

CLEVENGER, SHOBAI VAIL, sculptor, born near Middletown, Ohio, October 22, 1812; died at sea September 23, 1843. His father was a weaver, who went to Cincinnati with his son, and apprenticed him to a stone-cutter. He at once manifested artistic ability in carving tombstone work, and learned to hew busts in free-stone. Subsequently he chose the career of a sculptor, and as such settled in New York city. Here he made busts of General Harrison, Van Buren, Clay, Webster and other persons of distinction. Many of his works are contained in the art galleries of New York, Boston and Philadelphia. In 1840 he went to Rome, where he produced his *North American Indian*, one of the very best productions of native talent. While in Italy he became affected with pulmonary phthisis caused by inhalation of stone dust. He died on the Mediterranean, within a day's sail of Gibraltar.

CLIFFORD, NATHAN, born in Rumney, N. H., August 18, 1803; died July 25, 1881. He became a lawyer in Maine, and was elected to the State legislature as a Democrat in 1830. He held office until 1834, and during the last two years was speaker. In 1834 he became attorney-general of the State, and in 1838 was

elected to congress, where he served two terms. In 1846 he became attorney-general of the United States, and in 1848-1849 was special envoy to Mexico, and negotiated the treaty of peace with that country. In 1858, President Buchanan nominated him associate justice of the United States Supreme Court, which office he held until his death. He presided over the Hayes-Tilden electoral commission of 1877.

CLINTON GEORGE, statesman, born in Little Britain, N. Y., July 26, 1739; died in Washington, D. C., April 20, 1812. He accompanied his father and brother James in the expedition against Fort Frontenac, and subsequently studied law and obtained a clerkship from the colonial governor, Adm. George Clinton, a connection of the family. In 1768 he was elected to the New York assembly, and in 1775 was a delegate to the Continental congress, where he voted for the Declaration of Independence, but did not sign it, being called away by General Washington to command a brigade of militia. In 1777 he was a deputy to the Provincial congress which framed the State constitution. He was appointed a brigadier-general in the Continental army, March 25, 1777. He took part in the defense of Fort Clinton, October 6, 1777. He was first governor of the State, serving from 1777 till 1795, being reelected five times, rendered great service in a civil and military capacity, and was known as the "Champion of the Highlands." In 1780 he thwarted an expedition led by Sir John Johnson, Brant, and Cornplanter, into the Mohawk valley, and he was instrumental, with Timothy Pickering, in concluding treaties of peace with the Western Indians. In 1783 he accompanied Washington and Hamilton on a tour of the northern and western posts of the State, and while on this trip he first conceived the idea of a canal between the Mohawk and Wood creek, which he recommended to the legislature in 1791. He helped to suppress Shay's rebellion in 1787, and in 1788 presided at the State convention, which adopted the Federal constitution, to which instrument he was at first opposed, on the ground that it restricted too much the power of the separate States, but afterward he and his party withdrew their opposition though they still demanded amendments. In 1791 he advocated the improvement of internal communication by navigation companies, thus originating the movement which has given fame to his nephew DeWitt Clinton. In 1800 he served in the legislature, and in 1801 was again governor. In 1804 he was elected vice-president of the United States, which office he held until his death. In 1811, while presiding in the Senate, he gave the casting vote against the re-charter of the United States bank, his last public act. He was instrumental in organizing the public school system.

CLINTON, JAMES, soldier, born in Ulster county, N. Y., August 9, 1736; died in Little Britain, N. Y., December 22, 1812. He was the son of Charles Clinton, who emigrated from England to Philadelphia in 1729, and who became a lieutenant-colonel in Oliver De Lancy's regiment, March 24, 1758. After receiving a good education he was appointed an ensign in the second regiment of the Ulster county militia, in which he became a lieutenant-colonel. During the Anglo-French war he distinguished himself at Fort Frontenac, and served in General Montgomery's expedition to Canada. He was made brigadier-general in the Continental army August 9, 1776, commanded Fort Clinton when it was attacked by Sir Henry Clinton, October 6, 1777, and was the last man to leave the works when they were captured by the British force. Although suffering from a severe bayonet wound he escaped by sliding down a precipice of 100 feet to the creek. In 1779 he took part in General Sullivan's expedition against the Iroquois of Western New



York. Afterward he commanded the Northern department, stationed at Albany, and he was present at the siege of Yorktown and the evacuation of New York by the British. He was a commissioner to determine the boundary-line between New York and Pennsylvania, was a member of the State convention which adopted the Federal constitution of 1788, and served in the legislature of New York.

CLINTON, SIR HENRY, British general, born in 1738; died in Gibraltar, Spain, December 23, 1795. His father, George, was an admiral in the British navy and royal governor of New York in 1743-1753. He became a captain of the guards in 1758, and served in Hanover during the seven-years' war. He arrived in Boston as major-general with Howe and Burgoyne May 25, 1775. In 1775 he served in North Carolina with the loyalists, and took part in the unsuccessful operations against Charleston. Returning to the North, he was second in command in the movements that compelled the Americans to evacuate New York in September, 1775, and was left in command of that city in the summer of 1777, when Lord Howe sailed for Chesapeake Bay. On October 6, he stormed Forts Clinton and Montgomery, and was appointed commander-in-chief of his majesty's forces in America, with the rank of lieutenant-general. In June, 1778, he evacuated Philadelphia, which he had occupied since May, and on his retreat through New Jersey fought with Washington at Monmouth Court House. He went to South Carolina in December, 1779, with Lord Cornwallis, and captured Charleston May 12, 1780. He left Cornwallis in the South, and, returning to New York, endeavored, with Benedict Arnold, to secure possession of West Point. Baffled in this, he remained inactive in New York, and no demands for help from Lord Cornwallis could rouse him until Washington left for Virginia. In October, 1781, he set sail for Chesapeake Bay, with a large naval and military force, to aid Lord Cornwallis, but, at the entrance of the Chesapeake, he learned that Cornwallis had surrendered; upon hearing which, without landing, he returned to New York. He was superseded by Sir Guy Carleton, and returned to England in June, 1782. He was elected to parliament, and was afterward made governor of Limerick. In 1793 he was placed in command of Gibraltar, where he died.

CLUSERET, GUSTAVE PAUL, born in Paris, June 13, 1823, graduated at the military school of St. Cyr in 1845, and entered the French army. In June, 1848, he became chief of a battalion of national guards and was made chevalier of the Legion of Honor. He served in Algeria and the Crimea, and in 1860 joined Garibaldi. In January, 1862, he entered the service of the United States and served on McClellan's staff, and later with Frémont. In 1864 he edited a paper in New York city, and, in 1867, became mixed up in the Fenian movement in England. He next joined the International, and during the second siege of Paris was for a short time secretary or minister of war under the commune. He was arrested, but managed to escape both from the Communists and the police of the republic, and was condemned to death in *contumacium*, August 30, 1872. He died Aug. 22, 1900.

COBB, HOWELL, statesman, born in Cherry Hill, Ga., September 7, 1815; died in New York, October 9, 1868. He was graduated at Franklin college, Athens, in 1834, studied law, and was admitted to the bar in 1836. In 1837 he was elected solicitor-general of the western circuit of Georgia; and in 1843 was elected to congress, where he became the leader of the Southern Democratic members. In 1849 he was elected speaker. He advocated the extension of slavery into California and New Mexico, and the compromise

measures of 1850. In 1851 he was elected governor of Georgia, serving until 1853, when he resumed the practice of law. In 1855 he was again elected to congress, advocated Mr. Buchanan's election, and was made by him secretary of the treasury, serving from 1857 to 1860, when he resigned to take part in the secession movements. He was active in organizing the Confederate congress, of which he was not a member, not being a favorite with Jefferson Davis. He was appointed brigadier-general, and subsequently major-general, but took no part in military movements. After the war he opposed the reconstruction measures.

COBBE, FRANCIS POWER, born in 1822, has contributed many able essays to the English magazines and reviews, and is one of the leading advocates of the political emancipation of women.

COBBOLD, THOMAS SPENCER, born at Ipswich, England, in 1828; died March 20, 1886. He wrote on *Entozoa* (1864), *Parasites* (1879), *Tapeworms* (1876), and on botany and zoölogy.

COCKBURN, SIR ALEXANDER, born in London in 1802; died November 21, 1880. He was successively solicitor-general, attorney-general and chief justice, and in 1871 was one of the arbitrators of the Geneva claims, but refused to concur in the award.

COCKRAN, WILLIAM BOURKE, of New York city, lawyer and brilliant orator, was born in Ireland, February 28, 1854; educated in France; removed to America; taught school and served in the 50th, 52d and 53d congresses as a Democrat and Tammany leader.

COE, GEORGE S., banker, born in Newport, R. I., in March, 1817. In 1855 he became connected with the American Exchange National bank, first as vice-president and later as president, and in 1858 he was instrumental in organizing the New York clearing house banks association, which carried the banks safely through the war and the panic of 1873. Died May, 1896.

COKE, RICHARD, born in Virginia, March 13, 1829; served in the Confederate army, and after the war became judge of the Supreme Court of Texas. He was removed by General Sheridan for opposing reconstruction, but in 1873, and again in 1876, was elected governor. On March 4, 1877, he took his seat in the United States Senate, to which he was reelected in 1883 and 1889.

COLDEN, CADWALLADER, physician, born in Dunse, Scotland, February 17, 1688; died on Long Island, September 28, 1776. After graduation at the university of Edinburgh, in 1705, he studied medicine and mathematics, and, in 1708, came to this country and practiced medicine in Philadelphia until 1715, when he visited Scotland, and returned to Philadelphia in 1716. In 1718, at the request of Governor Hunter, he removed to New York, and soon after obtained a patent for land near Newburg. In 1719, he became the first surveyor-general of the province, and master in chancery; and, during this period, he proposed a route for trade, from New York to the Mississippi, by way of the Susquehanna, Juniata, Allegheny, and Ohio rivers. He was appointed a member of the council in 1720, and was an earnest Royalist, and an advocate of the taxation of the colonies. In 1760, he was made president of the council, and, in 1761, lieutenant-governor, which office he held until his death. In 1765, he was burnt in effigy by the Sons of Liberty, on account of his efforts to enforce the stamp act, and was forced to pledge himself not to use the stamps. His death was caused from excitement produced by the fire of New York, in 1776. Although he gave up the practice of medicine, he was always interested in it, and was one of the first to recommend the cooling regimen in fevers, and wrote a tract on yellow fever, in 1742,



which led to important sanitary regulations in New York city.

COLERIDGE, JOHN DUKE, LORD, was born in 1820, sat in parliament from 1865 to 1873, became solicitor-general in 1868, attorney-general in 1871, chief justice of the Common Pleas in 1873 and lord chief justice in 1880. He was made a peer in 1873, visited the United States in 1883, and died June 14, 1894.

COLFAX, SCHUYLER, born in New York city, March 23, 1823; died January 13, 1885. After holding various county offices in Indiana, he edited the *Register*, a Whig newspaper, for several years. He entered congress as a Republican in 1854 and served until March, 1869. From December 7, 1863, to March 4, 1869, he was speaker of the house. He was elected vice president of the United States in 1868, but was defeated in his efforts to be renominated. In 1873 it was charged that he had been implicated in the Credit Mobilier stock operations. The charge was not proven, but it effectually disposed of his political aspirations. After this he lectured in many cities before large audiences.

COLLIER, JOHN PAYNE, born in London, January 11, 1789; died September, 1883. He wrote *A History of Dramatic Poetry* and made many contributions to Shakespearean literature. In 1852 he published *Notes and Emendations to Shakespeare's Plays*, which he professed to base on marginal notes found in a copy of the second folio edition of the poet's works. The authenticity of these notes was more than doubted, and it is generally believed that Collier made them himself. However he was an industrious scholar and did good service to literature.

COLLINS, WILLIAM WILKIE, born in London, England, January, 1824; died September 23, 1889. He began writing novels about 1850, and produced in rapid succession, *After Dark*, *The Dead Secret*, *The Woman in White*, *No Name*, *Armadale*, *The Moonstone*, *Man and Wife*, *Miss or Mrs? The New Magdalen*, *The Law and The Lady*, and other powerful works of fiction. Many dramas founded upon his novels have been produced in England and this country.

COLLYER, ROBERT, Unitarian clergyman, born in Keighly, Yorkshire, England, December 8, 1823. His father was a blacksmith, and the son was compelled to earn his living in a factory. He attended a night school for two winters, and, at the age of fourteen, he was apprenticed to a blacksmith. In 1850 he came to this country, and worked as a hammer-maker in Shoemaker-town, Penn., where he remained nine years. He preached on Sundays, having become a Methodist, and his views changing in the direction of Unitarianism, he was expelled by the conference. He became a Unitarian, and came to Chicago to take charge of the Unitarian mission among the poor. In 1860 he organized Unity church, of which he was the pastor until 1879, when he removed to New York to assume charge of the church of the Messiah, which post he still (1892) holds.

CONGREVE, RICHARD, author, born in England, September 4, 1818; took first-class honors in classics at Oxford in 1840. He is the leading English follower of Comte, and stands at the head of the London Positivists.

CONKLING, ROSCOE, senator, was born in Albany, N. Y., October 30, 1829; died in New York, April 18, 1888. His father, Alfred (1789-1874), served in congress in 1821-3, and was minister to Mexico in 1852. The son received an academic education, removed to Utica, studied law, and was admitted to the bar in 1849. In 1850 he became district attorney for Oneida county, and was made mayor of Utica in 1858. In that year he was chosen as a Re-

publican to congress, and was reelected in 1860, was defeated in 1862, but was reelected in 1864. In this term he was made chairman of the committee on the District of Columbia, was a member of the committee on ways and means, and of the special reconstruction committee of fifteen. His first important speech was in support of the fourteenth amendment to the constitution. He attacked McClellan's generalship, opposed Spaulding's legal-tender act, and advocated the prosecution of the civil war. He was reelected in 1866, and in January, 1867, took his seat in the United States Senate to succeed Ira Harris, and was reelected in 1873 and in 1879. He was a member of the judiciary committee, and of nearly all the leading committees on commerce and revision of the laws. He was instrumental in the passage of the civil-rights bill and advocated the resumption of specie payments. In 1877 he took an important part in framing the electoral-commission bill, which he supported by an able speech. Mr. Conkling received ninety-three votes for the Republican nomination for president in the Cincinnati convention of 1876. When President Hayes showed a disposition to adopt conciliatory measures toward the South, Mr. Conkling was foremost in opposing the movement, and organized the "Stalwart" faction of the Republican party. In 1881 he became hostile to President Garfield's administration on a question of patronage, claiming, with his colleague, Thomas C. Platt, the right to control federal appointments in his State. They finally resigned their seats in the Senate and appealed to the legislature of New York for a reelection as a vindication of their course; but they were unsuccessful, and Mr. Conkling resumed the practice of law in New York city. He declined the nomination of justice of the United States supreme court, offered by President Arthur, and practiced law until his death.

CONNAUGHT, DUKE OF (Prince Arthur), third son of Queen Victoria, was born in London, May 1, 1850, and married, in March, 1879, the Princess Margaret Louise, daughter of Prince Frederick Charles of Germany.

CONSTANT, BENJAMIN, artist, born in Paris, June 10, 1845; has received several medals and the cross of the Legion of Honor, and is one of the most successful of the modern French school of painters. Died May, 1902.

CONSTANTINE, NICHOLAS, grand duke of Russia, second son of Emperor Nicholas, was born September 21, 1827, and was grand admiral of Russia, and held other high offices until retired in 1882 by his nephew Alexander III. He died January 24, 1892.

CONWAY, HUGH, the *nom de plume* of Frederick John Fargus, born in Bristol, England, in 1847; died May 15, 1885. In 1884 he wrote a dramatic story, *Called Back*, of which half a million copies were sold. Another sketch, *Dark Days*, was almost as successful.

CONWAY, MONCURE DANIEL, born in Virginia, March 17, 1832, studied law, but gave it up for the ministry, and became at first a Methodist, and about 1856 a Unitarian. He was a strong opponent of slavery, and suffered for his outspokenness. For many years (1863-1884) he preached or lectured at South Place chapel, London, and wrote on political, social and religious subjects in the liberal press.

COOK, ELIZA, born in London, England, in 1818; died September 25, 1889. About 1840 she published a volume of domestic poems, and later established *Eliza Cook's Journal*, to which she contributed for several years. She was a favorite of the English middle-class, and wrote verses such as *The Old Arm Chair*, etc.

COOK, JOSEPH, born in Ticonderoga, N. Y., January 26, 1838; graduated at Harvard in 1865. He became well-known as a preacher and lecturer, and has



published books in which he attempts to reconcile science with the Christian religion.

COOLEY, THOMAS MACINTYRE, born at Attica, N. Y., January 6, 1824; removed to Michigan and was admitted to the bar of that State in 1845. In 1859 he became professor and subsequently dean of the faculty of the law department of the university of Michigan. In 1864 he was appointed to the State supreme bench, and in 1867 was elected chief justice. From 1887 to 1891 he was at the head of the inter-state commerce commission, and he is recognized as a high authority on constitutional law. He died Sept. 12, 1898.

COOMBS, LESLIE, soldier, born near Boonesboro, Ky., November 28, 1793; died in Lexington, Ky., August 21, 1881. Leslie was the twelfth child of a Virginia farmer, who in 1782 settled in the wilds of Kentucky. At nineteen years of age he entered the army. On June 2, 1813, he was made captain of spies in a regiment of Kentucky volunteers. During a conflict at Fort Miami, on May 5th, he was wounded. After peace was declared Coombs read law, and later pursued a successful practice. In 1836 during the Texas struggle with Mexico, he raised a regiment of volunteers. In succession he became state auditor, and for several terms was elected to the legislature. During the campaign of General Harrison for the presidency, Coombs became an active stump-speaker, and as such was engaged in several western and southwestern States. In this department he had few rivals; to hear him was to believe in him. When the war with Mexico began he was active in raising volunteers in Kentucky. In 1844 he made many speeches in favor of Henry Clay, the Whig nominee for the presidency. In 1860 he was chosen clerk of the Kentucky court of appeals. During the civil war General Coombs was ardently devoted to the cause of the Union. His last years were spent in quiet retirement.

COOPER, MYLES, clergyman, born in England in 1735; died in Edinburgh, May 1, 1785. He was graduated at Oxford in 1760, and became a fellow of Queen's college. In 1762 he came to America as an assistant of President Johnson of King's college, where he became professor of mental and moral philosophy. In the year following he became president. During 1771 President Cooper went to England and returned a short time before the opening of the Revolution. It is supposed that he published several tracts in the interest of the Crown. His outspoken Loyalist sentiments were unfavorably received by many, and his person was threatened with violence. On one occasion, it is said, he took to flight from a back window and fled to the house of a friend, sailing for England on the day following. When he reached that country two parishes were placed in his charge: one in Berkshire and the other in Edinburgh.

COOPER, PETER, philanthropist, born in New York city, February 12, 1791; died there April 4, 1883. His grandfather, John Campbell, a skillful potter in New York, served in the Revolutionary army as deputy quartermaster, and his father, who became a lieutenant, resumed his business of hat-making after the war. He removed to Peekskill, where he opened a country-store, began the brewing of ale, and later removed to Catskill, where he worked at hat-making and also engaged in making bricks. His son, Peter, assisted him in all of these occupations, and removed with his father to Brooklyn, where they again made hats and afterward settled in Newburg and erected a brewery. In 1808, Peter was apprenticed to John Woodward, a carriage-maker, and while with him invented a machine for mortising the hubs of carriages, which proved of great value to his employer, who offered to establish him in business, which he declined. His business ceased

to be successful after the conclusion of peace with Great Britain, in 1815, and he attempted the trade of cabinet-making, the grocery business, and the manufacture of glue; for the latter he leased a factory for twenty-one years, and in addition to glue, made oil, prepared chalk, whiting, and isinglass. Subsequently he bought ten acres of land on Maspeth avenue, Brooklyn, where the business has since been continued. In 1828, he bought 3,000 acres of land in Baltimore, where he erected the Canton iron works, the first of his great enterprises in the development of the iron industry in the United States.

During the excitement over the building of the Baltimore & Ohio railroad in 1830, Peter Cooper constructed from his own designs the first locomotive engine ever made in this country, the *Tom Thumb*, by which means the possibility of building railroads with little capital was demonstrated, and the Baltimore & Ohio railroad was saved from bankruptcy. Soon after this Mr. Cooper sold his iron-works in Baltimore, and returning to New York built an iron-factory, which he afterward turned into a rolling-mill, where he first successfully applied anthracite coal to the puddling of iron and made iron wire for several years. In 1845 he removed his works to Trenton, N. J., and built three blast furnaces in Phillipsburg, near Easton, Penn., the largest then known, bought the Andover iron-mines, and built a railroad through the eight miles of country to bring the ore to his furnaces at the rate of 40,000 tons a year. Mr. Cooper was president of the New York, Newfoundland and London telegraph company, the laying of the Atlantic cable having been accomplished largely by his efforts and liberality. He served in both branches of the New York common council, and advocated the construction of the Croton aqueduct.

He was a trustee of the Public School society, and, awakened to the necessity of a liberal and industrial education, resolved to assist younger generations to procure what had been denied to himself. With this idea he bought the property at the intersection of Third and Fourth avenues, between Seventh and Eighth streets and built here from his own plans the Cooper Union for the advancement of science and art. The cornerstone was laid in 1854, and five years afterward he gave a deed of the property to the trustees, incorporated by the State legislature. Thus far the building with its improvements has cost nearly \$750,000. It has an endowment of \$200,000 for the support of a free reading-room and library. Its annual income is about \$60,000, derived from rents. During the financial agitation in the United States following the crisis of 1873, Mr. Cooper was active in the Greenback movement, and in 1876, the National Independent party nominated him for president.

COFE, EDWARD D., born in Philadelphia, July 28, 1840, was professor of natural sciences at Haverford, 1864-67, palæontologist to the government geological survey, a member of the National academy of sciences and has written many scientific works. Died Ap'l, 1897.

COPPEE, FRANCIS EDOUARD JOACHIM, French author, was born January 12, 1842, and has written admirable poetry, several popular novels and a number of successful dramas, including *Madame de Maintenon* (1881).

COQUELIN, BENOIT-CONSTANT, actor, born in Boulogne, France, January 23, 1841. Since 1884 he has been an associate of the *Theater Français*. M. Coquelin stands at the head of the dramatic profession in France and has played with great success in England and the United States.

CORCORAN, WILLIAM WILSON, banker, born in Georgetown, D. C., December 27, 1798. His father was an Irishman, who settled in Georgetown, where he occupied several minor local offices. For



a time the son attended Georgetown college, but at the age of seventeen became a clerk in the dry goods and auction store of his two older brothers. In 1828 Mr. Corcoran had charge of the real estate held by the United States Bank and the Bank of Columbia in the District of Columbia, and continued their agent until 1836. In 1835 he was married to Miss Louise A. Morris. It was in 1837 that Mr. Corcoran began his career as banker and broker in Washington, and in 1840 formed a co-partnership with the late George W. Riggs. The firm reached a high reputation and attained to great wealth after many risks and a perilous escape from disaster. In 1854 Mr. Corcoran retired from the banking business, and began to give much of his time and attention to objects of benevolence. Oak Hill, the Louise Home, and the Corcoran Gallery of Art are among his creations, together with many gifts to colleges, seminaries, and charities to the extent of several millions. He died in Washington, D. C., February 24, 1888.

CORDOVA, DE FERNANDO FERNANDEZ, a Spanish general born in Madrid in 1792. He opposed Espartero in 1841, was appointed Captain General of New Castile in 1850 and Captain General of Cuba in 1851. He was driven from Spain by the revolution of 1854 but returned two years later on the fall of Espartero. He died in October, 1883.

CORFIELD, WILLIAM HENRY, English physician and sanitary expert, was born at Shrewsbury in December, 1843. Studying medicine, hygiene and natural science, he took many honors and degrees, was appointed Professor of Hygiene and Public Health at University College, London, 1869, and has written *Dwelling Houses, Their Sanitary Construction and Arrangement* (1879); *The Treatment and Utilization of Sewerage* and *The Water Supply of Ancient Roman Cities*. He is chairman of the Council of the Sanitary Institute of Great Britain.

CORLISS, GEORGE H., born in Easton, N. Y., June 2, 1817; died February 21, 1888. He invented the Corliss engine, was for many years at the head of a great factory in Rhode Island, and won prizes and medals for his inventions at the Paris, Vienna and Philadelphia expositions. He was a member of the Rhode Island legislature, 1868-70, and a Republican presidential elector in 1876. The great Corliss steam engine was the chief mechanical attraction at the Centennial exposition in Philadelphia in 1876.

CORNELL, ALONZO B., son of Ezra Cornell, was born in Ithaca, N. Y., January 22, 1832. He became a telegraph operator and manager, and in 1868 a director of the Western Union Telegraph company. In 1868 he was the Republican candidate for lieutenant-governor of New York, but was defeated. The next year President Grant made him surveyor of customs at New York, and in 1873 he resigned to enter the state assembly, of which he was made speaker. From 1870 to 1878 he was chairman of the State central committee, and in this capacity influenced the New York delegation at Cincinnati in 1876 to vote for Rutherford B. Hayes. In January, 1877, Mr. Cornell was appointed naval officer of the port of New York by General Grant. President Hayes, soon after taking office, demanded that Mr. Cornell should resign from the State and national committees, and as he refused, he was suspended in July, 1878. The collector of the port, Chester A. Arthur, shared the same fate. In 1879 Mr. Cornell was elected governor of New York and served till December 31, 1882. He failed to obtain a renomination.

CORNELL, EZRA, born in New York state, January 11, 1807; died December 9, 1874. He realized a large fortune through his connection with the electric-

telegraph system, and devoted the greater part of it to the endowment of Cornell university, at Ithaca, N. Y.

CORNPLANTER, a Seneca Indian chief, said to have been over an hundred years old at his death, in 1836. He was a bitter enemy of the whites; joined the French at the time of General Braddock's expedition, and took part with his tribe, in the Wyoming massacres. Although a half-breed, he attained great power among the Senecas. He became partly civilized and in his later years settled down to farming.

CORRIGAN, MICHAEL AUGUSTINE, born in Newark, N. J., August 13, 1839; was educated at St. Mary's college, Delaware, and the American college at Rome. He was ordained priest September 19, 1863; in 1873 became bishop of Newark; in September, 1880, coadjutor to Cardinal McCloskey, and on October 10, 1885, became metropolitan of the diocese of New York. He died May 5, 1902.

CORSE, JOHN MURRAY, born in Pittsburgh, Penn., April 27, 1835; entered the army as major of volunteers in August, 1861, fought at Chickasaw and Missionary Ridge and was severely wounded at Allatoona. He was brevetted major-general May 5, 1864; became collector of internal revenue in Chicago in 1867, and postmaster of Boston in 1886. He died April 27, 1893.

CORWIN, THOMAS, statesman, born in Bourbon county, Ky., July 29, 1794; died in Washington, D. C., December 18, 1865. His father removed to Lebanon, Ohio, and served in the legislature. After working on the farm until he was about twenty years of age, he studied law, and was admitted to the bar in 1818. He served in the Ohio legislature from 1822 till 1829, was chosen to congress as a Whig in 1830, and was reelected until 1840, when he resigned to become the Whig candidate for governor of Ohio, which office he held for one term. In 1844 he was elected to the United States Senate, where he opposed the annexation of Texas, and in 1847, delivered a notable speech against the war with Mexico. He was appointed by President Fillmore secretary of the treasury in 1850, and after his service there returned to the practice of law in Lebanon. In 1858 he was elected to congress as a Republican, and was reelected in 1860. President Lincoln appointed him minister to Mexico in 1861, but on the arrival of Maximilian, he returned to Washington, and practiced law. He had much reputation as an orator. See the *Life and Speeches of Thomas Corwin*, edited by Isaac Strohn (Dayton, 1859.)

COSTA, SIR MICHAEL, born in Naples, February 4, 1810; died in England, April 29, 1884. He was conspicuous as a director of orchestral music, and conducted the great triennial Handel festivals at Sydenham. His oratorios and operas possessed little merit.

COUES, ELLIOTT, an American naturalist, who was born in 1842, entered the United States army in 1862 as medical cadet and served from 1864 to 1881 as assistant surgeon. He served as naturalist on United States surveys, of the territories, as collaborator at the Smithsonian Institution, and has written *Field Ornithology* (1874); *Birds of The Northwest* (1874); *New England Bird Life* (1881), and other works. Later he made a study of theosophy, joined the Theosophical Society, and until Mme. Blavatsky's death in 1891, was an aggressive skeptic of her supernatural pretensions.

COULDOK, CHARLES WALTER, actor, born in London, England, in 1815; first appeared on the stage in 1835, and came to this country in 1849. Of old time he supported Charles Kean and Macready, and latterly played in the United States, creating the part of "Dunstan Kirk" in *Hazel Kirk*. In 1895, when eighty years old, he was still an active participant in stage representations, being much admired in old men's parts.



COX, JACOB D., born at Montreal in 1828, practiced law in Cincinnati, O., entered the war as brigadier-general, became major-general in 1862, marched with Sherman to Atlanta and commanded a division in the battle of Nashville, December, 1864. He was elected governor of Ohio, as a Republican, in 1865, and was appointed Secretary of the Interior by President Grant in 1869. He died in August, 1900.

COX, SAMUEL HANSON, Presbyterian clergyman, born in Rahway, N. J., 1793; died October 2, 1881. He organized a volunteer corps of riflemen in 1812, entered the ministry in 1817, held various charges, delivered sermons against slavery, and was professor of ecclesiastical history in Union Theological Seminary, New York. He wrote *Quakerism Not Christianity*.

COX, SAMUEL SULLIVAN, lawyer, editor and statesman, born in Zanesville, Ohio, September 30, 1824; died September 10, 1889. He graduated at Brown University in 1846, became secretary of legation at Lima, in 1856, was elected to congress as a Democrat in 1857, serving eight years; removed to New York city in 1866, was elected to congress in 1868, and served until 1882. In 1885 he was appointed minister to Turkey, and in November, 1886, again became congressman. He wrote *The Buckeye Abroad*, *Eight Years in Congress*, *Why We Laugh* and other works. A brilliant speaker and writer, he was widely known as "Sunset" Cox, from a glowing description of a sunset.

COXE, ARTHUR CLEVELAND, born in Mendham, N. J., May 10, 1818; graduated at the university of New York in 1838, took holy orders in the Protestant Episcopal church in 1842, and became assistant bishop and bishop of Western New York in 1865. Bishop Coxe has published theological works. Died July 20, 1896.

COXEY, JACOB S., born in Pennsylvania in 1854, and for years an obscure horse breeder, acquired national notoriety in 1894 by his scheme of leading an army of the unemployed to Washington, a monster petition in boots to congress, to relieve the widespread distress of unemployed workmen. Various called the "Commonwealth of Christ," by those in sympathy with it, or "Coxey's Commonwealers," the movement was intended to demand the creation of a country road fund of \$500,000,000, to be issued in non-interest-bearing bonds, to furnish work. Straggling armies of 5,000 men, all told, marched to Washington, but the petition never reached congress, as Coxey and his cohorts were arrested for failing to "keep off the grass," and the armies disbanded. Though much ridiculed, Coxey had the sympathy of the masses.

COXWELL, HENRY TRACEY, born in England in 1819; became a professional aeronaut about 1844, and has made over 700 balloon ascents. He has written extensively on aeronautics.

CRAIK, DINAH MARIA (Mulock), was born in Staffordshire, England, in 1826. She wrote many domestic novels and some pleasing verses, but her fame rests upon her story *John Halifax, Gentleman*. She was married in 1865 to George L. Craik, novelist, and died in 1887.

CRAWFORD, FRANCIS MARION, American novelist, son of Thomas Crawford, sculptor (1814-57), was born in Italy in 1854, educated in New Hampshire and abroad, and is a prolific and popular writer. Among his best or latest books are: *Mr. Isaacs* (1882); *Dr. Claudius* (1883); *A Roman Singer* (1884); *An American Politician* (1884); *Paul Patoff* (1887); *A Cigarette Maker's Romance* (1890); *The Three Fates* (1892); *Love in Idleness*, *Katherine Lauderdale*, *The Upper Berth* (1894); *The Ralstons* (1894).

CRAWFORD, WILLIAM HARRIS, lawyer and statesman, born in Nelson county, Va., February 24, 1772; died in Elberton, Ga., September 15, 1834. In 1800

he was appointed with Horatio Marbury to revise the laws of Georgia, and was elected to the legislature in 1802, and in 1806 to the United States Senate, and during the canvass fought two duels, in one of which he killed his opponent. He was an ardent Republican and a staunch friend of Jefferson. In 1813 he declined the office of secretary of war in President Madison's cabinet, and was appointed minister to France, where he became an intimate friend of the Marquis de Lafayette, who appointed him agent of his property in the United States. He returned to this country in 1815, and was made secretary of the treasury, serving through both terms of Monroe's administration, after which his name was presented for the post of president of the United States. He was opposed by Calhoun, and in the ensuing campaign, in which General Jackson, Henry Clay, John Quincy Adams and Crawford were candidates, he received the votes of four States. Returning to Georgia he lived in retirement until he was made judge of the northern circuit of Georgia in 1827, which office he held until the time of his death.

CREMIEUX, ISAAC ADOLPHE, born at Nîmes, France, in 1796, became a lawyer in Paris in 1830. In 1842 he entered the Chamber of Deputies and acted with the Extreme Left. He became minister of justice in the provisional government in February, 1848, but retired in June. During the empire he held no public office, but when the republic was proclaimed he became again minister of justice, and was associated with Gambetta in the ministry of the national defense. He was elected life senator December 15, 1875, and died February 10, 1880.

CRERAR, JOHN, a Chicago business man, born in New York city, in 1827, died Oct. 19, 1889, who left \$3,000,000 for charitable purposes, of which \$2,000,000 was set apart for the founding of a free public library to bear his name. In 1895, after a long contest of the will had been defeated, the trustees of the library decided to devote it exclusively to works on the sciences.

CRESAP, MICHAEL, Indian trader, born in Maryland, 1742; died in New York city, 1775. In 1774, at Wheeling, he led an attack on the Indians, who had become unruly, and defeated them, while another party barbarously destroyed the entire family of Logan, a friendly chieftain. Logan accused Cresap of the murder in a speech that has become classic, but Cresap was not guilty. Commissioned captain of the militia of Virginia, he joined the Dunmore expedition, and returned to Maryland; from there he went to Ohio in the spring following, and penetrated the wilds of far western Virginia. Later he was commissioned captain of a company of Maryland riflemen, and went with his company to Massachusetts, to join the American army. But when he arrived at his destination he was overcome by sickness, and died on his way homeward, in New York city. His remains lie buried there in Trinity church-yard, and a tombstone marks his grave.

CRITTENDEN, JOHN JORDAN, statesman, born near Versailles, Woodford county, Ky., September 10, 1787; died near Frankfort, Ky., July 26, 1863. His father, John, a native of Virginia, settled in Kentucky after the Revolutionary war, in which he served as major. The son was graduated at William and Mary college, 1807, practiced law and in 1809 was appointed attorney-general of the territory of Illinois, and in 1811 he was elected to the Kentucky legislature. In 1817 he was chosen to the United States Senate, where he obtained a reputation by an appeal in behalf of Gen. Arthur St. Clair's petition for payment of the arrears due him. In 1819 he settled in Frankfort, Ky., was a conspicuous member of the Old Court party, and aided in settling the boundary between Ken-



tucky and Tennessee. In 1827 he was made attorney-general of Kentucky, and in 1828 was appointed a judge of the Supreme Court, but was not confirmed. In 1834 he was made secretary of state for Kentucky, and in 1835 was elected to the United States Senate, where he supported Henry Clay's measures. He was appointed attorney-general in the cabinet of President Harrison, whom he had first met during an expedition against Canada in 1813.

After Henry Clay's resignation in 1842, he was appointed to fill his place, and in the next year was elected for a full term. He resisted the annexation of Texas, and supported the war with Mexico. In 1848 he became governor of Kentucky, and in 1850 was made attorney-general in Fillmore's cabinet. In 1855 he again served in the United States Senate, and opposed the pro-slavery policy of Pierce and Buchanan. To avert the calamity of secession Mr. Crittenden presented, in 1860, resolutions proposing constitutional amendments to the States, which were known as the "Crittenden Compromise," but although supported by numerous petitions they were not accepted. In 1861 John C. Breckinridge succeeded him in the Senate, but he was elected to the House of Representatives in that year and opposed the methods employed in suppressing the rebellion. He opposed the employment of negroes as soldiers, and objected to the formation of West Virginia. In his last speech in congress, February 22, 1863, he declared that the government had broken its pledges and diverted the war from its original purpose.

CRISP, CHARLES F., speaker of the 52nd and 53rd congresses, was born in England, of American parents, January 20, 1845; served in the confederate army, practiced law, went on the Georgia bench, served in the state assembly, in 1882 entered congress, and has been continuously reelected as a Democrat. He died Oct. 23, 1896.

CRISPI, FRANCESCO, born in Sicily, October 4, 1819; took a leading part in the Palermo insurrection of 1848; and after its failure went into exile. In 1859-60 he organized another revolution, landed at Palermo with Garibaldi, and became a member of the provisional government. In 1861 he was elected to the first parliament of United Italy, and in 1876 became president of the Chamber of Deputies. The leader of the Constitutional Party, he was minister of the interior under Depretis and president of the Council in 1887. His ministry was defeated in 1891, but King Humbert was reluctantly compelled to recall him in 1894, to rescue the country from its difficulties. Crispi was the unifier of Italy, to a large degree, and one of the first statesmen of Europe. He died Aug. 11, 1901.

CROKE, THOMAS, archbishop of Cashel, Ireland, was born at Mallow, county Cork, May 19, 1824. He became archbishop in 1875, and has been identified with the Irish land league movement. Died July, 1902.

CROOK, GEORGE, born near Dayton, Ohio, September 8, 1828; graduated at West Point in 1852, and served several years on the frontier. He was a captain at the outbreak of the civil war, in which he served with distinction, and he closed it a brevet major-general. He commanded the district of Wilmington, N. C., after the war, and in 1866 was transferred to Idaho, where he spent six years in active frontier service. Thence he was transferred to Arizona, and thoroughly subdued the Pi-Utes and Apaches. Major-general Crook was in command of the department of the Missouri until his death, March 21, 1890.

CROCKETT, DAVID, hunter and humorist, born in Limestone, Tenn., August 17, 1786; killed in Texas, March 6, 1836. He ran away from home when he was about twelve years of age, and associated with drovers.

In 1854 he returned to his home and went to school, married, and afterward went to the wildest parts of the State. He was one of the hunters who served under General Jackson against the Creeks, in 1813. He returned and settled in a lawless neighborhood on Shoal creek, where he became a magistrate. He still lived a hunter's life, and served three terms in the legislature. He was elected to congress in 1827 as a friend of Jackson, and attracted much attention by his peculiar mode of dressing and his eccentricities. He was reelected in 1829 and 1831, but became an opponent of Jackson's administration. Subsequently he went to Texas, and took part in her contest for independence. He was one of the last six who defended the fort in the siege of Fort Alamo, in San Antonio de Bexar, and he was captured and put to death by General Santa Anna, March 6, 1836. Many books of his exploits and oddities have been written. See his *Autobiography* (Philadelphia, 1834; New York, 1882).

CROSBY, HOWARD, Presbyterian clergyman, born in New York, February 27, 1826. He was graduated at the New York university in 1844, and became professor of Greek there in 1851. In 1859 he accepted the same chair in Rutgers college, New Brunswick, serving for one year as pastor of the Presbyterian church in that town. He was called to the pastorate of the Fourth Avenue Presbyterian church in 1863, serving until his death. From 1870 till 1881 he was chancellor of the New York university. Doctor Crosby was a founder and president of the New York Society for the Prevention of Crime, and was one of the committee who revised the New Testament. He has repeatedly visited Europe and has traveled in the Orient. In addition to contributions to periodicals, magazines, tracts, and lectures, he is the author of *Land of the Moslem*; *Edipus Tyrannus*, with notes (1861); *Scholia on the New Testament* (1863); *Bible Manual* (1866); *Life of Jesus*; *Thoughts on the Decalogue*; *Social Hints*; *The True Humanity of Christ*; *The Christian Preacher*; *Commentaries on Joshua*; *Nehemiah*, and *The New Testament* (1875); Harvard gave him the degree of D.D. in 1859, and Columbia that of LL.D. in 1872. He died March 29, 1891.

CRUIKSHANK, GEORGE, born in London, England, September 27, 1792; died February 1, 1878. He began his career as a caricaturist in 1811, and illustrated Dickens' earlier works and some of William H. Ainsworth's novels. In his later years he devoted himself to painting in oil, and produced *The Worship of Bacchus*, in 1862. This painting, now in the British museum, was designed to illustrate the evils of intemperance. Many of his works found a place in the English national galleries.

CULLOM, SHELBY M., born in Wayne county, Ky., November 22, 1829; studied law and practiced at Springfield, Ill., and in 1856 was elected to the Illinois legislature. Four years later he was reelected and became speaker. From December, 1865, until March 3, 1871, he represented the Springfield district in congress. From 1872 to 1874 he sat in the State legislature, and in 1873 was again speaker. In 1876 he became governor of Illinois, was reelected in 1880, and resigned February 5, 1883, having been elected United States senator to succeed David Davis. He was reelected to the Senate in 1889 and in 1895. Senator Cullom nominated General Grant in 1872, and General Logan in 1884, and has taken a prominent part in railroad legislation. His bill creating the inter-state commerce commission was passed in 1886.

CULLUM, GEORGE W., born in New York city, February 25, 1809; graduated at West Point in 1833 and entered the engineer corps. He built Fort Sumter and other Atlantic harbor defenses and from 1848 to 1855 was instructor of practical engineering at West



Point. During the Civil war he became chief of engineers and chief of staff under General Halleck. In September, 1864, he became superintendent of the United States military academy, and was retired under the rule January 13, 1874. He was made vice-president of the American Geographical society; and in 1880 became president of the Geographical Library society of New York. General Cullum wrote many works on military matters. He died February 28, 1892.

CULPEPPER, THOMAS, colonial governor of Virginia. He was a son of John Culpepper, who was made Baron Culpepper, of Thoresway, England, in 1644. The son early became one of the owners of Virginia, and, in 1669, he purchased the right to the land lying between the Potomac and Rappahannock rivers. In 1673 he, with the earl of Arlington, received from King Charles II. the grant of the whole territory of Virginia for thirty-one years, and, in 1675, the king appointed him governor of the province for life. He did not come to this country until 1680, and soon after his arrival he caused the governor's salary of £1,000 to be doubled, placed the duties on tobacco and merchandise under the entire control of the king, and brought a general amnesty for all past offenses in the province. He soon went back to England, but returned, in 1682, hanged the leading "plant cutters," debased the currency, and annulled the privilege of appeal from the governor and council to the assembly. In 1683 he returned to England in violation of his orders, and was, in consequence, prosecuted and deprived of his office and patent, but was allowed an annual pension until the time of his grant expired. Lord Culpepper was cruel, despotic, and mercenary, and indifferent to the welfare of his colony. On his death, in 1719, his large estate in Virginia, where a county is named for him, descended to his daughter Catherine, Lady Fairfax.

CUMMINGS, AMOS JAY, born in Broome county, N. Y., May 15, 1841; began newspaper life as a compositor on the *New York Tribune*, became political editor of that paper and afterward was connected with the *New York Sun*. In 1886 he was elected to congress, as a Democrat. Died May 2, 1902.

CUNNINGHAM, WILLIAM, provost-marshal, born in Dublin, Ireland; died in London, August 10, 1791. His father was a trumpeter in the army, and the son was born in the soldiers' barracks. In 1774 he arrived in New York city, where, at first, he gave lessons in riding. At the beginning of the Revolution his hot-headed declarations of Toryism rendered him obnoxious to many, and he was driven from the city. He then went to Boston, continuing his former course. Here he came under the notice of General Gage, who saw in the man a devoted Loyalist, and appointed him provost-marshal of the British army. In 1778 he was at first superintendent of the prisons in Philadelphia, and later those of New York city, where he became notorious for many cruelties. Hundreds were hanged without trial and several thousands starved to death. At the close of the war Cunningham returned to Europe, and settled in Wales. Later he went to London, where he led a dissipated life, and, to obtain money, was induced to commit forgery. For this felony he was executed. It is difficult to understand how the enlightened British Government, for so many years could have maintained this brutal official at so important post.

CURTIN, ANDREW GREGG, born in Bellefonte, Penn., April 22, 1815. He studied law and became prominent at the bar and in politics. In 1854 he became secretary of the commonwealth and ex-officio superintendent of public schools, and in 1860 was elected governor of Pennsylvania on the Republican

ticket. In this capacity he was energetic in raising troops and became one of the great "war governors." In 1863 he was reelected and in 1860 became minister to Russia. In 1872 he supported the Liberal-Republican ticket, and from 1881 to 1887 sat in congress as a Democrat. He died October 7, 1894.

CURTIS, GEORGE TICKNOR, born in Watertown, Mass., November 28, 1812; graduated at Harvard in 1832, and was admitted to the bar four years later. He sat in the Massachusetts legislature from 1840 to 1844, and then became United States commissioner. In 1862 he removed to New York city. He wrote extensively on commercial and copyright law, and published a *History of the Constitution and a Life of Daniel Webster*. He died March 28, 1894.

CURTIS, GEORGE WILLIAM, author, born in Providence, R. I., February 24, 1824. He attended school in Jamaica Plain, Mass., was for a year a clerk in a mercantile house in New York city, and in 1842 became a member of the Brook Farm socialistic institution in Roxbury, Mass. Here he lived about eighteen months, afterward retiring to a farm in Concord, where he remained an equal time. In 1846 Mr. Curtis went to Europe, and also visited Egypt and Syria. He returned to this country in 1850, and became a member of the staff of the *New York Tribune*, and also one of the editors of the first series of *Putnam's Monthly* from its beginning, in 1852, until it was discontinued. When this magazine was revived, some three years later, by a new firm, under the new title of *Putnam's Magazine*, Mr. Curtis was a special partner, and its failure in 1857 involved him in grave pecuniary difficulties, from which it required many years of toilsome labor to free himself. In 1853 he assumed in *Harper's Monthly* the editorship of the "Editor's Easy Chair," which is being continued to this time; in 1857 *Harper's Weekly* was established, and he was made the principal editorial writer for that publication. Meanwhile he gave numerous lectures with universal acceptance, soon became known as a polished and eloquent speaker, and entered into politics on the side of the Republican party. In 1868 he was a presidential elector, having used his influence in promoting the election of General Grant to the presidency, later he favored the successions of Mr. Hayes and General Garfield. In 1884 he opposed the nomination of Mr. Blaine for the presidency, and became a supporter of the Democratic candidate, Mr. Cleveland. Mr. Curtis was offered several foreign missions during the administration of President Hayes, which he declined. In 1886 he became vice-chancellor of the university of the State of New York. His published volumes include: *Nile Notes of a Howadji* (New York, 1851); *The Howadji in Syria* (1852); *Lotus Eating* (1852); *The Potiphar Papers* (1853); *Prue and I* (1856); and *Trumps*, a novel (1862). He died August 31, 1894.

CUSHING, CALEB, statesman, born in Salisbury, Mass., January 17, 1800; died in Newburyport, Mass., January 2, 1879. After graduating at Harvard in 1817, he was tutor of mathematics and natural philosophy there until 1819, studied law, was admitted to the bar in 1822, and began practice in Newburyport. In 1825-6 he served in the legislature, traveled in Europe in 1829-31, and on his return to Massachusetts served again in the legislature. He was elected to congress in 1835, serving until 1843. He was at first a Jeffersonian Republican, but afterward became a Whig, and followed Tyler in his separation from that party. He was three times nominated by Tyler for secretary of the treasury, but was rejected by the Senate. In 1843 he was made United States commissioner to China and negotiated a treaty July 3, 1844.



which was ratified December 31, 1845. Having returned to Massachusetts, Mr. Cushing was elected to the legislature in 1846, and advocated the war with Mexico; and, on the refusal of the legislature to appropriate funds for a regiment of volunteers, he advanced the amount from his own purse. Appointed colonel of this regiment, he joined Gen. Zachary Taylor in 1845, served in the Mexican war and was appointed brigadier-general, April 14, 1847. He was subsequently transferred to General Scott's army, remaining with it until the close of the war. In 1850 he served again in the Massachusetts legislature, and was made the first mayor of Newburyport.

In 1852 he was appointed an associate justice of the Supreme Court of Massachusetts, and in 1853, was made United States attorney-general. In 1860 he was president of the National Democratic Convention, and joined the faction of the extreme southern party, becoming afterward president of the convention that nominated John C. Breckinridge for president. Mr. Cushing was sent to Charleston as the confidential agent of President Buchanan to induce the State troops to defer the attack on Fort Sumter, which mission was unsuccessful. During the civil war he remained in Washington, and in 1866, was appointed with two other jurists to revise and codify the laws of the United States. In 1868 he was sent to the United States of Colombia, South America, on a special diplomatic errand, and in 1870 engaged in preparing the protocol of the treaty of Washington and, afterward, the statement to be laid before the tribunal of arbitration in Geneva, where he was one of the counsel. In 1873 he was nominated as chief justice of the United States to succeed Chief Justice Chase, but he was not confirmed by the Senate, and in the same year he was made minister to Spain, where he was successful in settling the difficulties arising from the Cuban insurrection. Harvard gave him the degree of LL.D. in 1852. In addition to public addresses, speeches in congress, and contributions to periodicals, especially the *North American Review*, Mr. Cushing was the author of *Reminiscences of Spain; the Country, its People, History, and Monuments* (1833); and *Historical and Political Review of the Late Revolution in France*. His wife published *Letters descriptive of Public Monuments, Scenery, and Manners in France and Spain* (2 vols., 1832).

CUSHMAN, CHARLOTTE SAUNDERS, actress, born in Boston, Mass., July, 23, 1816; died there February 18, 1876. Her father had been a West India merchant; when he died the widow opened a boarding-house. The daughter, from the age of twelve years, sang in choirs and on public occasions to help support the younger children. Miss Cushman received instruction in vocal music and on the piano-forte; and under the tuition of James G. Maeder, the husband of Clara Fisher, appeared at the Tremont theater at Boston in the operas of the *Marriage of Figaro* and *Guy Mannering*. Later she sang in opera at New Orleans, where her contralto voice became impaired from overstraining on high notes, and she was compelled to terminate her engagement. After careful and prolonged study for an actress she entered into a three-years' engagement with the manager of the New York Bowery theater, to sustain the leading roles in drama and tragedy. When that theater was burned her engagement became canceled, and she played for about five months at the theater in Albany, N. Y. From 1837 until 1840 she performed in general utility at the New York Park theater, for a small salary. From 1842 until 1844 she was lessee of the Walnut Street theater in Philadelphia, and thereafter accompanied Macready in his tour in this country

as leading lady performer. On October 26, 1844, Miss Cushman sailed for England, playing "Lady Macbeth," "Mrs. Haller," "Rosalind," and "Bianca," with much acceptance. She began her second season as "Romeo" to her sister Susan's "Juliet." Later she played in various English cities and in Dublin, adding to her parts "Queen Katherine," "Meg Merrilies," "Julia" in *The Hunchback*, and "Lady Gay Spanker." After a prolonged stay, during which she spent much time on the continent, she returned to the United States in 1849, playing for several years in the large cities, and taking her first farewell of the public at the Broadway theater in New York city on May 15, 1852. Thereafter she again performed in England for several seasons. In 1857 she returned to the United States with a salutory greeting, and played until the spring of 1858. In 1859 she again went to Europe, and in 1860 played in New York, closing with one of her customary farewells. Later she manifested great ability as a dramatic reader, and as such drew large audiences. In 1871, after another prolonged stay in Europe, she returned to the United States, and appeared as actress and reader on many occasions. At the close of this term she announced her seventh farewell. Her theatrical career closed at the Globe theater in Boston, on May 15, 1875. Later she delivered readings in Rochester, Buffalo, and Syracuse, and retired with a large fortune to her villa at Newport, R. I., to bid the world her true and final "farewell." See *Charlotte Cushman, her Letters and Memories of her Life*, by Emma Stebbins (Boston, 1878).

CUSHMAN, PAULINE, spy, born in New Orleans, La., June 10, 1833. Her father, a Spaniard, first was settled as a trader in New Orleans and afterward became an Indian trader at Grand Rapids, Mich. At first she appeared as a variety actress in several southern and southwestern cities. When the civil war began she was employed by the United States Government as a detective of southern sympathizers in Louisville, Ky., and on several occasions served as a scout. For some time she posed in the Southern States as a Confederate sympathizer, but always remained steadfast to her affiliations with the National government. During a theatrical engagement at Nashville, Tenn., she served the army police in detecting pilfering from government supplies, smuggling, and bushwhacking arrangements. In 1863 she was sent beyond the Federal lines, accused as a Confederate sympathizer, but really in order to inform our commanders of the condition of the enemy's forts, the strength of the southern armies and the state of their supplies. Eventually she was captured as a northern spy, court-martialed, and sentenced to be hanged. But when the Confederates left Shelbyville she was left behind, and became released by entrance of the Union army. She died December 2, 1893.

CUSTER, GEORGE ARMSTRONG, soldier, born in New Rumley, Ohio, December 5, 1839; died June 25, 1876. After graduating at West Point, in 1861, he entered into active service and took part in the battle of Bull Run, and at Manassas, where he made his first cavalry charge. He was assistant engineer in constructing earth works at Yorktown, and went in pursuit of the enemy with General Hancock. Subsequently he was appointed captain and aid to General McClellan, serving on his staff as long as he was in command. In 1863 he became aid to Gen. A. Pleasonton, and was appointed brigadier-general. He served with General Grant in the Wilderness, and with Sheridan in the Shenandoah Valley. He also commanded a cavalry division in the pursuit of Lee after the evacuation of Richmond. After the war he was made lieutenant-colonel with the brevet of major-general and assigned to



the seventh United States cavalry. He served on General Hancock's expedition against the Cheyennes and Sioux; but in 1867 he was tried by court-martial for cruelty to his men and for having left his command without permission. He was suspended for a year, but in 1868, at the request of General Sheridan, he was restored, rejoined his regiment, and served against the Indians. In 1873 he went with his regiment to Dakota, served in the Yellowstone expedition, and in 1874, was sent to explore the Black Hills. His report of the fertility and mineral wealth of that region led to immigration and its encroachment on the Indian reservation caused trouble with the Sioux, under Sitting Bull. In 1876 General Sheridan ordered an expedition to march against the Indians to settle the troubles. This moved in three columns under General Terry, General Gibbon, and General Crook. General Custer led General Terry's column, and, when reaching an encampment of the Indians on Little Big Horn river, he divided his men into three bodies, and advanced with five companies. The Indians concentrated their force upon Custer's division, all the men of which, including General Custer, were massacred June 25, 1876. General Custer was buried at West Point, where a statue of

him was erected in 1879. See *The Complete Life of Gen. G. A. Custer*, by Capt. Frederick Whittaker (New York, 1876). His wife Elizabeth B., is the author of *Boots and Saddles* (New York, 1886), and *Tenting on the Plains, or Life with General Custer in Dakota* (1888).

CUSTIS, GEORGE WASHINGTON PARKE, author, born at Mount Airy, Md., April 30, 1781; died at Arlington House, Va., October 10, 1857. He was the son of Col. John Parke Custis, the son of Mrs. Washington by her first husband. The son was brought up at Mt. Vernon, and studied at St. Johns college and Princeton. In 1802 he left Mount Vernon and erected Arlington house near Washington, on a large estate derived from his father. In early life he was married to Miss Mary Lee Fitzhugh. He became a fluent speaker, wrote plays for his amusement, and finished several paintings of battles of the Revolution. Mr. Custis published *Recollections of Washington* (New York, 1860). He led an uneventful home life, and the interest that centers around him is occasioned by his connection with the families of Washington and Robert E. Lee, the latter having married his daughter.

## D.

DAHLGREN, JOHN ADOLPH, admiral, born in Philadelphia, November 13, 1809; died in Washington, D. C., July 12, 1870. His father, Bernard Ulric Dahlgren, was a merchant of Philadelphia, and for many years consul to Sweden. The son entered the navy in 1826, passed midshipman in 1832, and afterward served in the coast survey. In 1843 he went to the Mediterranean on a cruise. On his return, in 1845, he was assigned to ordnance duty in Washington. Under his management the ordnance bureau acquired its present extensive works, and the Dahlgren guns, which he invented, have stood the test of long use. In 1857 he equipped the *Plymouth* according to his own ideas, and visited the coast of Europe from Portugal to Holland. Subsequently he cruised in the West Indies, and, on his return to Washington, resumed command of the ordnance department, of which he was made chief in July, 1862. At the beginning of the civil war, he had charge of the defenses of Washington on the left, and in 1863, he was made rear-admiral, and was placed in command of the South Atlantic blockading squadron. He conducted the naval operations in Charleston harbor, and aided General Sherman in his military operations in South Carolina and Georgia. In 1866 he had command of the South Pacific squadron, and in 1868 again took charge of the bureau of ordnance in Washington. In 1869 he was appointed commandant of the Washington navy-yard. Admiral Dahlgren's works on ordnance have been used as text-books by the government, and his reports on armored vessels and on coast defenses, and his *General Orders from 1863 to 1865*, are of value. He published treatises on *Boat Armament* (1852); *Percussion System* (1853); *Shells and Shell Guns* (1856); and *Maritime International Law*, printed after his death. His biography was published by his wife, Mrs. Madeline Vinton Dahlgren (1882).

DALLAS, GEORGE MIFFLIN, statesman, born in Philadelphia, July 10, 1792; died there December 31, 1864. After graduation at Princeton, in 1810, he studied law with his father, Alexander James Dallas, and was admitted to the bar in 1813. He went to Russia as private secretary to Albert Gallatin, one of the commissioners to negotiate a treaty with Great Britain

through the Russian emperor. On his return to this country he devoted himself to his profession and became solicitor of the United States bank. In 1817 he was made deputy attorney-general of Philadelphia, of which he was elected mayor in 1828. This office he resigned to become United States district-attorney. In 1831 he was sent to the United States Senate. In his first speech, January 9, 1832, he presented the application for the renewal of the charter of the United States bank. In 1837-9 he was minister to Russia, and on his return again practiced law in Philadelphia. In 1844 he was elected vice-president by the Democratic party, and in 1846 he gave the casting vote in favor of free trade, although he had formerly been a protectionist. In 1856 he was made minister to England, where he displayed much tact in managing the Central American question. He returned to Philadelphia in 1861. Mr. Dallas wrote a *Series of Letters from London in the Years 1856-1860* (1869).

DALTON, JOHN CALL, born in Chelmsford, Mass., February 2, 1825; graduated at Harvard in 1844. He became professor of physiology in the university of Buffalo, the Vermont Medical college, and in Brooklyn. During the Civil war he was an army surgeon. He died February 12, 1889.

DALY, AUGUSTIN, born in Plymouth, N. C., July 20, 1838; acted as dramatic editor of New York newspapers, and in 1869 began his career as a theatrical manager. He has produced original plays and adaptations from French and German. Died June 7, 1899.

DALY, CHARLES PATRICK, born in New York city, October 31, 1816; admitted to the bar in 1839. From 1844 to 1886 he held high judicial offices in his native State, and has written extensively on legal and scientific topics.

DAMIEN, FATHER, a Belgian priest, who in 1873 went as a missionary among the lepers of the Hawaiian Islands, and on April 10, 1889, fell a victim to the dreadful disease of leprosy.

DANA, CHARLES ANDERSON, editor, born at Ainsdale, N. H., August 8, 1819. He entered Harvard in 1839, and remained there until 1841. In 1842 he joined the Brook Farm community, in Rox-



bury, Mass., and remained there until 1844. Thereafter, in connection with George Ripley, Parke Godwin and John S. Dwight, he edited the *Harbinger*, a weekly paper, devoted to social reform and literature; this publication lasted from 1844 until 1847. At the end of this latter year he went to New York with wife and child, and became connected with the New York *Tribune* on a small salary; in the course of a few years he was one of its principal editors, and continued as such until 1861. In 1855, in connection with Mr. George Ripley, he projected the *New American Cyclopædia*, of which they were the responsible editors; the work was completed in 1863. This publication has had much success, and an improved edition in ten volumes was issued in 1873-76. From 1862 to 1865 he was in the service of the government, during the last two years officiating as assistant secretary of war. On the return of peace, Mr. Dana became editor of the Chicago *Republican*, a daily, which failed of success. In 1868 he organized a stock company that bought out the New York *Sun*, a daily newspaper, and made it influential and profitable. As an editor he is trenchant and sarcastic, as a critic able and opinionated, as a politician bitter and erratic, with a constant eye to business. His manifold ability and industry are unquestioned, and yield him a large income. His published volumes include *The Black Ant*, a translation (New York, 1848). With Gen. James H. Wilson, he wrote a *Life of Ulysses S. Grant* (Springfield, 1868). He also edited *The Household Book of Poetry*, first published in New York in 1857, which has since passed through several editions; in connection with Rossiter Johnson, he also compiled *Fifty Perfect Poems* (New York, 1883). Died Oct. 17, 1897.

DANA, JAMES DWIGHT, born in Utica, N. Y., February 12, 1813. He made several voyages of exploration in his capacity of mineralogist and geologist, and published reports on *Zoöphytes*, on *Crustacea* and on *The Geology of the Pacific*. For many years he was professor of natural history and geology at Yale, and edited *The American Journal of Science and Arts*. He was a member of many scientific societies of this country and Europe. He died April 14, 1895.

DANA, RICHARD HENRY, lawyer and author, born in Cambridge, Mass., August, 1815; died in Rome, Italy, January 7, 1882. He was the son of Richard Henry Dana (1787-1879), a poet and a founder of the *North American Review*. The son entered Harvard, but owing to impaired sight he was forced to abandon his studies, and he shipped as a common sailor on the *Pilgrim*, bound to California around Cape Horn. His experience afterward furnished the material for his book *Two Years Before the Mast*. On his return he again entered Harvard, where he was graduated in 1837, studied law, and was admitted to the bar in 1840. In 1848 he took part in the convention at Buffalo which formed the Free-Soil party, and in 1853 he was a member of the Massachusetts constitutional convention. He defended the rescuers of the slave Shadrach, in 1853, and of Anthony Burns, in 1854. He became a prominent member of the Republican party from its foundation, and took part in all of the presidential campaigns from 1856 till 1876. He made a voyage around the world in 1859-1860, and on his return in 1861, was appointed United States attorney for Massachusetts. He became noted for his arguments in the prize cases occasioned by the war, and his principles were confirmed by the United States Supreme Court. In 1867-1868 he was a member of the Massachusetts legislature, and was chairman of the judiciary committee. In 1876 he was nominated minister to England by President Grant, but he was not confirmed by the Senate owing to the controversy which he had had with Mr. W. B. Lawrence,

who in 1863 charged Mr. Dana with having infringed upon his copyright in his edition of Wheaton's *Elements of International Law* (1868). Mr. Dana contributed to the *North American Review*, wrote memoirs of Washington Allston and of Prof. Edward Channing, and published *The Seaman's Friend*, a manual of the laws and customs of the sea (1841).

DANENHOWER, JOHN WILSON, born in Chicago, September 30, 1849, graduated at the United States naval academy, in 1870, and in 1879 sailed from San Francisco as second in command of the *Jeannette* under Lieut. George W. DeLong. The steamer was lost in the ice, but the explorers escaped, and returned home in 1882. Danenhower died April 20, 1887.

DA PONTE, LORENZO, dramatist, born in Venice, Italy, March 10, 1749; died in New York city August 17, 1838. He was of the Hebrew race and bore an assumed name. For several years he taught rhetoric and composition in seminaries of his native land, and became exiled for writing political squibs against the government. He then went to Vienna, where his time was occupied in shaping and writing plays and opera libretti for the theaters; among these were the texts of Mozart's *Don Giovanni* and *Nozze di Figaro*, neither of which had merit, but were made famous by the music of the composer. Later Da Ponte appeared as a kind of secretary and occasional dramatist of the Italian opera, and connected therewith the calling of a book-seller. In 1805, to extricate himself from financial troubles he sailed for the United States, and settled in New York city. Here, for many years, he taught the Italian language, and in 1828 became unsalaried professor of Italian at Columbia college. He wrote sonnets, made translations from English into Italian, and compiled several instruction books for acquiring his native language; for a time he also kept a small book-store. Among his publications are his *Life* (3 vols., New York, 1823), and a *History of the Florentine Republic* (2 vols., 1833).

DARLEY, FELIX OCTAVIUS CARR, artist, born in Philadelphia, June 23, 1822. His parents were English actors, who, for many years, played in the principal theaters of the United States. While a clerk in a mercantile house in Philadelphia, young Darley produced some humorous sketches, which were so highly praised that he devoted himself to the pursuit of art by making drawings for engravers. In 1848 he came to New York city. His illustrations for books eventually became innumerable; for the works of James Fenimore Cooper he made more than five hundred drawings. Some of his sketches were reduced, to appear on government bonds and bank-notes; he has also produced many outline illustrations on stone. Among the latter are the series illustrating Irving's *Rip Van Winkle* and *Sleepy Hollow*. In 1852 he was made an academicien of the New York academy of design. His exhibitions are nearly all in black and white. From 1864 until 1868 he resided in Europe. After his return home he published *Sketches Abroad with Pen and Pencil* (New York, 1868), *Outlines to the Scarlet Letter* (1879), *Illustrations to Evangeline* (1883); and *Illustrations to Shakespeare's Plays* (1886). He died March 27, 1888.

DARRAH, MRS. LYDIA, heroine. She was a Quaker; of her birth and early life we have no record; she resided in Philadelphia. When the British army was in Philadelphia, the adjutant-general hired one of her rooms for private conferences, in which an officers' meeting was held on December 2, 1777. On that day some particular and emphatic directions were given that excited her curiosity. She listened at the door of the meeting-room, and, among other things, heard an order read that the British soldiery should march out of camp on



December 4th to attack the Americans then quartered at White Marsh, eight miles distant. On the following morning she arose early, and left word with her husband that she had gone to Frankfort, outside of the British lines, to procure flour. She left her bag in the mill, walked several miles on the snowy ground, and approached the American camp. Here she met Colonel Craig, who knew her by sight, and gave him the important information. When the British movement was made, they found the army of Washington prepared to meet them at all points, and the enterprise miscarried. At the time this event was deemed of much importance, and had the movement been successful, it might have given a different complexion to the prevailing state of affairs.

DARWIN, CHARLES ROBERT, grandson of Erasmus Darwin, was born at Shrewsbury, England, February 12, 1809, and died April 19, 1882. In 1838 he sailed in the British ship *Beagle* on a surveying and exploring expedition, which extended over five years. On his return he published special reports of his observations, which proved of the greatest value to science. Mr. Darwin gave his entire life to scientific investigation, and wrote many papers on natural history and geology. But it is as the enunciator of the hypothesis of evolution that he is best known to fame. His work on *The Origin of Species*, first published in 1859, opened a new field of scientific research, and was translated into almost all languages. His *Descent of Man* (1871) probably ranks next in interest to the general reader.

DAUDET, ALPHONSE, born at Nîmes, France, May 13, 1840, has written several successful plays and many novels of superior strength and interest. Notable among the latter are *Fromont Jeune et Risler Aîné* (1874), *Les Rois in Exil* (1879), and *Sappho* (1884). M. Daudet has been long connected with the *Journal Officiel*, of Paris. Died Dec. 16, 1897.

D'AUDIFFRET-PASQUIER, EDMÈ ARMOND GASTON, Duc, born in Paris, France, in 1818; became president of the National Assembly in 1875, was made a life senator, and served as president of the Senate 1876-79. In 1878 he became a member of the Academy.

DAVENPORT, EDWARD LOOMIS, actor, born in Boston, Mass., November 15, 1814; died in Canton, Penn., September 1, 1877. He first performed in Providence, R. I., in 1836; it was a minor part in *A New Way to Pay Old Debts*. Afterward he became engaged at the New York Bowery theater, and in 1838 was member of the stock company at the Walnut Street theater in Philadelphia. From there he went to Boston, where he remained several years, gradually rising in his profession. In 1847, in company with Mrs. Anna Cora Mowatt, Davenport visited England, both making their debut at the Manchester theater in the principal characters of the *Lady of Lyons*. In England, for several seasons, he played second parts to Macready, and also appeared at the Haymarket theater. In 1854 he returned to this country, and played stock and star engagements for a number of years in the principal cities. In 1859 he was manager of the Howard Athenæum in Boston, and, in 1860, became lessee of the Chestnut Street theater in Philadelphia. In 1873 he performed in Wood's museum, New York city, and in 1875-76 was one of the chief attractions at Booth's theater. Toward the last his energy became impaired by sickness, and he ceased to interest the public. He was a judicious and finished performer, who never rose to particular distinction. "St. Marc," in a play of his own; "Hamlet," "Sir Giles Overreach," and "William," in *Black Eyed Susan*, were among his best performances. His wife, Fanny

Elizabeth Vining, born in 1819, was associated with him in his starring engagements.

DAVENPORT, FANNY, daughter of the foregoing, born in London, England, April 10, 1850, went on the stage in 1862, taking a child's part in *Metamora* at the Howard Athenæum, Boston, and rose to the front rank in her profession. She has played many leading parts and for years has been remarkably successful as a star, producing Sardou's *Fedora*, *La Tosca* and *Cleopatra* in sumptuous style. She married Edwin Price in 1879 but divorced him and subsequently married her leading man, Melbourne MacDowell. Died Sept., 1898.

DAVENPORT, JOHN, clergyman, born in Coventry, England, in 1597, died in Boston, Mass., 1670. A sympathizer with the Puritans, he left a London parish to preach in Holland and came to this country in 1637. He preached in Cambridge and New Haven, gave refuge to the English regicides, Goff and Whaley, in 1660, and became pastor of First Church, Boston, in 1668.

DAVIS, ANDREW JACKSON, clairvoyant and author, born in Blooming Grove, Orange county, N. Y., August 11, 1826. He worked on a farm until his father removed to Poughkeepsie, N. Y., where the son was apprenticed to a shoemaker. He was magnetized by Mr. William Livingstone, in 1843—it was then he developed his clairvoyant powers, and became known as the "Poughkeepsie Seer." While in this state he claimed he could comprehend very difficult subjects. He found in Dr. S. S. Lyons, of Bridgeport, Conn., a new magnetizer, and in 1845 dictated a series of discourses recorded by Mr. William Fishbough. His system is called the "harmonial philosophy." He has written 157 lectures, which were published in 1847, with the titles: *The Principles of Nature*, *Her Divine Revelations*, and *A Voice to Mankind*. Mr. Davis has also published thirty volumes, among which are *The Great Harmonia* (5 vols.), *Stellar Key to the Summer Land*, *Arabula*, *Harbinger of Health*, *Death and the After Life*, *Views of our Heavenly Home*, and *The Magic Staff—an Autobiography*.

DAVIS, CHARLES HENRY, born at Boston, Mass., January 16, 1807, entered the navy in 1823, held important commands in the civil war, was promoted rear-admiral, February 7, 1863, wrote *Coast Survey of the United States*, and died February 18, 1877.

DAVIS, DAVID, born in Cecil county, Md., March 9, 1815; died in Bloomington, Ill., June 26, 1886. He studied law in Massachusetts and Connecticut, and removed to Illinois in 1835. In 1844 he was a member of the State legislature, and was circuit judge from 1848 to 1862, being three times elected. He was an intimate friend of President Lincoln, who, in October, 1862, appointed him associate justice of the Supreme Court. Judge Davis was named by the labor reformers for president in 1872, but did not accept the nomination. In March, 1877, he left the Supreme Court bench to take his seat in the United States Senate, to which he had been elected as an independent in succession to General Logan. In 1881 he became president of the Senate.

DAVIS, EDWIN HAMILTON, was born in Ross county, Ohio, January 22, 1811, and died in New York city, May 15, 1888. A physician by profession and for some time professor of materia medica and therapeutics in New York College, he was best known for his archaeological researches, his exploration of Indian mounds and collections of mound relics, and his *Ancient Monuments of the Mississippi Valley*, which was the first book published by the Smithsonian Institution.

DAVIS, GEORGE R., born in Palmer, Mass., in 1840, enlisted in the 8th Massachusetts infantry in 1861, recruited a battery in 1863, and rose to the rank of colonel, continuing with the army, in the civil department,



until 1871, he resigned, and settled in Chicago. Taking a prominent part in politics as a Republican, he served three terms in Congress, 1878-1884, and one term as treasurer of Cook county, 1886-1890. He was prominent in the work of securing the World's Fair for Chicago, was chosen a director of the local board, and, in September, 1890, Director General of the Exposition, in which capacity he rendered signal service.

DAVIS, JEFFERSON, statesman, born in Christian county, Ky., June 3, 1808. While a child his father removed to Mississippi. He was graduated in 1828 at the United States military academy at West Point, served against the Indians until 1835, resigned his commission, and returned to Mississippi, where he married a daughter of Gen. Zachary Taylor. From that time until 1843 Mr. Davis was a cotton-planter, soon became a prominent Democratic politician, and interested himself in the election of James K. Polk. In 1845 he was sent to congress, where he took part in the debates on military affairs, the Oregon question, and preparations for the Mexican war. When the latter came to an issue between the two countries, he was elected colonel of the Mississippi regiment of volunteers, resigned his seat in congress and joined the army of General Taylor on the Rio Grande. He was engaged at the storming of Monterey and in the battle of Buena Vista. When the war closed he was offered the rank of brigadier-general of volunteers, but declined. In 1847 he was elected from Mississippi to the United States Senate, where he appeared as a zealous defender of slavery and an advocate of the doctrine of State's rights. In 1851 he resigned his seat as senator to enter on a canvass for the election of General Pierce for president. In acknowledgment of his services President Pierce appointed Colonel Davis secretary of war. In 1858 he was again chosen senator; but the election of Abraham Lincoln as president, and the consequent secession movement, caused his retirement from the United States congress. When the southern Confederacy was formed, Colonel Davis, on February 22, 1861, was chosen provisional president, and in 1862 was elected president for six years. After the fall of Richmond and the consequent collapse of the Confederacy, he endeavored to make his escape, but was captured at Irwinsville, Ga., May 10, 1865, and remained imprisoned for two years at Fortress Monroe, awaiting a trial. In the summer of 1867 he was released on bail, and all proceedings against him were discontinued. After his liberation he went to Europe, and on his return became president of a life-insurance company in Memphis, Tenn. In 1881 he published *The Rise and Fall of the Confederate Government*, in two volumes. The presidential administration of Mr. Davis has been severely criticised by many sympathizers with the South. At the time of his death he was engaged in the preparation of a series of sketches, descriptive of the war. Mr. Davis died at New Orleans, December 6, 1889, and was interred under the monument to the Army of Northern Virginia.

DAVIS, HENRY WINTER, statesman, born in Annapolis, Md., August 16, 1817; died in Baltimore, Md., December 30, 1865. After graduating at Kenyon college, Ohio, in 1837, he became a tutor, and went to the university of Virginia, where he studied law. He began to practice in Alexandria, Va., in 1841, but removed to Baltimore in 1850, and acquired a high reputation. In 1854 he was elected to congress as a Whig, and in 1856 and 1858 as a member of the American party. He supported John Bell in the presidential campaign of 1860, and when Lincoln called an extra session of congress after the attack on Fort Sumter Mr. Davis announced himself as a candidate for congress on "the unconditional maintenance of the Union," but was defeated. He was active in suppress-

ing a secessionist mob in Baltimore, and did much to prevent the secession of his State. In 1863 he published an address to the people of Maryland, urging them to emancipate their slaves. He worked very hard to accomplish his object, and he finally succeeded. He was again elected to congress in 1863, and was made chairman of the committee of foreign affairs. In 1864 he and Benjamin F. Wade made a public protest against President Lincoln's refusal to sign a bill of reconstruction, as being an infringement of the rights of congress. At the end of the war he contended that the negroes should have the right of suffrage. He was a fine orator, and a man of great courage and principle. He published *The War of Ormuzd and Ahriman* in the *Nineteenth Century*, (1853). A memorial volume of his speeches and addresses, with a sketch of his life and services, was published by Hon. J. A. J. Cresswell (1867).

DAVIS, JEFFERSON C., born in Clark county, Ind., March 2, 1828; died November 30, 1879. He fought in the Mexican war and received a commission in the regular army. In April, 1861, he was at Fort Sumter, and later commanded a division in Tennessee. In September, 1862, he shot Gen. William Nelson at a hotel in Louisville. He was with Sherman's army in the march to the sea, and in 1865 received a major-general's brevet and became colonel of the 23d infantry. In 1873 he hunted down the Modocs who killed General Canby.

DAVIS, JOHN CHANDLER BANCROFT, born in Worcester, Mass., December 29, 1822; acted as agent for the United States before the Geneva court of arbitration. In 1869 and again in 1873, he was assistant secretary of state, and in 1871 secretary of the commission which signed the treaty of Washington. He was next minister to Berlin (1872-1877), then judge of the Court of Claims (1877-1882), and later became reporter of the United States Supreme Court.

DAVIS, NATHAN SMITH, born in Chenango county, N. Y., January 9, 1817; removed to Chicago in 1849, and for fifty years has practiced medicine. He edited at various times the *Annalist*, the *Medical Examiner*, the *Northwestern Journal*, and the *Journal of the American Medical Association*. Doctor Davis held the chair of physiology in Rush Medical college and became dean of the faculty of Chicago Medical college. He has written extensively on medical subjects.

DAVIS, NOAH, born at Haverhill, N. H., September 10, 1818, was elected justice of the New York Supreme Court in 1857. He resigned in 1868 and served one term in congress as a Republican. In July, 1870, he became United States district-attorney for the southern district of New York; and in 1872 was again elected to the State Supreme Court of which he became presiding justice in 1874. Among the cases which he tried were those of Tweed for malfeasance in office, and Edward Stokes for the murder of Jim Fiske. Judge Davis retired in 1887. Died March 20, 1902.

DAVIS, REBECCA HARDING, born in Pennsylvania, June 24, 1831; married L. Clark Davis in 1863. She has written several novels and many magazine articles, and in 1869 became an editorial writer on the *New York Tribune*.

DAVITT, MICHAEL, born in 1846 in county Mayo, Ireland, of poor parents, worked in a factory and printing office, and in 1866 became connected with the Fenian movement. In 1870 he was sentenced to fifteen years' imprisonment for treason-felony, but was released on ticket-of-leave in 1878. The next year he founded, in conjunction with Charles S. Parnell, the Irish land league. He made a tour of the United States on behalf of that organization in 1880, and on his return to Eng-



md was again arrested on his old sentence, and held in prison for fifteen months. On the day of his release, May 6, 1882, Lord Frederick Cavendish and Mr. Burke were assassinated at Dublin. Mr. Davitt, with Messrs. Parnell and Dillon, issued a manifesto condemning the murders. While he was in prison, he was elected a member of parliament, but was not permitted to take his seat. He gains his living by literary work, and is actively engaged in the cause of Irish nationalism. In 1892 he was elected to parliament, but was obliged to vacate his seat in 1893 because of bankruptcy proceedings taken against him.

DAWES, HENRY LAURENS, born in Massachusetts, October 30, 1816; graduated at Yale in 1839. He became a lawyer and served in both branches of the State legislature between 1848 and 1852, and was district attorney from 1853 to 1857. In the last-named year he was elected to congress as a Republican, and held the office by successive reelections until 1873. In 1875 he succeeded Charles Sumner in the Senate, where he served until March 4, 1893.

DAWSON, SIR JOHN WILLIAM, geologist, born in Pictou, Nova Scotia, October 13, 1820. He studied in the university of Edinburgh, and on his return home devoted himself to the study of natural history and the geology of New Brunswick and Nova Scotia. In 1842, and again in 1852 he accompanied Sir Charles Lyell in his explorations of Nova Scotia. Since 1843 he has contributed largely to the *Proceedings* of the London Geological society and other scientific periodicals. In 1850 he was appointed superintendent of education for Nova Scotia, and in 1855 became principal of McGill university at Montreal, of which he is now vice-chancellor. Since then he has contributed largely to many serial publications in Canada, Great Britain and the United States. In 1882 he received the Lyell medal of the Geological society of London, and was created companion of the Order of St. Michael and St. George, became president of the Royal society of Canada, and also president of the American association for the advancement of science. In 1883 he traveled in Egypt and Syria. He received the degree of LL.D. from the university of Edinburgh, was knighted in 1884, and in 1885 elected president of the British Association for the advancement of science. His publications embrace: *Hand-Book of Geography and Natural History of Nova Scotia*; *Acadian Geology* (1855); *Archæa, or Studies of Creation in Genesis* (1859); *Air Breathers of the Coal Period*; *Notes on the Post-Pliocene of Canada* (1873); *The Story of the Earth and Man* (New York, 1873); *Science and the Bible* (1875); *The Dawn of Life* (1875); *The Origin of the World* (1877); *Fossil Men and their Modern Representatives* (1878); *The Change of Life in Geological Time* (1880); *Chain of Life* (1884); *Egypt and Syria* (1885). Besides these he wrote numerous reports on natural science. Died Nov. 19, 1899.

DAYTON, WILLIAM LEWIS, born in New Jersey, February 17, 1807; died December 1, 1864. He graduated at Princeton in 1825; studied law and began practice in Trenton, N. J., in 1830. After serving in the State Council, and as associate judge of the State Supreme Court, he was appointed to the United States Senate in 1842 to fill a vacancy, and was reelected in 1845. He acted with the Whig party until the foundation of the National Republican party. In 1856 he was nominated for vice-president on the ticket with John C. Fremont. In 1857 he became attorney-general of New Jersey, and in 1861, was appointed minister to France, which office he held until his death.

DEANCE, SILAS, diplomatist, born in Groton, Conn., December 24, 1737; died in Deal, England,

August 23, 1789. After graduation at Yale, in 1758, he became a merchant in Wethersfield, Conn. In 1768 he was elected to the legislature, and in 1774 to the Continental congress. He bought the first vessel for the American navy, and in 1776 was sent to France as a commercial and political agent, and shipped military stores to this country. Having induced several officers to come to America, by promising them high places in the army, and exceeding his instructions in other ways, he was recalled by congress, November 21, 1777. He was accused of extravagance and embezzlement of the public funds by Arthur Lee, but Franklin supported his honesty, and he was defended by Robert Morris. In 1779 he was discharged from congress, and published a letter attacking his opponents, to which Lee replied in 1780. He then went to France, but private letters accusing the French Government of duplicity and intrigue were published by Rivington (New York, 1781), and he was obliged to flee to the Netherlands. Finally he went to England, where he died in poverty. His heirs presented a claim to congress in 1835, which was not settled until 1842, when they received a large sum of money. Mr. Deane published *An Address to the Free and Independent Citizens of the United States* (Hartford, 1784); and his *Narrative* was issued in 1855. His official letters are included in *Sparks' Diplomatic Correspondence of the American Revolution* (vol. 1).

DEARBORN, HENRY, general, born in Hampton, N. H., in March, 1751; died in Roxbury, Mass., June 6, 1829. He studied medicine, and was practicing in Portsmouth, N. H., at the time of the battle of Lexington, when he marched to Cambridge with sixty volunteers, arriving there April 24, 1775. He served in Colonel Stark's regiment, took part in the battle of Bunker Hill, and accompanied Arnold to Quebec, where he was captured December 31, 1775. He was released on parole in May, 1776, and exchanged in March, 1777. Mr. Dearborn served in General Gates' army; took part in the battle of Monmouth, June 28, 1778; served in Sullivan's expedition against the Indians in 1779; was with the army in New Jersey in 1780; and accompanied General Washington to Yorktown in 1781. After the war Washington appointed him marshal of the district of Maine. In 1793, he was elected to congress, and served two terms. He was secretary of war from 1801 till 1809, when he was made collector of the port of Boston. In 1812 he was made senior major-general of the United States army, and having command of the department of the North, he intended to invade Canada. This plan was not realized and he accepted the offer of an armistice made by Sir George Prevost, and rejected by President Madison. In 1813 he went with his army to Canada and captured York (now Toronto), and transporting his force to the mouth of the Niagara, took Fort George. In July, 1813, General Dearborn was placed in command of the military district of New York city, which post he resigned in 1815, and from 1822 till 1824 he was minister to Portugal.

DE BAR, BENEDICT, actor, born in London, England, November 5, 1812; died in St. Louis, Mo., August 14, 1877. He began his stage career at Margate, England, in 1832, and in 1834 came to the United States, spending twenty years in making tours and managing theaters in New York, St. Louis and New Orleans. In 1855 he became proprietor of the St. Louis theater. A successful manager, as an actor, his ability was only moderate. "Falstaff" was his best role.

DE BOW, JAMES DUNWOODY BROWNSON, editor, born in Charleston, S. C., July 10, 1820; died in Elizabeth, N. J., February 27, 1867. In 1845 he



was secretary of the Memphis, Tenn., convention to promote southern interests, professor of political economy in the university of Louisiana in 1848, and in 1853 superintendent of the United States census. After the civil war he was president of the Tennessee and Pacific railroad, and removed his *Commercial Review* from New Orleans to Nashville.

DEBS, EUGENE V., president of the American Railway Union, was born in Terre Haute, Ind., in 1855, and educated in the public schools, and when 16 years old began work as a painter and railroad fireman. When 26 years old he was chosen a member of the State Legislature, where he secured the passage of several laws in the interest of labor. He was grand secretary and treasurer of the Brotherhood of Locomotive Firemen for fourteen years. Always an earnest advocate of a federation of railway men, the United Order of Railway Employés was formed through his efforts and the American Railway Union was organized by him in Chicago, June 20, 1893. It prospered until it became the largest body of railway men in the world, and won a victory in its strike against the Great Northern railway.

In July, 1894, the American Railway Union, under Debs' guidance, espoused the cause of the Pullman Palace Car Company's workmen in their strike for higher wages, and after failing to secure arbitration, ordered a boycott of the Pullman cars, which precipitated a great railroad strike, with Chicago as a storm center. Cars were burned and trains stopped by strike sympathizers until President Cleveland declared martial law, when traffic was gradually resumed with new men and the strike called off. President Debs and his fellow directors of the A. R. U. were indicted for conspiracy, and sentenced to six months in jail by Judge Woods, of the U. S. circuit court, for contempt of court in violating an injunction, but released shortly by the United States supreme court in the contempt proceeding, on writs of habeas corpus.

DECANOLLE, ALPHONSE LOUIS PIERRE PYRAMUS, a Swiss botanist, born in 1806; became professor of botany in the Academy of Geneva in 1831, and was elected president of the International Botanical Congress of London in 1866, and of Paris in 1867. He has published many botanical works. Died April 9, 1893.

DECATUR, STEPHEN, naval officer, born in Sinneux, Md., January 5, 1779; died in Washington, D. C., March 22, 1820. He was the son of Capt. Stephen Decatur (1751-1808), and entered the navy as a midshipman in 1798. In November, 1803, at Tripoli, he destroyed the captured frigate *Philadelphia*, for which exploit he was promoted captain, and in 1812, while commander of the frigate *United States*, he captured the British frigate *Macedonian*, after an engagement of an hour and a half, for which service congress gave him a gold medal. On his way to sea through Long Island Sound, in 1813, Decatur's vessel was blockaded by the British fleet, and he was driven into New London, where he was shut in for a year. During this time Decatur declared that people on the shore gave signals to the enemy by burning blue lights, and this circumstance gave rise to the name "Blue Lights" for the political opponents of America's course.

In 1814 he was transferred to the command of a squadron to sail from New York to the East Indies. He started January 15, 1815, in the *President*, of forty-four guns. His vessel was grounded, and he was espied by the blockading squadron, which chased him for fifty miles, and a severe engagement ensued. The *President* was forced to surrender, and was taken to Bermuda. Decatur was paroled, and, returning to the United States, was honorably acquitted. In May, 1815, he

was sent with a squadron of nine vessels to the Mediterranean, where he captured an Algerine frigate June 17, 1815. On June 28, he captured a second vessel, and anchoring his squadron in the harbor of Algiers, compelled the Dey to negotiate a treaty, and to restore all prisoners and property that had been captured by the Algerines. He then entered Tunis and Tripoli, forced the release of the American prisoners, and obtained satisfaction for past offenses. Returning to the United States, he was made a naval commissioner, and resided in Washington. His death was caused by a wound received in a duel with Commodore Barron, near Bladensburg, D. C.

DE HAAS, MAURICE FREDERICK HENDRICK, painter, born in Rotterdam, Holland, December 12, 1832. He studied at the Academy of Fine Arts; in 1857 was made artist of the Holland navy, and in 1859 became located in New York city. In Europe his productions were mainly marine views of the English channel and the French coast. His best known American work is, *Farragut Passing the Forts*. He became an academician of the national academy in 1867, and was one of the original members of the American society of painters in water colors. Among his other noted productions are: *Long Island Sound by Moonlight*, the *Rapids above Niagara*, etc. Died Nov. 23, 1895.

DE KOVEN, JAMES, born in Connecticut, September, 19, 1831; died March 19, 1879. He was ordained in the Protestant Episcopal Church, in 1855, and became Warden of Racine college, Wis., in 1859. In 1875 he was elected bishop of Illinois, but owing to his extreme high church views the diocese refused to confirm the appointment.

DE LANCEY, JAMES, chief justice, born in New York city, November 27, 1703; died there July 30, 1760. He was graduated at Cambridge (England), and studied law in London. In 1725 he returned to New York city, where, in 1729, he became a member of the council, and in 1731 second judge of the Supreme Court. In 1730 he framed the Montgomery charter of the city, and was presented with the freedom of New York in acknowledgment of his services. In 1733 he succeeded to the chief judgeship, which he retained throughout life. In October, 1753, he became lieutenant-governor of New York, and on June 19th, 1754, presided over the first congress convened in the country, held to conciliate the Indians. In May, 1755, he granted the charter of King's (now Columbia) college, and was one of the council of governors who met at Alexandria, Va., to act against the encroachments of the French. When Governor Hardy arrived in September, 1755, the lieutenant-governor resumed his functions on the bench. Two years later Governor Hardy sailed in command of an expedition against Louisburg, leaving Judge De Lancey again governor of the province.

DELANO, COLUMBUS, born in Shoreham, Vt., June 5, 1809; removed to Ohio in 1817, practiced law, and was elected to congress in 1844 and again in 1864 and 1866. From 1870 to 1875 he was secretary of the interior. Died Oct. 23, 1896.

DELAWARE, THOMAS WEST, LORD, became governor of Virginia in 1609, and died at sea in 1618.

DE LA RAMEE, LOUISA, known to the literary world as "Ouida," was born in England in 1840. Of her novels, which, though full of incident, are disfigured by extravagance of language, the most popular are: *Strathmore*, *Chandos*, *Under Two Flags*, *Puck*, *Folle Farine*, *Tricotrin*, *Moths*, *Pascarel* and *Two Little Wooden Shoes*.

DE LONG, GEORGE WASHINGTON, explorer, born in New York city, August 22, 1844; died in Siberia,



Russia, October 30, 1881. He was educated in the public schools at Brooklyn. In 1861 he was appointed midshipman at the United States naval academy, was graduated in 1865, became master, March 12, 1868, and lieutenant commander, November 1, 1879. In 1879 James Gordon Bennett, Jr., purchased the *Jeannette*, a steam vessel that had been built for polar exploration, and had her strengthened and fitted for a three years' Arctic voyage by way of Behring Strait, under the authority of government. On July 8th this vessel sailed from San Francisco with Lieutenant De Long as commander, assisted by four more officers of the navy and twenty-eight others. The vessel touched at various points northward, including St. Lawrence bay, and proceeded to Cape Serdze Kamen, Siberia, in quest of Nordenskjoeld, but the Swedes had departed before she reached there. On September 5, 1879, the *Jeannette* was surrounded by ice in latitude 71° 35' N., 75° W. Drifting more than 600 miles towards the northwest, she was crushed in 77° 15' N., 155° E., June 13, 1881, leaving De Long and his men 150 miles distant from the Siberian islands, and much farther from the Siberian mainland. De Long and his party then directed their course southward alternately by sledge and boat, reaching in succession Bennett island and Thaddeus' island, the latter on August 20, 1881. From there they set out in three boats commanded by De Long, Lieutenant Chipp and Chief Engineer Melville. Chipp's boat was swamped in a gale with its eight voyagers; Melville's with ten passengers, entered one of the branches of Lena river and reached a small hamlet; De Long, with fourteen others, entered the Lena on September 17, 1881. Here the accumulation of ice compelled De Long to abandon navigation, and, with some helpless men, to proceed gradually up the river, leaving the boat behind. On October 9th they came to a halt. Two men were sent forward for relief; but the others died from cold and starvation within twenty-five miles of a Russian settlement. The two men sent forward met some natives on October 22d, and the members of Melville's party on October 29th. De Long's diary shows that he was yet alive on October 30th. Melville engaged in searches for the lost party, at first without success; but on March 23, 1882, found the frozen bodies and the records of the expedition. The remains were brought to New York for burial. This ill-fated expedition resulted in a number of discoveries that will prove of benefit to future polar voyagers.

DELSARTE, FRANÇOIS ALEXANDRE NICOLAS CHÉRI, a famous French singer and teacher of elocution, born in France, 1811, died at Paris, July 19, 1871. He published works on voice-culture and a number of novels. His name is given to a system of instruction in graceful carriage much talked of in America.

DENNIE, JOSEPH, journalist, born in Boston, Mass., August 30, 1768; died in Philadelphia, Penn., January 7, 1812. After graduation at Harvard in 1790, he studied law, and was admitted to the bar. He contributed to newspapers, and removed in 1795 to Walpole, N. H., where he established *The Farmers' Weekly Museum*. Moving to Philadelphia he became editor of the *United States Gazette*, and established the *Port Folio*, a weekly, and afterward a monthly magazine to which many famous writers contributed.

DEPEW, CHAUNCEY MITCHELL, lawyer, born in Peekskill, N. Y., April 23, 1834. He was graduated at Yale in 1856, studied law, and in a few years was admitted to practice. In 1861-2, he was a member of the New York Assembly. In 1860 he canvassed the State of New York for Abraham Lincoln, for president, and in 1863 was elected secretary of state. Later he held other offices, but resigned them to engage in his profession. In 1866, Mr. Depew became attorney for the

Harlem railroad company, and, in 1869, became counsel for the consolidated New York Central & Hudson River railroad company. In 1872, he was defeated as a candidate for lieutenant-governor of New York State; in 1874 the Legislature appointed him regent of the State university. In 1882, Mr. Depew became second vice-president of the New York Central & Hudson River railroad company, and in June, 1885, was elected president of this road and of the West Shore railroad company. He is president of the Union League Club and the Yale Alumni Association of New York city, and is famous as an orator and after dinner speaker. Volumes of his speeches have been published.

DEPRETIS, AGOSTINO, born in Piedmont, Italy, in 1811; became a lawyer and writer for Liberal newspapers, and in 1849 civil governor of Brescia. He became pro-dictator of Sicily in 1861; and in 1862, entered Ratazzi's cabinet. In 1866 he was minister of marine and minister of finance, and after the death of Ratazzi led the opposition in the chamber. In 1876-77, and again in 1879-81, he held cabinet offices, and in May, 1881, became premier of Italy. He died in 1887.

DERBY, HENRY SMITH STANLEY, fifteenth earl of Derby, born July 21, 1826; was educated at Cambridge, where he took a first-class in classics in 1848. From 1849 to 1869 he sat in the House of Commons as Lord Stanley, and during the second and third administrations of his father (Earl Derby) was secretary for India (1858-59), and secretary for foreign affairs (1866-68). In February, 1874, he became foreign minister in the Disraeli cabinet; but resigned in March, 1878, when Disraeli seized Cyprus. He abandoned the Tory party in March, 1880, and was colonial secretary under Mr. Gladstone, from December, 1882, to July, 1885. In 1886 he went over to the Liberal Unionists in opposition to Gladstone's Irish policy. He died April 21, 1893.

DEROULÉDE, PAUL, poet, born in Paris, September 2, 1848; has written several plays and patriotic songs. He is the chairman of the so-called Patriotic League, detests Germany, and preaches *la revanche* in season and out of season.

DERVISH, PASHA, born at Constantinople in 1817; has distinguished himself, both in war and diplomacy, and was the first of Turkish statesmen. Died June, 1896.

DE SMET, PETER JOHN, missionary, born in Termonde, Belgium, December 31, 1801; died in St. Louis, Mo., in May, 1872. In 1821, together with five other theological students, he sailed from Amsterdam in company with Bishop Verinx. In 1828 he went to St. Louis, assisted in establishing the university of St. Louis, and in 1838 was sent to establish a mission among the Potawatomies. Under his direction a chapel was built, a school-house erected, and most of the tribe converted to Roman Catholicism. On April 30, 1840, he attached himself to the yearly caravan of the American Fur Company to proceed as missionary among the Flat Head Indians, of the Rocky mountains. In 1841 he returned to St. Louis, but soon set out anew for Indian conversions, taking with him two other missionaries and several lay brothers, who were expert mechanics. After crossing the Platte river, on September 24th, the party reached Bitter Root river, where they made a settlement, and the Mission of St. Mary's was organized by the building of a house and chapel.

In December, 1843, he, together with five Jesuits and six sisters, left Antwerp, and reached Fort Vancouver in August, 1844, and located themselves on the Willamette river. In October, 1844, a convent was built for the women, and in 1845 a number of French missions were established among various tribes of Indians. On different occasions he efficiently interceded to prevent



strife between the United States Government and the Indians. He was also instrumental in ending the Sioux war.

DESSALINES, JEAN JACQUES, "emperor" of Hayti, born at Guinea, Africa, in 1758; died in Hayti, October 17, 1806. As a boy he was brought to Cape Haytien, and bought by a French planter, whose name he assumed. He united with the insurgent slaves in 1791, and became adjutant-general of the negro commander, Jean François. When Toussaint l'Ouverture joined the French, Dessalines sided with him. He soon attained the rank of lieutenant-general, and fought the mulatto chief, Rigaud, with success, and his name spread terror among the mulattoes of the island because of the barbarities committed against them by his direction. It was not long before he became dissolute in his habits and perpetrated extensive confiscations to his own advantage. In 1802 the French general, Leclerc, was sent to operate against him, which led to a prolonged guerilla warfare. Peace being established by his eventual submission to the French forces, he was made governor of the southern part of the island, and affected zeal for the cause of France, by treating the vanquished negroes with his customary cruelty. When the yellow fever prevailed in the French army and General Leclerc was among its victims, Dessalines again headed the negroes in a general uprising.

A war of extermination between the white and black races followed, in which enormous barbarities were perpetrated on both sides. In 1803 the French were compelled to quit the island. On January 1, 1804, Dessalines became governor-general of Hayti for life. Soon afterward he ordered a massacre of all the white residents, who had remained under promised protection. Later, in the same year, he attempted to conquer a part of the Spanish settlement of the island. October 8, 1804, he was crowned emperor of Hayti, as Jean Jacques I. With the acquisition of greater power his vices and enormities increased, so as to cause an insurrection. In 1806, during a conflict with the insurgents, Dessalines was assassinated by two of his own officers, Christophe (*q. v.*) and Pétion. He was a wild savage, endowed with shrewdness and intuitively good judgment.

DEVENS, CHARLES, born in Charlestown, Mass., April 4, 1820; graduated at Harvard in 1838; and became a lawyer. He was in the State Senate in 1848-49; and was United States marshal of Massachusetts 1849-53. He served in the Civil war, and was wounded at Ball's Bluff, Fair Oaks and Chancellorsville. He was brevetted major-general after the capture of Richmond. In 1867 he became a Superior Court justice in Massachusetts, and in 1873 justice of the State Supreme Court. In 1877 he became attorney-general of the United States, and in 1881 one of the Supreme Court justices of Massachusetts. He died in 1891.

DEVONSHIRE, WILLIAM CAVENDISH, DUKE OF, born April 27, 1808; graduated as second wrangler and Smith's prizeman at Cambridge in 1829. He was chancellor of the university of London from 1836 to 1856, and became chancellor of the university of Cambridge in 1862. In politics he was a moderate Liberal. He died in December, 1891, and was succeeded by his son, long known in public as the Marquis of Hartington (*q. v.*)

DEWEY, ORVILLE, Unitarian minister, born in Sheffield, Mass., March 28, 1794; died in Sheffield, Mass., March 21, 1882. He was graduated at Williams College in 1814. He studied in the theological seminary at Andover, finishing his course in 1819. He was an agent for the American Education Society, afterward took charge of a church in Gloucester, Mass. He became a Unitarian in 1821, and was Doctor Channing's assistant in Boston. On December

17, 1823, he was ordained pastor of a Unitarian church in New Bedford, Mass., and while there he contributed to the *Christian Examiner* and the *North American Review*. He went to Europe, in 1833, for his health, and spent two years there. He came back and was called to the church of the Messiah, in New York, but was compelled to travel again in 1842. After two years he returned to his church, but resigned in 1848, and removed to a farm in Sheffield. He took charge of Unitarian churches in Albany and Washington, and was pastor of a church in Boston from 1858 to 1862. He afterward retired to his home in Sheffield.

DHULEEP SINGH, MAHARAJAH OF THE PUNJAB, born in 1838; son of the famous Runjeet Singh, to whose title he succeeded when an infant. The English Government deprived him of all power, but made him a large allowance, and he became naturalized in England and professed Christianity. In 1885 he quarreled with the English Government, which he alleged had robbed him of the Koh-i-noor and other valuables. He started for India, but was taken from the ship at Aden, and went to Russia, where he received a pension from the czar. He repudiated Christianity, proclaimed his hatred of England, and made efforts through the vernacular press to stir up his former subjects against the British Government. He died in Paris October 23, 1893.

DIAZ, PORFIRIO, Mexican general, born at Oaxaca, September 15, 1830. He was of humble origin, and first became known when Maximilian occupied Mexico in 1866. In 1867 he marched to Puebla at the head of a Republican army, and took the city by storm, April 5, 1867, and afterward aided in the capture of the city of Mexico. He aspired to the presidency in 1871, as a rival to Juárez, after whose death, in July, 1872, Diaz led a military insurrection. He was forced to yield to Lerdo de Tejada, the chief justice, who was subsequently elected president. Diaz rebelled again, and seized the city of Matamoras. Afterward he drove Lerdo from the country, and was proclaimed president by congress, serving from May 5, 1877, till November 30, 1880. During his term the tariff was revised, finances were improved, and important lines of railway established. He was succeeded by Gen. Manuel Gonzalez, and became minister of public works. In 1881 he was made governor of the province of Oaxaca. He was again elected president in 1884, and reelected in 1888, in 1892, and again in 1900.

DICKINSON, ANNA ELIZABETH, orator, was born in Philadelphia, Penn., October 28, 1842. Her parents were Quakers, and she was educated in the free schools of that denomination. In 1857 she made her first venture as a speaker before the members of a society of "Progressive Friends," who were interested in the anti-slavery movement. She also became an ardent advocate of temperance, and spoke at many temperance meetings. In 1859-60 she taught school in Berks county, Penn., and in 1861, for about nine months, was employed at the United States mint, in Philadelphia. After that time she lectured in public, on political questions, before the people in different parts of her native State. This she did with so much acceptance that, in 1862, she was invited to deliver an oration at Music Hall, in Boston, under the auspices of the prominent leaders in New England of the anti-slavery cause. From there she went to New Hampshire and Connecticut, speaking in the interest of the Republican party, and later she drew large attendances in Cooper Union, New York city, and at the Academy of Music, Philadelphia, under the patronage of the Union League clubs of the two cities. In the autumn of 1863 Miss Dickinson turned her attention to electioneering in the Pennsylvania coal regions, in favor of



Governor Curtin, and on January 16, 1864, she spoke in the capitol at Washington, on the issues of the civil war. She also addressed the soldiers in camps and hospitals on many occasions, in a way that stirred them to increased patriotism. After the close of the war she appeared mostly as a lecturer on the platform of literary societies. Among her addresses were *Woman's Work and Wages*, *Whitened Sepulchers*, *Demagogues and Workingsmen*.

In 1876 Miss Dickinson found herself waning in attractiveness as a speaker, and having told all she had to say, determined to devote her attention to dramatic performances. She made her debut in a play of her own composition, entitled *A Crown of Thorns*, which was followed by personifications of several of Shakespeare's heroines. But her theatrical venture was unsuccessful, and after having given readings from her MS. play, *Aurelian*, and lecturing on *Platform and Stage*, she retired to private life. She wrote an unpublished play, *The American Girl*. Her publications are: *What Answer?* a novel (Boston, 1868); *A Paying Investment* (1876), and *A Ragged Register of People, Places, and Opinions*.

DICKINSON, DANIEL STEVENS, statesman, born in Goshen, Conn., September 11, 1800; died in New York city, April 12, 1886. He became qualified as a lawyer in 1828, and as such settled in Guilford. In 1831 he removed permanently to Binghamton. Here he soon became prominent as a Democratic politician, and in 1836 was chosen State senator. In 1842 he was nominated and chosen lieutenant-governor of New York. When his term expired in 1844, he was appointed to fill a vacancy in the United States Senate, and later the legislature elected him for the full term. In 1852 he was nominated collector of the port of New York, which office he declined. From 1861 until 1863 he was active on the stump in making addresses on the National side; in 1861, also, he was elected attorney-general of New York State by 100,000 majority. Later he became district-attorney for the southern district of New York.

DICKINSON, DON M., was born at Port Ontario, Oswego county, N. Y., January 17, 1846, of New England parents, who removed to Michigan when the boy was two years old. He was educated in the public schools of Detroit and at the University of Michigan, and was admitted to the bar in 1867. In 1872 he entered the political field as secretary of the Democratic State central committee of Michigan and in the Tilden campaign he acted as chairman of that body. Subsequently he represented his State on the National Democratic committee and in 1886 he was appointed Postmaster-General by President Cleveland. On the expiration of his term he resumed the practice of law in Detroit.

DICKINSON, JOHN, statesman, born in Talbot county, Md., November 13, 1732; died in Wilmington, Del., February 14, 1808. His father, Samuel, was a member of the Society of Friends, and chief-justice of Delaware. The son studied law in Philadelphia and at the Temple, London, Eng., and practiced his profession in Philadelphia. In 1763 he was elected to the assembly, where he opposed the petition in parliament asking that Pennsylvania should be changed to a royal province. In 1798 he published his famous "Letters to the inhabitants of the British colonies, by a Pennsylvania farmer," showing that parliament had no right to tax the colonies, and to him is due the phrase "No taxation without representation." Dickinson's influence was especially felt in the first Continental congress, to which he was a delegate. He drew up the "Petition to the King," the "Declaration to the Armies," and the "Address to the States." He was also a member of the committee to draft the

Declaration of Independence. He entered the army as a private, and after serving in New Jersey for a time, was made a brigadier-general. His house and property were destroyed by the British after the battle of Germantown, October 4, 1777. In 1779 he was elected to congress from Delaware, and in his "Address to the States" roused the people to exertion. In 1780 he was made a member of the assembly of Delaware, and was afterward president of that body. In 1782 he was made president of the supreme executive council of Pennsylvania, and for his liberal and untiring exertion in founding the college in Carlisle, Penn., this institution was named Dickinson College, of which he was president until his death. In 1785 he settled in Wilmington, Del. In 1786 he was president of a convention of delegates from five States, which met at Annapolis to devise a uniform system of commercial relations between the States. In 1787 he was a member of the convention which framed the constitution of the United States, and he set forth in the nine letters under the signature "Fabius" the plans of the proposed bond of union. In 1792 he was one of the convention that revised the constitution of Delaware, and in 1797, when the feeling was excited by the condition of the French republic, he published another series of letters signed "Fabius," testifying the sympathy of America in the struggle of France. His political writings were collected and published (1801).

DIESKAU, JOHN ERDMAN, BARON, soldier, born in Saxony, 1701; died in Surene, France, September 8, 1767. He was an officer in the army of Marshal Saxe, by whom he was sent on a mission to St. Petersburg, in 1741. He served for a time in Holland, in 1748 was made brigadier-general in the French army, and commanded at Brest. In 1755 he was elevated to the rank of major-general, and on February 25th of that year went to Canada at the head of French reinforcements, to repel British aggressions. With about 1,000 men, half of whom were Indians, he entered Lake Champlain, for the purpose of attacking Fort Edward. On September 8th, a detachment of 1,000 men from New England, under Colonel Williams, was sent against him. He surprised and defeated them, but in the pursuit of the British the Indians halted, and Dieskau, with only about 200 regulars, was compelled to encounter the enemy. His men were all destroyed in this conflict, and the General himself was thrice wounded. Prepared to yield himself prisoner, after a brave defense, Dieskau was again seriously wounded by his captor. He was kept in confinement until he was exchanged, in 1763, when he was sent to France. He was pensioned by his government for meritorious services, and eventually died of his wounds.

DILKE, SIR CHARLES WENTWORTH, born in London, England, September 4, 1843; was educated at Trinity College, Cambridge, and called to the bar in 1866. He traveled in company with William Hepworth Dixon through the United States, and also visited Australia and India. In the following year he published *Greater Britain*, which met with great success. He entered the House of Commons as a Radical in 1868, and at that time held republican opinions, which he has since modified. He was reelected in 1874 and 1880, in May of the latter year became under-secretary for foreign affairs, and in 1882 was given a cabinet position under Mr. Gladstone. In 1885 he was again elected member for Chelsea, but became involved in a scandalous trial, resigned his seat and was defeated for reelection. He married Mrs. Mark Patteson in 1885 and reentered Parliament in 1892. He is the proprietor of the *Athenaeum* and of *Notes and Queries*, and wrote *The Fall of Prince Florestan*, and other papers.



**DILLON, JOHN**, born in Ireland in 1851; entered parliament in 1880 as a home ruler, has been twice imprisoned as a "suspect," and was considered as Mr. Parnell's chief lieutenant in the House of Commons.

**DINWIDDIE, ROBERT**, lieutenant-governor of Virginia, born in Scotland in 1690; died in Clifton, England, August 1, 1770. He began his career as a clerk to a collector of customs in the West Indies, and was appointed lieutenant-governor of Virginia in 1752, in reward for having exposed frauds committed by his employer. His first act was to divide the militia of his colony into four districts, one of which he gave to the command of Major George Washington, whom he sent to order the French, who were establishing military posts south of Lake Erie, to leave the British domain. He still further urged the Assembly of Virginia to unite in their efforts to prevent the encroachment of the French. After increasing the troops, he promoted Washington to be lieutenant-colonel, but Washington resigned when Dinwiddie resolved to place the new forces under royal officers, and to permit no native-born officer to take higher rank than that of captain. Washington acted as volunteer aide-de-camp on the arrival of General Braddock in 1754, and after that general's defeat, the defense of the colony fell upon him. He was much annoyed by Dinwiddie's lack of judgment. The governor had many disputes with the Assembly, and he was charged with embezzlement and avarice. He returned to England with great wealth in 1758.

**DITSON, OLIVER**, music publisher, born in Boston, Mass., October 20, 1811. He received a common school education in his native city, and early in life tended a book and music store. After a trial of ten years he became partner in the business, when it was restricted to musical publications; in 1844 Mr. Ditson came into entire possession. In 1856 the firm name became Oliver Ditson & Co.; in 1867 a branch of the house was established in New York city, and in 1876 another in Philadelphia. Mr. Ditson died December 21, 1888.

**DIX, JOHN ADAMS**, statesman and soldier, born in Boscawen, N. H., July 24, 1798; died in New York city, April 21, 1879. His father, Timothy Dix, was a lieutenant-colonel in the United States army. The son was educated at the college of the Sulpicians, Montreal, and at St. Mary's College, Baltimore, and, in March, 1813, was made ensign in the Fourteenth Infantry, being the youngest officer in the army. In March, 1814, he became third-lieutenant in the Twenty-first Infantry, and, in June, 1814, was transferred to the artillery. He was made first-lieutenant in 1816; aide-de-camp to General Brown in 1819; was transferred to the First, then to the Third Artillery in 1821; and appointed captain in 1825. In 1826 he resigned his commission, studied law, and was admitted to the bar in 1828. Mr. Dix was appointed secretary of state for New York in 1833; was elected to the State Assembly in 1842; and United States Senator in 1845; was assistant treasurer of the United States in 1853; postmaster of New York in 1859; and secretary of the treasury in Buchanan's cabinet in 1861. At the beginning of the civil war he entered the army and was immediately appointed brigadier-general and major-general of volunteers. After holding charge of the department of Maryland he was sent to Fortress Monroe in command of the Seventh Army Corps. In 1863 he was ordered to New York, where, in 1864-5, he aided in suppressing the riots caused by President Lincoln's order for the draft of troops. In 1866 General Dix was appointed minister to Paris; and, in 1872, was elected governor of New York. General Dix interested himself in schemes for general education, commercial law, and in

the exposure of city frauds. He edited a literary journal, *The Northern Light*; published various translations, including one of the hymn, *Dies Ira*, and was the author of *Speeches and Addresses, Winter in Madeira, and A Summer in Spain and Florence*. He was also an amateur violinist, and played many duets with Thomas Jefferson. General Dix was an active member of Trinity church, New York, of which his son, the Rev. Morgan Dix, became rector in 1852. See his biography by the Rev. Morgan Dix (New York, 1883).

**DIXON, WILLIAM HEPWORTH**, born in Yorkshire, England, June 30, 1821; died December 27, 1879. He contributed to London newspapers and magazines, and edited the *Athenaeum* from 1853 to 1869. He also wrote lives of John Howard, William Penn and Admiral Blake, and published *New America, New Russia, Spiritual Wives* and various historical and biographical works.

**DOANE, GEORGE WASHINGTON**, bishop, born in Trenton, N. J., May 27, 1799; died in Burlington, N. J., April 27, 1859. After graduating at Union College in 1818, he studied law and afterward theology. Bishop Hobart ordained him deacon in 1821, and he became assistant minister in Trinity church, New York. He was chosen professor of rhetoric and belles-lettres at Trinity College (then Washington) when it was founded in 1824. He went in 1828 as assistant minister to Trinity church in Boston, and became rector there in 1830. In October, 1832, he was consecrated bishop of New Jersey, and was rector of St. Mary's church. He established a school for young ladies in Burlington, 1837, called St. Mary's Hall, and he also established Burlington College in 1840. He went to Europe in 1841, and was the first American bishop to preach in England. A volume of his sermons was published in London the next year. He published in 1824, *Songs by the Way, Chiefly Devotional, with Translations and Imitations*. His son, Bishop Crosswell Doane, has written his father's life, and published his poetical works, sermons, and miscellaneous writings (5 vols., 1860).

**DOBSON, HENRY AUSTIN**, born in England, January 18, 1840, the most popular living writer of *vers de société*. He is of French extraction, and has written some French verses of merit.

**DODGE, AUGUSTUS CÆSAR**, born in Missouri, January 2, 1812; died in Burlington, Iowa, November 20, 1883. He was one of the first United States senators from Iowa, sitting from 1848 to February, 1855, and was minister to Spain 1855-59. In 1873 he became mayor of Burlington. He was a straight-out Democrat.

**DODGE, GRENVILLE MELLE**, born in Danvers, Mass., April 12, 1831; served with distinction in the Civil War, and in December, 1864, succeeded General Rosecrans in command of the Department of the Missouri. In 1866 he became chief engineer of the Union Pacific railroad, of which he has been many years a director. He served a term in congress from Iowa 1868-69.

**DODGE, HENRY**, born in Vincennes, Ind., October 12, 1782; died June 12, 1867. He fought in the Black Hawk war, and obtained a colonely in the regular army. In 1836 he was made governor of the Territory of Wisconsin, and later served two terms as delegate in congress. In 1846 he again became governor, and was United States senator from the State of Wisconsin from 1848 to March, 1857.

**DODGE, MARY MAPES**, born in New York city in 1838; has written extensively for the magazines, and in 1873 became editor of *St. Nicholas*, a magazine for children.



DOGGETT, DAVID SETH, born in Lancaster county, Va., January 23, 1810; died October 27, 1880. He became an itinerant Methodist preacher at the age of nineteen, and from 1840 to 1846 was professor in Randolph-Macon college, Virginia. From 1850 to 1856 he was editor of the *Southern Methodist Quarterly Review*, and in 1865 founded, in connection with Dr. John E. Edwards, the *Episcopal Methodist*. He was a member of the conference of 1844, when the Southern conferences separated from those of the North, being a leader on the Southern side. In 1866 he became a bishop of the M. E. Church, South, and held that office until his death.

DÖLLINGER, JOHANN JOSEPH IGNAZ VON, born at Bamberg, Bavaria, February 28, 1799; died January, 1890. He was the son of Ignaz Döllinger (1770-1841), the celebrated anatomist and physiologist. He received priestly orders in the Catholic church, and became professor of church history and canon law in the University of Munich. In 1845 he entered the Bavarian parliament, and four years later voted in the Frankfurt Diet for the separation of church and state. In 1861 he advocated the abandonment by the papacy of its temporal power, and in 1870 opposed the action of the Œcumenical Council in decreeing the infallibility of the Pope. In April, 1871, he was excommunicated by the archbishop of Munich, but his popularity with the students, the government, and the people remained unimpaired. He founded the "Old Catholic" movement, and presided over its congress. Doctor Döllinger wrote numerous historical and theological works, and contributed largely to periodical literature.

DONALDSON, WASHINGTON H., born in Philadelphia in 1840; supposed to have been drowned in Lake Michigan in July, 1875. He was a gymnast and tight-rope performer, and after 1871 became an aeronaut. He was cool and daring, but had no scientific knowledge of ærostation, and met with many accidents with his balloons. In July, 1875, he started from the Lake Front, Chicago, in a balloon with which he had made a short and successful ascent the previous day. He was then in the employ of P. T. Barnum, and the balloon ascensions were to advertise the circus. Two Chicago newspaper men, representing afternoon papers, got into the car, and the balloon went up a hundred feet or so and then settled down again. It was a leaky and badly-constructed affair, and had lost much gas from the preceding day. The reporters tossed up to see who should leave the car, as Donaldson said he could only take one man with him. Newton S. Grimwood, of the *Chicago Journal*, won the toss, and decided to go, while the other reporter, then connected with the *Chicago Post and Mail*, stepped out. The balloon floated away over the lake, and in an hour was out of sight. This was about 5 p. m.; a strong wind sprang up later, and by midnight a violent storm was blowing. Nothing was ever heard or seen of the balloon or of Donaldson, but on August 16th the decomposed body of Grimwood was found on the Michigan shore, and identified by papers on his person.

DONIPHAN, ALEXANDER WILLIAM, soldier, born in Mason county, Ky., July 9, 1808; died August 8, 1887. He was graduated at Augusta College in 1824, was admitted to the bar in 1830, and began to practice in Lexington, Missouri. In 1833 he removed to Liberty, Clay county. He was elected to the legislature in 1836, 1840, and 1854. In 1838, when the state militia was summoned out against the Mormons, he commanded the first brigade, and captured their prophet, Joseph Smith, who escaped, joined his band in Illinois, and afterward called Mr. Doniphan to act as his counsel. He was made colonel of a regiment of mounted veterans equipped for the Army of the West,

at the beginning of the war with Mexico in 1846. On his way thither Doniphan reduced the unruly Navajos to submission and routed the Mexicans at Chihuahua. After the war Mr. Doniphan resumed his profession in Liberty. He was a commissioner from Missouri to the Peace Convention in Washington, which endeavored to avert the civil war, in which he took no active part.

DONNELLY, IGNATIUS, born in Philadelphia, November 3, 1831, and studied law there. In 1857 he went to Minnesota, became lieutenant-governor in 1859, and congressman from December, 1863, to March, 1869, being elected as a Republican. He wrote *Atlantis* (1882) and *Ragnarok* (1883), and in a work called *The Great Cryptogram*, published in 1888, attempted to prove that Francis Bacon was the author of the plays commonly attributed to Shakespeare.

DONOP, KARL EMIL KURT VON, COUNT, soldier, born in Germany in 1740; died in New Jersey, October 25, 1777. He was in command of grenadiers and riflemen among the so-called "Hessian" troops employed by Great Britain in the war of the Revolution, and on August 27, 1776, became engaged in the battle of Long Island. In December, 1776, Donop was acting brigadier to General Howe. After the defeat of Colonel Rall, Donop retreated to Princeton, leaving behind him at Bordentown his stores and wounded. In October, 1777, General Howe ordered Donop to assault and capture Red Bank, if it could be done without much sacrifice, and on the 22d he attacked the fort at that place. Donop and his "Hessians" fought bravely, but they were repulsed, and Donop fell mortally wounded.

DOOLITTLE, JAMES ROOD, born in Washington County, N. Y., January 3, 1815; was admitted to the bar in 1837, and removed to Wisconsin in 1851. He became circuit judge in 1853 and from 1857 to 1869 was United States Senator. He has since practiced law in Chicago. In 1872 he presided at the Democratic Convention in Baltimore, which indorsed Horace Greeley for the presidency.

DORÉ, GUSTAVE, born at Strasburg, January 6, 1833; died January 23, 1883. In 1845 he went to Paris and became a contributor to the *Journal pour rire*. In his illustrations to *Rabelais*, the *Cortes Drolatiques*, and Eugene Sue's *Wandering Jew*, he first displayed his fantastic power of invention and wonderful faculty of execution. In 1861 he illustrated the *Inferno*, in 1863 *Don Quixote*, in 1864 *Il Purgatorio* and *Il Paradiso*, in 1865-66 the Bible and *Paradise Lost*, and in 1867-68 the *Idylls of the King* and *La Fontaine's Fables*. He was a tireless worker, and a whole gallery of his drawings and pictures was one of the sights of London. Doré tried his hand also at color-painting, but his forte did not lie in that direction. Still, his *Paola and Francesca da Rimini* and *The Neophyte* possessed some merit. Among his later works were, *Christ Leaving the Prætorium* and *Christ's Entry into Jerusalem*. Doré also gave some attention to sculpture, and exhibited a vase at the Paris Exposition Universelle in 1878.

DORSEY, STEPHEN W., born in Vermont, February 28, 1842; served during the Civil war, and engaged in business in Ohio. He went to Arkansas in the "carpet-bag" times, and sat as United States senator from that State from March, 1873, to March, 1879. He was secretary of the Republican National Committee in the Garfield campaign. A Washington, D. C., grand jury indicted him for improper use of his influence as a senator in connection with the "star route" contracts, but the first trial resulted in a disagreement, and on the second trial he was acquitted.

DORSHEIMER, WILLIAM, born in Lyons, N. Y., February 5, 1832; died March 26, 1888. He studied



law, served in the Civil war, and wrote a series of articles on the Missouri campaign for the *Atlantic Monthly*. From 1867 to 1871 he was United States district attorney for northern New York. From 1874 to 1880 he served as lieutenant-governor of New York, and in 1883-1884 served a term in congress. In July, 1885, President Cleveland appointed him United States district attorney for the southern district of New York. In the same year he became proprietor of the *New York Star*.

DOUGHERTY, DANIEL, born in Philadelphia, October 15, 1826; became a lawyer, and made many notable political speeches. He supported the Republican party during the war, but subsequently joined the Democrats, and nominated General Hancock in 1880, and Cleveland in 1888. He died September 5, 1892.

DOUGLASS, FREDERICK, orator, born in Tuckahoe, Md., in February, 1817. His mother was a mulatto slave, and his father a white man. At the age of nine years he was "hired out" by his master, and became the inmate of a household where he was taught to read and write. In 1832 he was purchased by a Baltimore shipbuilder, by whom he was at first employed as waiter on the workmen, and afterward became a ship caulker. In September, 1838, he made his escape from slavery and went to New Bedford, Mass., and in course of a year or two developed considerable ability as a public speaker. On the recommendation of William L. Garrison, the American anti-slavery society engaged him as one of their lecturers, and he soon attracted large audiences to hear his discourses of life under slavery. In 1845 he published *My Bondage and My Freedom*, which was republished in 1855, and enlarged in 1881. In 1859 he visited England, where his public addresses were well received. His friends there collected on his behalf about \$750, which was sent to his former master wherewith to secure his legal emancipation. Some years later Douglass went to Rochester, N. Y., where he established two weekly newspapers. In 1870 he published in Washington a newspaper, *The New National Era*, and in 1871 was appointed secretary of the commission, to Santo Domingo. In 1872 he was chosen a presidential elector from New York, and from 1877 to 1881 officiated as United States marshal for the District of Columbia. He was subsequently appointed commissioner of deeds for the District of Columbia. He was removed from this office in 1886, and soon afterward visited England. He married a white woman in 1884. In 1889 President Harrison appointed him minister to Hayti. He died in 1895.

DOW, NEAL, temperance reformer, born in Portland, Me., March 20, 1804. He is of Quaker parentage. In 1851, while a member of the State Legislature, he secured the passage of what is called the "Maine Law," which, under severe penalties, prohibits the sale of intoxicating liquors. In 1884 this provision was incorporated in the constitution of the State. He was twice chosen mayor of Portland, and during the Civil war served as brigadier-general of volunteers, holding at different times three separate commands. He was twice wounded and once taken prisoner. He resigned from the army in 1864. In 1880 he was the candidate of the National Prohibition party for president of the United States. Died Oct. 2, 1897.

DOWNING, ANDREW JACKSON, landscape gardener, born in Newburg, N. Y., October 31, 1815; drowned in the Hudson, July 28, 1852. He was educated at an academy in Montgomery, N. Y., which he left to aid his brother in the nursery garden established by their father, and he determined to be a landscape gardener. In 1838 he built a mansion which he considered the true style of a country home, and soon

became an authority on the embellishment of country places. In 1850 he visited England and wrote descriptions of its country seats, and on his return in 1851, he was appointed to lay out the public grounds of Washington. He was engaged in this work when he sailed from his home in Newburg in the steamer *Henry Clay*, which took fire, and he was drowned in his efforts to save other people. Mr. Downing published a *Treatise on the Theory and Practice of Landscape Gardening* (1841); *Cottage Residences* (1842); and *Fruits and Fruit Trees of America* (1845). He was also editor of the *Horticulturist*, a monthly magazine published in Albany, to which he contributed papers which were collected and issued as *Rural Essays* (1854).

DOYLE, SIR A. CONAN, the creator of "Sherlock Holmes," was born at Edinburgh in 1859, studied medicine there and practiced until 1890, when his success as a novelist led him to abandon his profession. He has published *The Adventures of Sherlock Holmes*, a series of powerful and remarkably vivid detective stories, which have been widely admired, several other volumes of short stories, *Micah Clarke*, *The White Company*, *The Refugees* (1893); and *A Story of Waterloo* (1894), a short play staged by Henry Irving. In 1894 Dr. Doyle lectured in the United States.

DRAKE, JOSEPH RODMAN, poet and physician, was born in New York city, August 7, 1795. His most inspiring poem, *The Culprit Fay*, was written in his twenty-second year. His best-known composition is the address to *The American Flag*, for which Halleck furnished the four concluding lines. For several years Doctor Drake kept a drug store in Park row, New York city. He died of consumption, Sept. 21, 1820.

DRAKE, SAMUEL GARDNER, antiquary, born in Pittsfield, N. H., October 11, 1798; died in Boston, Mass., June 14, 1875. He was educated at the public school, and at the age of twenty he became a public school teacher. He went to Boston, in 1825, and republished Captain Church's *Entertaining History of King Philip's War*. In 1828 he opened the first antiquarian bookstore in the United States. He was a founder of the New England Historical and Genealogical society, of which he was made president in 1858. He removed to London for two years, afterward returning to this country. He edited some New England works, and published many books of historical and antiquarian subjects, including an *Indian Biography* (1832); *Book of the Indians* (1833), often republished; *Old Indian Chronicles* (1836); *Indian Captivities* (1839); *Drake Family* (1845); *History and Antiquities of Boston* (1856); *Researches Among the British Archives* (1860); *Memoir of Sir Walter Raleigh* (1862); *Annals of Witchcraft in the United States* 1869; and the *History of the Five Years' French and Indian War* (1870).

DRAPER, JOHN WILLIAM, scientist, born in England, May 5, 1811; died in New York, January 4, 1882. He was educated by tutors, and studied chemistry under Doctor Turner, in the University of London. In 1836 he was graduated in medicine at the university of Virginia, and was made professor of chemistry in Hampden-Sidney College, Virginia. In 1839 he was appointed to the chair of chemistry in the university of New York. He contributed to numerous scientific periodicals in Europe and America, and received the Rumford medal from the American Academy of Science. He early gave his attention to the spectroscope, and made investigations on phosphorescence, and obtained phosphorescent photographs of the moon. In 1839 he succeeded in making photographs of the human face when it was regarded impracticable. He made many discoveries in chemistry, his experimental investigations always lead-



ing to the desired results. His works include: *On the Forces that Produce the Organization of Plants* (1844); *Physiology* (1856); *History of the Intellectual Development of Europe* (1862); *Thoughts of the Civil Policy of America* (1861-5); *A History of the American Civil War* (3 vols., 1866-8); *A History of the Conflict Between Science and Religion; Scientific Memoirs* (1878), and *Text-books on Chemistry and Natural Philosophy*.

DRAPER, HENRY, son of the foregoing, was born in Virginia, March 7, 1837; died in New York city, November 30, 1882. He made many discoveries in astronomy; notably, with regard to the solar spectrum, and was a member of the National Academy of Sciences, and of many scientific societies.

DREW, LOUISA, actress, born in London, England, January 10, 1820, was the daughter of an English actor named Lane. Her father died early, and in 1828 she came with her mother, a popular actress, to this country, where she played in New York and Philadelphia. In 1834 she played "Julia," in the *Hunchback* at Boston and in 1835 was engaged for high comedy parts at the New Orleans theater. In 1836 Miss Lane was married to Henry Hunt, an English operatic vocalist, from whom she was divorced in 1848, marrying George Mossop, an Irish comedian, and in 1849, on his death, she became Mrs. John Drew. After continuing her tours through the country for several years more, in company with her husband, in 1861 she assumed the sole management of the Arch Street theater in Philadelphia, which remained under her control until 1894. She was still occasionally seen on the stage at that time and rated one of the finest living performers of old ladies in standard comedies. Her "Mrs. Malaprop" is famous. JOHN, eldest son of Mrs. Drew, is a favorite actor in society roles, and after a novitiate in Augustin Daly's company began starring in 1891. Mrs. Drew died Aug. 31, 1897.

DREXEL, ANTHONY JOSEPH, head of the great banking firm of Drexel, Morgan & Co., of Philadelphia, New York, London, etc., was born in Philadelphia, in 1826, and died June 30, 1893. He founded the Drexel Institute of Art, Science, and Industry, in that city, to which he gave \$2,500,000.

DROUYN DE LHUYS, EDOUARD, born in France, November 19, 1805; died March 1, 1881. He was minister of foreign affairs in 1848, ambassador to England in 1849 after the *coup d'état*, vice president of the Senate, and in 1854, and from 1863 to 1866, foreign minister. After the empire fell he went into exile.

DRUMMOND, PROF. HENRY, was born at Stirling, and educated at the University of Edinburgh. He spent much time in mission work and was a lecturer in science at the Free Church college, Glasgow. His popularity as a writer became assured with the publication of his famous book, *Natural Law in the Spiritual World, Tropical Africa*, and other publications. During 1893 Professor Drummond lectured in America on "Evolution;" and the lectures were published in 1894 under the title, *The Ascent of Man*. Died Mar. 11, 1897.

DRUMMOND, THOMAS, lawyer and jurist, born in Lincoln county, Me., October 16, 1809; graduated at Bowdoin in 1830, became United States judge for the district of Illinois in 1860, judge of the northern district in 1865, and in 1869 judge of the United States Circuit Court. He died May 16, 1890.

DUBOIS, JOHN, bishop of New York, born in Paris, August 24, 1764; died in New York, December 20, 1842. In 1789 he was ordained and at the time of the French Revolution he sailed for Norfolk, Va. He was stationed at Norfolk, Richmond, and Frederick, Md., in 1806 erected a church in Frederick, and in 1809 founded Mt. St. Mary's college, which has sent forth thousands of

priests. Dr. Dubois was president of the college, pastor of the mountain congregations, and of the church in Emmitsburg, superior of St. Joseph academy, professor of Latin and French in Mt. St. Mary's college, and superintendent of the farm in connection with the college. He was the first superior of the Sisters of Charity in the United States, who were established at Emmitsburg under his protection. In 1826 he was appointed bishop of New York, being the second to hold this post. He was consecrated at Baltimore, October 29, 1826, and installed in St. Peter's Cathedral, New York, November 9, 1826, where he served until 1838.

DU BOIS, WILLIAM EWING, American writer and authority on numismatics and kindred subjects, was born in Doylestown, Pa., December 15, 1810, became assistant assayer of the United States mint at Philadelphia in 1836, and assayer in 1872. He wrote *A Manual of Gold and Silver Coins of all Nations* (1842-51), and *A Description of Ancient and Modern Coins* (1860), besides making the extensive numismatic collection of the mint. He died July 14, 1881.

DU BOISGOBEY, FORTUNE, born in France in 1824, has written many novels in the style of Gaboriau, such as *Le Crime de l'Omniibus*, and *Les Mysteries du Nouveau Paris*. Died Feb. 26, 1891.

DUBOIS-PIGALLE, PAUL, born in France, July 18, 1829, is one of the leading sculptors of that country. He is an officer of the Legion of Honor, keeper of the Luxembourg Museum, and director of the school of fine arts of Paris.

DUBOIS REYMOND, EMIL, physiologist, born in Berlin, November 7, 1818, and noted for his researches in animal electricity, which he began in 1841. In 1858 he was called to the chair of physiology at the University of Berlin and in 1867 was elected permanent secretary of the Academy of Sciences. Died Dec., 1896.

DU CAMP, MAXIME, traveler and author, born at Paris, February 8, 1822. He made travels in the east, wrote of them, and also wrote poems, romances, a valuable history of the commune, called *Les Convulsions de Paris*, and a great work on Paris and its institutions. He was an officer of the Legion of Honor and a member of the French Academy. He died Feb. 10, 1894.

DUCEY, THOMAS JAMES, well known and popular Catholic priest, was born in Lismore, Ireland, Feb. 4, 1843; came to New York in 1848 and was ordained priest in 1868. He fought and exposed the abuses of Tammany and founded a home for indigent sewing women in 1887.

DU CHAILLU, PAUL BELLONI, was born in Paris, France, July 31, 1835. His father was a trader on the west coast of Africa. At an early age the son went thither, and acquired a knowledge of the languages and character of the native tribes. In 1852 he came to the United States with a cargo of ebony wood, and here published a series of papers on the Gaboon country. In 1855 he returned to the "Dark Continent," and spent four years exploring the then unknown region lying two degrees on each side of the equator. During this time he shot and stuffed many birds and animals, among which were several gorillas, a monstrous ape, until then unknown to scientists. In 1859 he returned to New York city with his specimens and a collection of African weapons and implements, which were publicly exhibited, and eventually sold to various purchasers. An account of this enterprise was published under the title of *Explorations and Adventures in Equatorial Africa* (1861; revised in 1871). This book's extraordinary statements provoked doubt among scientists as to the author's exact truthfulness. To vindicate himself from severe aspersions Du Chaillu



visited Africa again in 1863, and returned in 1865. He published an account of this second expedition under the title *A Journey to Ashango Land* (1867). He then lived in the United States, where he lectured and published a series of books of adventure. Subsequently he traveled to Sweden, Norway, Lapland, and Finland, and published *The Land of the Midnight Sun* (1881), *The Viking Age* (1889) and *Ivar, the Viking* (1893).

DUCHE, JACOB, clergyman, born in Philadelphia, Pa., of French Huguenot descent, January 31, 1738; died there January 3, 1798. He graduated at the college of Philadelphia in 1757, studied theology in England, was ordained in 1759, made assistant-minister to Christ church, Philadelphia, professor of oratory in the college of Philadelphia, and in 1768 a trustee. During the Revolution he favored the colonists, and in 1774 opened the first session of the first Continental Congress. In 1775 he became rector of Christ church. In July, 1776, he was appointed chaplain of congress, but soon resigned, urged General Washington to abandon the cause of independence, and in December sailed to England. His property in Philadelphia was confiscated. He returned to Philadelphia in 1792, and became a follower of Swedenborg.

DUCLERC, CHARLES THÉODORE EUGÈNE, born in France, November 9, 1812, became a journalist in Paris, and in 1848 a member of the constituent assembly and minister of finance. In retirement during the empire, in 1871 he was elected to the National Assembly, acting with the Republican Left and in 1875 became vice-president, and life senator. In August, 1882, he became premier for six months. He died in 1888.

DUDLEY, JOSEPH, colonial governor of Massachusetts, born in Roxbury, Mass., September 23, 1647; died there April 2, 1720. In 1675 he helped negotiate a treaty with the Narragansett Indians. In 1682 he visited England on behalf of the colonists, in 1685 was appointed president of New England, and in 1687 chief justice of the Supreme Court. From 1690 to 1693 he was chief justice of New York, and governor of Massachusetts from 1702 to 1715.

DUFFERIN, FREDERICK TEMPLE HAMILTON BLACKWOOD, EARL OF, British statesman, born in Florence, Italy, June 24, 1826. He studied at Eton school, and from there was sent to Christ church, Oxford, where he took his degree. On July 21, 1841, he succeeded to his father's title, and for some years was a lord-in-waiting on the queen. In 1846-47, accompanied by a friend, he went to Ireland, at the time of the famine, and on his return published an account of his experiences. In February, 1855, he was attached to the Vienna mission under Lord John Russell, and in 1859 made a yacht voyage to Iceland. In 1860 he gave a printed account of this voyage in *Letters from High Latitudes*. In 1860 he became British commissioner in Syria, and served as under-secretary of state for India from 1864 until 1866, and later, for a short time, was under-secretary of war. From 1868 until 1872 he was chancellor of the Duchy of Lancaster, and at the end of the latter year was appointed governor-general of Canada. In 1876, accompanied by Lady Dufferin, he made a tour through British Columbia. He retired from the governorship of Canada in October, 1878. Since then he has received various degrees from American and British universities. In 1879 he was appointed ambassador at St. Petersburg, and in 1881 became transferred as ambassador to Constantinople. In 1884 he was sent to India as viceroy. Lord Dufferin was made an earl in 1871. He is the author of *Irish Emigration and the Tenure of Land in Ireland*; *Mr. Mill's Plan*

*for the Pacification of Ireland Examined*. In Dec., 1891, he was ambassador to France. Died Feb., 1902.

DUFFY, SIR CHARLES GAVAN, born in Ireland in 1816; joined the "Young Ireland" party and contributed the *Ballad Poetry of Ireland* to the *Nation* newspaper. He was convicted of sedition in 1844 along with Daniel O'Connell, but the conviction was quashed on appeal. In 1848 he was tried for treason-felony, but the government failed to secure a verdict. In July, 1852, he became a member of parliament, and in 1856 emigrated to Australia. He became minister of public works in Victoria, and in 1871, prime minister of that colony. In 1876 he reentered the provincial parliament, was knighted and became speaker. He returned to England in 1880 and published *Young Ireland* and other historical works.

DU LHUT, DANIEL GREYSLON, explorer, born in Lyons, France; died near Lake Superior in 1709. He was the younger son of a French nobleman, and made his way to Canada in quest of adventures and a fortune. Here he became the leader of a band of young Frenchmen who led a roving hunters' life, and under the protection of Frontenac became engaged in the fur-trade. To diversify their pursuits they traded, or fought, as occasion offered. Du Lhut made several voyages to France in the interest of the colonial minister. Returning, he built a trading-post on the north side of Lake Superior, where Fort William now stands. In September, 1678, he left Quebec, and in the year following visited three Sioux settlements; in June, 1670, he began to explore the Upper Mississippi river. At this time he encountered Father Hennepin and his followers, and continued for some time in their company. During his many adventures with the Indians Du Lhut displayed much sagacity and personal bravery. In 1695 he commanded at Fort Frontenac, and in 1697 was captain of infantry. In his last years he became crippled by gout.

DUMAS, ALEXANDRE, the younger, was born in Paris, July 28, 1824, and was educated at the College Bourbon. He was the son of Alexandre Davy Dumas, the author of *Monte Cristo* and the *Three Musketeers*, and the grandson of General Dumas, a distinguished officer of the First Empire. The younger Dumas was brought up among actors and literary people, and at an early age began to write poetry and sketches. His first important work, *La Dame aux Camélias*, was produced in 1852, has been dramatized, and forms the basis of Verdi's opera, *La Traviata*. M. Dumas' novels deal chiefly with the demi-monde, and are essentially "Frenchy," in the unpleasant meaning of that adjective. He wrote a number of bright comedies. He was installed as a member of the French Academy, February 11, 1875. He died November 27, 1895.

DU MAURIER, GEORGE, born at Paris in 1834, became well known by his cartoons in the London *Punch*, and famous in 1894 from his novel *Trilby*, a picture of artist life in the Latin Quarter and a study of hypnotism, which became the popular fad of the season in this country. He also wrote *Peter Ibbetson*, a novel, and is an associate of the Royal Society of painters in water colors. Died Oct. 8, 1896.

DUNCAN, JAMES ARMSTRONG, born in Norfolk, Va., April 14, 1830; died September 23, 1877. He graduated at Randolph-Macon College in 1849, and from 1868 until his death was its president.

DUNLAP, WILLIAM, artist, born in Perth, Amboy, N. J., in 1766; died in New York city, September 28, 1839. In 1777 he moved with his father to New York city, where he began to paint portraits. In the year following he went to London for study, and among other artists, spent some time under Benjamin West. In 1789 he wrote a play, *The Father*, which was several



times played in London, and in 1796, being stage-smitten, he became connected with the old John Street theater, New York, as one of its managers. In 1798 he became lessee of the Park theater, when his tragedy of *André* was performed. As manager he was busied in translating plays from German authors, especially those of Kotzebue, many of which were subsequently published in pamphlet form. Here he remained several years, as sole manager and co-manager, until he became unable to meet his engagements. From 1814 until 1816 he was employed as assistant paymaster-general of the New York militia. Later, he renewed his interest in painting, and produced a series of large scriptural pieces that were exhibited to the public.

DUNMORE, JOHN MURRAY, EARL, royal governor of Virginia, born in 1732; died in Ramsgate, England, in May, 1809. He was made a peer in 1756, became governor of New York in 1770, and of Virginia in 1771. In 1772 he went to Williamsburg, Va., where the promulgation of his stern measures caused much dissatisfaction. Among other acts he removed the powder from the magazine at that place on board of a British war vessel. At this offense the inhabitants became riotous and rushed to arms. Alarmed, he sent his wife for safety on board a British man-of-war, and issued a proclamation against the insurgents and their leader, Patrick Henry. Hearing of the battle of Lexington, he took refuge in Fort Johnson, and sent his wife to New York city. In 1776, supported by a number of newly acquired loyalists, he raided the settlers on York and James rivers, destroying their property and kidnapping their slaves. On December 9th his band was defeated in a skirmish at Great Bridge, in revenge for which he set fire to Norfolk. In June of the following year his party occupied Gwynn Island, in Chesapeake river, where he was wounded and from whence they were dislodged. His vessels thereafter made depredations on the coast and river banks of Virginia, but with only small results. The minor craft were eventually burnt, and the large ones sent to the West Indies. This ended his inglorious career. He returned to England, and in 1786 was appointed governor of the Bermuda Islands.

DUNNELL, MARK H., born in Buxton, Me., July 2, 1823; became a member of the State House of Representatives in 1854 and of the Senate in 1855, and from 1855 to 1859 was State superintendent of schools of Maine. He served in the army, and became United States consul at Vera Cruz in 1862, and in 1865 settled in Minnesota, where he was a member of the State legislature, and for three years State superintendent of public instruction. He entered congress in 1870, and sat until 1882, and in 1888 was again elected to congress as a Republican.

DUPONT, SAMUEL FRANCIS, naval officer, born in Bergen Point, N. J., September 27, 1803; died in Philadelphia, June 23, 1865. His father, Victor Marie Du Pont de Nemours, left France in 1799, and resided at Bergen Point, N. J., afterward establishing in Delaware the great gunpowder works. The son was appointed a midshipman in the United States navy, December 19, 1815, and became lieutenant in 1826, and commander in 1842. In 1845 he commanded the frigate *Congress*, and was sent to the Pacific. He served in the war with Mexico, commanding the sloop-of-war *Cyrene*, and was made captain in 1855. In 1857 he was sent on special duty to China, commanding the steam frigate *Minnesota*, and returned in two years. In 1861 he was in command of the navy yard in Philadelphia, and he equipped and organized the naval force for service in the Civil war. In September, 1861, he was appointed flag officer, and given the command

of the South Atlantic squadron, and he carried Gen. W. T. Sherman's force, numbering 10,000 men, to capture Port Royal, S. C. On November 7th he attacked Fort Walker, on Hilton Head, and Fort Beauregard, leading in the flag-ship *Wabash*, and took the forts, and in the spring of 1862 he moved down the coast of Florida, taking nearly every town and post on his way. In August, 1862, he was made a rear-admiral. In 1863 preparations were made for an attack on Charleston by the land and naval forces, but the enemy's works were too strong to be overcome, and this plan failed. In July, 1863, Admiral Dupont was relieved by Admiral Dahlgren, and he returned to Wilmington, Del. He was the author of a treatise on the use of floating batteries for coast defenses, which has gone through various editions in this country and in Europe.

DUPORTAIL, LOUIS L., born in France in 1736; died in 1802. He came to America in 1777, joined the engineer corps, and became major-general. He acted as engineer-in-chief at the siege of Yorktown, and in 1790, having returned to France, became minister of war.

DUPUY, CHARLES, French statesman, was born at LePuy in 1851, of humble parentage. He taught school until 1885, when he was elected to the Chamber of Deputies as an advanced Republican. In December, 1892, he took office for the first time in M. Ribot's ministry, and in March, 1893, he succeeded him. He was retained in office by President Casimir Perier, but when scandals connected with members of his ministry prompted Casimir Perier to resign in January, 1895, M. DuPuy was succeeded in turn by M. Ribot, as premier under President Faure.

DURAND, ASHER BROWN, painter, born in Jefferson, N. J., August 21, 1796; died in South Orange, N. J., September 17, 1886. He engraved Trumbull's *Declaration of Independence* and *Musidora*, and made many plates for annuals, until he began the study of painting, and from 1836 he devoted himself to portraiture and landscapes. Of portraits, he completed those of Jackson, J. Q. Adams, Bryant, Kent, and others; of figure paintings, he executed *Harvey Birch and Washington*, *The Wrath of Peter Stuyvesant*, and *The Capture of André*. His best known landscapes are: *The Catskills from Hillsdale*, *The Franconia Mountains*, *Franconia Notch*, several views of Lake George, and *Kauterskill Cove*. He was one of the founders of the National Academy of Design, and from 1845 until 1861 its president.

DUSTIN, HANNAH, pioneer, born about 1660. She was married to Thomas Dustin, of Haverhill, Mass., December 3, 1677. In 1697 the Indians made an attack on Haverhill, in which forty inhabitants were slain and captured. Mrs. Dustin, with her boy and a nurse, were carried away, while her husband hastened to save the lives of their remaining seven children. Their home was fired, and at the same time the infant, torn from the mother's arms, was murdered by the savages. The wife and the others for several days tramped barefooted on the snow, driven forward by their captors, and at night slept on the wet ground, until the band reached an island near the present site of Concord, N. H. Here they were transferred to the chief of the tribe, kept in durance, subject to the decision of life or death within a day or two. On consultation they determined to escape. At night they attacked the sleeping savages with tomahawks, the lad braining the chief and the mother killing nine of the others with blows that were immediately fatal. Only a squaw and a wounded Indian boy escaped. They then acquired a single canoe, stacked it with food, and destroyed several others, scalped the dead savages, and, through many hardships, made their way home. To

the governor of Massachusetts Mrs. Dustin presented a tomahawk and a gun, together with ten scalps, as an evidence of her victory. The general court accorded to Mrs. Dustin, and to Leonard, the lad, \$250 each, and named the eventful place of massacre Dustin's Island.

DURANT, HENRY TOWLE, philanthropist, was born in Hanover, N. H., February 20, 1822; died in Wellesley, Mass., October 3, 1881. His name was originally Henry Welles Smith. He was graduated at Harvard in 1841, read law with Gen. Benjamin F. Butler, and in 1846 was admitted to the bar in Boston, becoming prominent in his profession. He became interested in the New York Belting and Packing Company, and other profitable ventures, and in 1863, on the death of his son, retired from business. He became impressed with the necessity of a college for the higher education of women, and founded Wellesley College, at Wellesley, Mass., at a cost of a million dollars and an annual endowment of \$50,000. It was opened in September, 1875, and maintains a high educational standard. Toward the close of his life Mr. Durant became a lay preacher, in New England.

DUSE, ELEANORA, a tragic actress of great power, was born at Vigevano, Italy, in 1861, of a family of actors, and went on the stage in 1874. Her career in recent years has been one of unbounded success. She was cordially received in America in 1893, playing "Camille" and other roles, in Italian, and she visited London in 1893 and 1894.

DUYCKINCK, EVERT AUGUSTUS, editor, born in New York, November 23, 1816; died there August 13, 1878. He graduated at Columbia, studied law, traveled

in Europe, and on his return edited a monthly magazine, *Arcturus*, from 1840 till 1842. In 1847 he established *The Literary World*, which he conducted with his brother George until 1853. In 1853-6 he published with his brother the *Cyclopaedia of American Literature*.

DVORAK, ANTONIN, Bohemian composer, was born in 1841 at Muhlhausen-on-the-Moldau, the son of an inn keeper. He learned music from the gypsies, entered the Prague Conservatoire in 1857 and was stamped as a great composer by his *Stabat Mater*, produced in London in 1883. His dramatic opera *Dimitrij*, produced at Vienna in 1892, proved a great success. In August, 1892, he came to New York to direct, for three years, the National Conservatory of Music. On October 12, his cantata, *Columbus*, was produced at the Metropolitan Opera House.

DWIGHT, THEODORE, journalist and lawyer, born in Northampton, Mass., December 15, 1764; died in New York city, July 12, 1846. He was a Federalist, served in the State Senate, and in congress, edited the *Hartford Mirror* in 1812, and was secretary of the Hartford convention of 1814. In 1817 he founded the *Daily Advertiser*, in New York, and edited it until 1836. He published *A History of the Hartford Convention* (1833), and *Character of Thomas Jefferson as Exhibited in his own Writings* (1839).

DWIGHT, TIMOTHY, an eminent American educator, grandson of President Timothy Dwight, of Yale, was born in Norwich, Conn., in 1828. He was educated at Yale, was for many years professor of sacred literature in Yale Theological Seminary and from 1866 to 1899 was president of Yale College.

## E.

EADS, JAMES BUCHANAN, born at Lawrenceburg, Ind., May 28, 1820; died March 8, 1887. From 1842 to 1857 he was engaged in the recovery of sunken ships, and during the Civil war he built a number of gunboats for the government. He built the St. Louis bridge (1867-74) and constructed the jetties at the mouth of the Mississippi. His latest project was for a ship-railway across the Isthmus of Tehuantepec, which has not been carried out.

EAKINS, THOMAS, artist, born in Philadelphia, July 25, 1844; studied in Paris under Gérôme and Bonnat. He exhibited *Mending the Net*, *The Sculptor*, *The Crucifixion* and other paintings at the World's Fair in Chicago in 1893.

EARLE, PLINY, born in Leicester, Mass., December 31, 1809, graduated in medicine at the University of Pennsylvania in 1837, and became one of the best known alienists. He was physician at Bloomingdale asylum 1844-49, and superintendent of the State hospital for the insane at Northampton, Mass., for more than twenty years. Doctor Earle was a prominent member of the American Medical Association, the New York Academy of Medicine, and other societies, and a frequent contributor to medical journals. He died in 1892.

EARLY, JOHN, born in Virginia, January 1, 1786; died Nov. 5, 1873. He became an itinerant Methodist preacher in 1807, and when the denomination separated in 1844, he went with the South. In 1854 he was elected bishop and held that office until his death. He was one of the founders of Randolph-Macon College.

EARLY, JUBAL ANDERSON, soldier, born in Franklin county, Va., November 3, 1816. In 1837 he was graduated at West Point, and appointed lieutenant of artillery, but in a short time he resigned from the

army, studied law, and served in the legislature of Virginia. In the war with Mexico he became major of a volunteer regiment. At the opening of the Civil war he entered the Confederate service, and was present in several actions. In May, 1863, he held the lines in Fredericksburg, while General Lee was engaged with General Hooker at Chancellorsville. In July he commanded a division at Gettysburg. In 1864 he commanded in the valley of the Shenandoah, where at first he was successful, but was finally routed by General Sheridan. Custer beat him at Waynesboro in March, 1865, and he was removed from command. After the close of the war General Early went to Europe, and on his return resumed the practice of law in Richmond. From there he went to New Orleans, where, with General Beauregard, he was for some years manager of the Louisiana State lottery. In 1867 he published *Memoirs of the Last Year of the War*, and in 1883 published *Jackson's Campaign against Pope* in 1862. He died in Lynchburg, Va., March 2, 1894.

EASTBURN, MANTON, born in Leeds, England, February 9, 1801; came to the United States when a child, and graduated at Columbia college in 1817. He was ordained deacon in the Episcopal Church in 1822, became priest in 1825, and held various pastorates, until in February, 1843, he became bishop of Massachusetts. He died in Boston, September 12, 1872.

EASTMAN, JOHN ROBIE, born in Andover, N. H., July 29, 1836; graduated at Dartmouth in 1862. He became professor of mathematics in the United States navy, and is a Fellow of the American Association for the Advancement of Science, and a member of many scientific societies. He is best known in connection with astronomical research.

EATON, DORMAN B., born in Vermont, June 27,



1823; graduated at Harvard law-school in 1850. In 1874, and again from 1883 to 1886, he served on the civil service commission, and he has written extensively on civil service reform.

EATON, EDWARD DWIGHT, born in Lancaster, Wis., January 12, 1851; graduated at Beloit in 1872, and at Yale divinity school in 1875; was pastor of Congregational churches in Iowa and Illinois, and in 1886 became president of Beloit (Wis.) College.

EATON, JOHN, born in Sutton, N. H., December 5, 1829; was principal and superintendent of schools in Ohio, and became an army chaplain. He had charge of the freedmen and received a brigadier-general's brevet. From 1866 to 1870 he edited the *Memphis (Tenn.) Post* and was State superintendent of public instruction, 1867-69. General Eaton, who is LL.D. of Dartmouth, had charge of educational exhibits at the Centennial and New Orleans expositions, and is a member of many learned societies.

EATON, JOHN HENRY, born in Tennessee in 1790; died in 1856. He was elected to the United States Senate from Tennessee, and was Secretary of War under Andrew Jackson in 1829-31. The objections made by wives of other members of the cabinet to associating with his wife created a public scandal. President Jackson warmly espoused Mrs. Eaton's cause, and the trouble ended in a disruption of the cabinet. Mr. Eaton was afterward governor of the Territory of Florida and from 1836 to 1840 minister to Spain.

EATON, WILLIAM, born in Woodstock, Conn., February 23, 1764; died in Massachusetts, June 1, 1811. He served as consul to Tunis and United States naval agent to the Barbary States, and in the latter capacity joined an expedition which stormed an important Tripolitan town in 1805. Eaton was one of the chief witnesses against Aaron Burr on his trial for treason.

EATON, WILLIAM WALLACE, born in Connecticut, October 11, 1816; served in the State legislature in 1847-48, in the senate in 1850, and again in the lower house from 1853 to 1875. In the latter year he became U. S. senator and served until March, 1881. In 1884-85 he was a member of congress. Died Sept., 1898.

EBERS, GEORGE MORITZ, born in Berlin, Prussia, March 1, 1837; made a special study of Egyptology and discovered and translated many papyri. He has written several powerful romances based on Egyptian subjects and several historical works. Died Aug., 1898.

ECCLESTON, SAMUEL, born in Maryland, June 27, 1801; died April 21, 1851. He was ordained priest of the Roman Catholic Church in 1825, became coadjutor bishop of Baltimore in 1834, and succeeded as metropolitan a few months later. He introduced the Christian Brothers into the United States.

ECKERT, THOMAS THOMPSON, telegrapher, was born in 1825, took charge of the military telegraph office at the beginning of the Civil war, established headquarters in Washington in September, 1862, was brevetted brigadier-general in 1864 and appointed assistant-secretary of war. He was vice-president and general manager of the Western Union Telegraph Co., from 1881 until his election as president in 1893.

ECKFORD, HENRY, naval architect, born in Scotland, March 12, 1775, died in Constantinople, Turkey, November 12, 1832. He removed to New York city in 1796. During the war of 1812 he was employed by the United States to construct vessels-of-war for the lakes and later he built the steamer *Robert Fulton*. In 1820 he became United States naval constructor at the Brooklyn navy yard, and built six ships of the line. He was in the Turkish service when he died.

EDINBURGH, ALFRED ERNEST ALBERT, DUKE OF, second son of Queen Victoria, was born August 6,

1844, and married on January 23, 1874, the Grand Duchess Marie, only daughter of Alexander II. of Russia. He entered the navy, and in 1886 was given nominal command of the Mediterranean squadron with rank of vice-admiral. In 1868 he was shot and slightly wounded by an Irishman named O'Farrell at Port Jackson, New South Wales, O'Farrell being hanged. In 1893 he inherited the duchy of Saxe-Coburg and Gotha in Germany. Died July 30, 1900.

EDISON, THOMAS ALVA, inventor, born in Milan, Ohio, February 11, 1847. His education was limited to brief school attendance, which was supplemented by instruction from his mother and by his own reading. He became particularly interested in the study of chemistry. At first he was a newsboy on a railway train. Becoming interested in telegraphy he studied it late at nights in a railway station, and soon became an expert operator. He became employed as an operator in several Canadian offices, and at Adrian, Mich. At this last place he fitted a small shop for repairing telegraph instruments and the making of new machinery. He then went to Indianapolis, where he invented his automatic repeater. After brief stops at other places, he went to Cincinnati, with the acquired reputation of a successful inventor. From there he was called to Boston, where he perfected his duplex telegraph. Not long afterward Edison was made superintendent of the New York Gold Indicator Company, and transferred his shops to Newark, N. J. In 1876 he resigned this last engagement, in order to devote his entire time to research and invention, and located himself permanently at Menlo Park, N. J. Mr. Edison's inventions are many, and some of extraordinary value; among them are the phonograph, improvement in the electric light and the telephone, the microphone, the electric pen, the quadruplex and sextuplex transmitter and the kinetoscope.

EDMUNDS, GEORGE FRANKLIN, born in Richmond, Vt., February 1, 1828. He became a lawyer, and from 1854 to 1859 was a representative in the legislature, serving three years as speaker. In 1861-62 he was in the State Senate, and in April, 1866, became United States senator, which office he held by constant reelection until he retired voluntarily in 1891. Senator Edmunds was a member of the Electoral Commission, and was president *pro tem.* of the Senate, and a member of many important committees. He was active in the Andrew Johnson impeachment, favored the reconstruction laws, and was the author of the act for the suppression of polygamy in Utah, known by his name. In the Republican national convention of 1880, and in that of 1884, he received thirty-four and ninety-three votes respectively for the presidential nomination.

EDWARD, THOMAS, a Scotch shoemaker, whose love of natural history led him to collect and discover many specimens, was born in 1814, and died in 1886. He was a fellow of the Linnean Society, and his interesting history is well told in Smiles' *Life of a Scotch Naturalist*.

EDWARDS, AMELIA B., born in England about 1835, has written many novels, of which *Barbara's History*, *Half a Million of Money*, and *Debenham's Vow*, are best known. She traveled extensively in Egypt, and wrote intelligently on the archæology of that country. She died April 15, 1892.

EDWARDS, JOHN ELLIS, born in Guilford, N. C., August 1, 1814, graduated at Randolph-Macon, and entered the M. E. ministry in 1834. He took a prominent part in the secession of the Southern branch in 1844-46, and for fifty years was connected with the Virginia conference.

EDWARDS, LONDON B., son of the foregoing, was born in Prince Edward county, Va., September 20,

1845. He served in the Confederate artillery, and after the war graduated in medicine in New York. He acquired an extensive practice in his native State, and was one of the founders of the Medical Society of Virginia. He established the *Virginia Medical Monthly*, and is a member of many professional societies.

EDWARDS, NINIAN, born in Maryland in March, 1775; died in Illinois July 20, 1833. He studied law in Kentucky, and became chief justice of that State in 1808. In the following year he was appointed governor of the newly-organized Territory of Illinois, and retained that office until Illinois became a State in 1818. He was elected United States senator and served until 1824, when he was appointed minister to Mexico. From 1826 to 1832 he again served as governor of Illinois. His son, NINIAN WERT, born in 1809, married a sister of Mrs. Abraham Lincoln. He was attorney-general of Illinois in 1834, and superintendent of public instruction, 1854-57.

EDWARDS, OLIVER, born in Springfield, Mass., in 1835; entered the army at the outbreak of the Civil war, and distinguished himself in the Wilderness and at Spottsylvania and Sailor Creek.

EGAN, PIERCE, an English writer on sporting, and the historian of the palmy days of the prize-ring, was born in 1772 and died in 1849. His *Boxiana* and *Life in London* were illustrated by Cruikshank. His son, of the same name (1814-80) wrote an enormous number of tenth-rate novels.

EGGLESTON, EDWARD, born in Indiana, December 10, 1837, has written the *Hoosier Schoolmaster* and other works, and for some years held a pastorate in Brooklyn. Died Sept. 3, 1902.

EHRENBERG, CHRISTIAN GOTTFRIED, born in Prussian Saxony, April 19, 1795; died June 27, 1876. He visited Egypt, Syria, and Arabia, accompanied Humboldt on an expedition to the Ural and Altai mountains, and wrote extensively on microscopic organisms.

EIFFEL, GUSTAVE, born at Dijon, France, in 1832, became a civil engineer and built many bridges and viaducts, and the enormous Eiffel tower of the Paris exposition of 1889. In 1893 he was convicted and fined for misappropriating Panama canal funds.

ELDER, WILLIAM HENRY, Catholic clergyman, was born in Baltimore in 1819, educated in Rome, and became archbishop of Cincinnati in 1882.

ELGIN and KINCARDINE, VICTOR ALEXANDER BRUCE, 9th Earl of, was born in 1849 in England, and became Governor General of India in 1893.

ELIOT, CHARLES WILLIAM, born in Boston, Mass., March 20, 1834; graduated at Harvard in 1853. He taught mathematics and chemistry at Harvard, and in 1869 became president of that university. Williams and Princeton made him LL.D. in 1869, and Yale in 1870. He is a fellow of the American Academy of Sciences and of many home and foreign scientific associations.

ELIOT, GEORGE, the *nom de plume* of Marian Evans, the great English novelist. She was born in Warwickshire, England, November 22, 1819, and died November 22, 1880. She received a superior education, and became familiar with Latin, German, and the higher mathematics. In 1844-46 she translated Strauss' *Leben Jesu*, and later Spinoza's *Ethics*, and other works. In 1851 she became assistant editor of the *Westminster Review*. At this time she first met George Henry Lewes, and with him she formed a connection, only terminated by his death in 1878. Lewes had been married many years, but his wife proved unfaithful. He condoned her offense by taking her back to his home, and, when she left him finally, he was

unable, by reason of the condonation, to secure a divorce under the law of England. Under these circumstances, and after due deliberation, Lewes and Miss Evans decided to live together.

In 1857 the first of the *Scenes of Clerical Life* appeared in *Blackwood*, and in 1858 *Adam Bede* was published. This magnificent piece of work at once placed its author in the front rank of living writers. It was followed in succession by *The Mill on the Floss*, *Silas Marner*, *Romola*, and *Felix Holt*, the latter appearing in 1866. George Eliot published her first poem, *The Spanish Gypsy*, but neither this nor others which followed proved as successful as her prose writings. *Middlemarch*, by many considered as even superior to *Adam Bede*, was issued in 1871, and five years later appeared *Daniel Deronda*, a much inferior work. Mr. Lewes died in November, 1878, and Miss Evans married on May 6, 1880, a stockbroker named John Cross, a man much younger than herself. On December 22d of the same year she died, and was buried in Highgate cemetery, near London.

ELIOT, SAMUEL, born in Boston, Mass., December 22, 1821; graduated at Harvard, where he afterward lectured and became a member of the board of overseers. He was president of Trinity College, Hartford, 1860-64, and president of the American Social Science Association 1868-72. He has written extensively on historical subjects. Died Sept. 15, 1898.

ELIZABETH, QUEEN OF ROUMANIA, was born in Germany, December 29, 1843. In 1869 she married King (then prince) Charles of Roumania. She has published several volumes of prose and verse under the signature of "Carmen Sylva."

ELLERY, WILLIAM, one of the signers of the Declaration of Independence, was born in Newport, R. I., December 22, 1727, and died there February 15, 1820. He sat several years in the Continental Congress and was thirty years collector of Newport. His son Frank (1794-1871) entered the navy and rose to be commodore.

ELKINS, HENRY ARTHUR, born in Vermont, May 30, 1847; died July 25, 1884. He established a studio in Chicago and painted mountain scenery, of which *Mt. Shasta* and the *Thirty-eighth Star* achieved some notoriety.

ELLIOTT, CHARLES LORING, artist, born in Scipio, N. Y., in 1812; died September 25, 1868. He was a pupil of Trumbull and painted a great many portraits of American celebrities. He became an associate of the National Academy in 1845 and Academician the following year.

ELLIOTT, JESSE DUNCAN, born in Maryland in 1782; died in Philadelphia, December 18, 1845. He entered the United States navy in 1804 and in 1812 captured two British vessels on Lake Erie. He succeeded Perry in command on the lakes and took part in Decatur's attack on Algiers.

ELLIOTT, WASHINGTON L., son of the foregoing, was born in Carlisle, Penn., March 31, 1821; died June 29, 1888. He graduated at West Point, served in the Mexican war and on the frontier, fought all through the Civil war as a cavalry officer, became brevet brigadier-general and major-general in the regular army and was retired as colonel in 1879.

ELLIS, GEORGE EDWARD, born in Boston, August 8, 1814; graduated at Harvard, and in 1840 became pastor of the Harvard Unitarian church, and died Dec. 21, 1894. From 1857 to 1863 he was professor of theology, and he has served on the board of overseers of Harvard. He is D.D. and LL.D. of that university, and has written extensively on historical subjects.

ELLSKWATAWA, Indian prophet, born near Chillicothe, Ohio, in 1775. He was the son of a Shawnee



chief, and brother of Tecumseh. In 1809 the Government purchased of the Indians a large tract of country on both sides of the Wabash river, that included the section then held by him and his followers. Two years after this transaction Ellskwatawa appeared at the battle of Tippecanoe, where he directed the Indian attack. After peace was declared between the United States and Great Britain, the prophet received an English pension, and dwelt in Canada until 1826. Later, with Tecumseh's surviving son, he settled beyond the Mississippi. The date of his death is unknown.

ELLSLER, FANNY, born in Vienna, Austria, June 23, 1810; died November 27, 1884. She became famous as a dancer, and acted in the ballet in nearly every European country and in the United States. Her sister Therese (1808-1878) was almost as well-known as a dancer.

ELLSWORTH, EPHRAIM E., born in New York State, April 23, 1837; killed in Alexandria, Va., May 24, 1861. He organized a regiment of zouaves, of which he was commissioned colonel. At Alexandria he tore down a Confederate flag from the roof of a hotel and was shot dead by the proprietor, Jackson, who was immediately killed by a soldier.

ELLSWORTH, OLIVER, born in Windsor, Conn., April 29, 1745; died there November 26, 1807. He became prominent in State affairs and in the Continental Congress, and was a member of the federal convention of 1787 which prepared the constitution of the United States. It was on his motion that the words "National government" in that organic act were replaced by the definition "Government of the United States." He became United States senator from Connecticut in 1789, and was chairman of the committee which organized the federal judicial system. He led the Federalist party in the Senate, and was an earnest advocate of Jay's treaty with England in 1794. From 1796 to 1799 he was chief justice of the United States Supreme Court, and in 1800 negotiated, with Patrick Henry and Governor Davie, a treaty with France. He afterward served on the governor's council of Connecticut, and in May, 1807, became chief justice of the State Supreme Court.

ELMENDORF, JOHN JAY, born in New York in 1827, graduated at Columbia College in 1846, became rector of a church in New York, and in 1869 was appointed professor of mental philosophy and English literature in Racine College, Wisconsin. He published in 1876 a *Manual of the History of Philosophy*.

EMBURY, PHILIP, born in Ireland in 1729; died in Camden, N. Y., in 1775. He joined Wesley's Society, became a local preacher, and emigrated to New York in 1760. He was the pioneer of Methodism in America, and supported himself by working as a carpenter while organizing Methodist churches on Sundays.

EMERSON, RALPH WALDO, born in Boston, Mass., May 25, 1803; died in Concord, Mass., April 27, 1882. He was descended in the female line from an English clergyman named Bulkeley, who came to New England in the early part of the seventeenth century. His earliest known ancestor in the male line was Rev. Joseph Emerson, of Mendon, Mass. (1665), and many members of both families were clergymen. Young Emerson entered Harvard College in 1817, and in 1821 began teaching school in Boston. He studied divinity, in 1826 became a Congregational minister, and held a pastorate in Boston from 1829 to 1832. On September 29, 1829, he married, and in February, 1832, his wife died. In 1833 he went to Europe, where he made the acquaintance of Walter Savage Landor, of Carlyle, and of Wordsworth. In 1835 he married a second time, and took a house in Concord, where he lived and died.

In 1840 Emerson began to preach the new doctrine of transcendentalism and to write for the *Dial*. The first edition of *Nature* appeared in 1836, and the first series of *Essays* in 1841. Meantime Emerson lectured in Boston, became affiliated with the Abolitionists, and made the acquaintance of Bronson Alcott, Thoreau, Ellery Channing and Margaret Fuller. For many years he continued to lecture and to write. His first success was in prose, but later he published considerable verse, as to the merits of which opinions vary.

EMERY, CHARLES EDWARD, born in Aurora, N. Y., March 29, 1838, entered the navy as engineer and served under Farragut. He became consulting engineer of the United States coast survey, and invented several improvements in steam engineering.

EMIN PASHA. See SCHNITZLER, EDUARD.

EMMA, Queen Regent of the Netherlands, was born August 2, 1858, in Waldeck, and married, January 1, 1879, the late William III of the Netherlands, who died November 3, 1890, leaving a daughter, Wilhelmina, as heir to the throne.

EMMONS, GEORGE FOSTER, born in Rutland county, Vt., August 23, 1811; died July 2, 1884. He entered the United States navy in 1828, became lieutenant in 1841, and commander in 1856. During the Civil war he commanded the *Hatteras*, *R. R. Cuyler*, and *Lackawanna*, and captured many prizes. He became commodore in 1868, and rear-admiral in 1872. He published *The Navy of the United States from 1775 to 1853*.

EMMONS, SAMUEL FRANKLIN, born in Boston, Mass., March 29, 1841; graduated at Harvard in 1861, and studied in mining schools abroad. He had charge of the United States geological survey of Colorado in 1879, and has written many papers on geology and mining.

EMORY, WILLIAM H., born in Maryland, September 9, 1811; died December 1, 1887. He graduated at West Point in 1831, became an engineer and artilleryman and was on General Kearny's staff during the Mexican war. In 1853 he was commissioner to run the boundary between the United States and Mexico under the Gadsden treaty. After several years' service in Utah and Kansas he resigned from the army May 9, 1861, but was re-commissioned as lieutenant-colonel of the 6th cavalry five days later and took part in the Peninsular campaign. He became brigadier-general of volunteers in March, 1862, commanded a division under General Banks in Louisiana, and commanded the nineteenth army corps in the Red River campaign and later in the Shenandoah valley, where he successfully resisted Jubal A. Early. He received successive brevets in the regular army of brigadier-general and major-general, and became major-general of volunteers September 25, 1865. From 1865 to 1875 he held departmental commands, and he was retired in 1876 with the rank of brigadier-general.

ENDICOTT, WILLIAM C., born in Salem, Mass., November 19, 1827; was from 1873 to 1883 a justice of the Massachusetts Supreme Court, and in 1884 ran as a Democrat for the governorship and was defeated. In the first presidency of Mr. Cleveland he was Secretary of War. His daughter married Joseph Chamberlain, an English M. P. Died May 6, 1900.

ENGLEMANN, GEORGE, born in Germany, February 2, 1809; died in St. Louis, Mo., February 11, 1884. He came to the United States in 1832, and published in St. Louis a German newspaper called *Das Westland*. Doctor Englemann practiced as a physician and wrote many papers on botany. His son, George Julius, born at St. Louis in 1847, is a prominent physician there.



ENGLISH, JAMES EDWARD, born in New Haven, Conn., March 13, 1812, sat in the State legislature 1855-58. He was elected to congress as a war Democrat in 1861 and served four years. From 1867 to 1870 he was governor of Connecticut and in 1875-76 served as United States senator. He was afterward chairman of the national Democratic committee, and died March 2, 1890.

ENGLISH, WILLIAM HAYDEN, born at Lexington, Ind., August 27, 1822; was elected to congress as a democrat in 1852 and served from 1853 to 1861. In 1880 he was the Democratic candidate for the vice-presidency with General Hancock. Died Feb. 7, 1896.

EÖTVÖS, JOZSEF, a Hungarian novelist and statesman, was born at Buda, September 3, 1813, and died at Pesth, February 3, 1871. He served as minister of public instruction in 1848 and minister of worship and education, 1867-71.

ERCKMANN-CHATRIAN, the compound name of two distinguished French authors, who have written many novels of peasant life and war scenes in collaboration. Emile Erckmann was born at Phalsbourg, May 20, 1822, and Alexandria Chatrian was born December 18, 1826. M. Chatrian died in September, 1890.

ERIC THE RED, a Norwegian navigator, who in 982 located on the island of Iceland. In 983 he sailed from Bredifjord to reach some western shore said to have been visited by one of his countrymen in former times. On the voyage he passed Cape Farewell, and on the coast met with reindeer. He named the country Greenland and the inlet Ericfjord. Returning to Iceland in 985, he interested the people of the island in his discovery, and with twenty-five sail set out for the voyage. Some of the ships were lost in a storm, and others were driven home; but he succeeded in reaching the Greenland coast with fourteen, and located on the fiord, at some distance from the ocean, where there was grass and trees. About twelve years later his son Lief is said to have discovered the continent of North America, which he called Markland and Vinland.

ERICSSON, JOHN, engineer, born in Lanzbanshyttan, Sweden, January 31, 1803; died March 8, 1889. At the age of twelve he became cadet of engineers, and at seventeen entered the Swedish army; in 1827 he was promoted captain. In 1828 he constructed a flame engine, and went to London to introduce it, resigning his captaincy in the army. He also produced in succession an instrument for sea-sounding, a hydrostatic weighing machine, and a tubular steam boiler, besides other important devices. In 1829 he competed unsuccessfully with George Stephenson for the Liverpool and Manchester Railway prize, and invented a new steam fire engine. In 1833 he constructed the calorific engine, and in 1853 the ship *Ericsson*, of 2,000 tons, propelled by this motor. In 1836 Ericsson invented and patented the screw propeller, and in 1839 he came to the United States, where, in 1841, he designed for the government the screw-propelled war ship *Princeton*. This was the pioneer screw war ship; she carried a twelve-inch wrought iron gun, designed by Ericsson, and a wrought iron gun carriage, which took up the recoil without breaking. To the London exhibition of 1851 he contributed several philosophical instruments—a pyrometer, an alarm barometer, a sea-lead, and other devices. In 1861 he built for the United States Government, in 100 days, the iron-clad *Monitor*, which, on March 9, 1862, in Hampton Roads, defeated the Confederate iron-clad ram *Merrimac*. In 1881 he built for the United States a vessel called the *Destroyer*. His recent scientific investigations included computations of the influences that retard the earth's rotary motion, and of the intensity of solar heat.

ESCOBEDO, MARIANO, Mexican soldier, born in Dos Arroyos, Mexico, in January, 1828. During the war with the United States he armed his subordinates, and attacked small bodies of the invaders; later he fought with the Mexican army at Palo Alto and Resaca de Guerrero. When Juarez got power in 1861 Escobedo attained the rank of brigadier-general, and moved against the disorganized forces of the church party. But he was surprised at Rio Verde by Mejia and Marquez and imprisoned in Bucareli, from whence he escaped to find his way to the government forces. In 1862 during the French interference in Mexican affairs he fought at Puebla on May 5th, and at the hill of Cerro del Borrego. Later he took part in the defense of Puebla against the French forces, was taken prisoner, escaped, and rejoined Juarez in the capital. In June, 1864, when the empire under Maximilian was established, and the Liberal party had retired from the capital, Escobedo made a short resistance to the new order of things, and thereafter withdrew to San Antonio, Tex. In November, 1865, he surprised the garrison of Monterey. In June, 1866, the forces of Escobedo captured Saltillo, and in July Juarez established his government in that city. When the French soldiers retired toward the seacoast, the northern Republican troops recaptured most of the interior cities from the Imperialists. In December, 1866, Escobedo marched on San Luis Potosi, with an army of 15,000 men. On February 1, 1867, he attacked the imperial general, Miramon, who had just driven Juarez and his cabinet out of Zacatecas, and destroyed half his army. Escobedo was appointed general-in-chief of the Republican army and this victory was followed at Queretaro by a second battle with the Imperialists. Here the emperor Maximilian with his two generals, Mejia and Castillo became prisoners. A court-martial was held, by order of Juarez, and the emperor promptly condemned and shot. After the conclusion of peace, Escobedo spent several years in retirement. In 1874 he assisted in quelling a threatened revolution; in 1875 he was commander-in-chief of the frontier department of the east, in 1876 he served as secretary of war under President Lerdo de Tejada. On the success of the Diaz revolution, Escobedo fled to New York, and later in Texas schemed to overthrow Diaz but ventured to enter Mexico where he was arrested, and sent as a prisoner to the capital. Here he was tried by court martial, and narrowly escaped being declared guilty of conspiracy against the government. In 1879 he again went to New York city, on "private business," but in August, 1880, returned to Mexico. From 1882 until 1883 he was president of the supreme military court-of-justice.

ESMARCH, JOHANNES FRIEDRICH AUGUST, born in Schleswig-Holstein, January 8, 1823, is known as one of the most eminent surgeons of the time. He first brought into general operation the system of bloodless operations on the limbs.

ESPARTERO, BALDOMERO, born in Spain, October 27, 1793; died January 8, 1879. He enlisted at sixteen and was engaged in active service for many years. In 1824 he went to Peru as chief of staff, but was captured and held a prisoner. In the civil war which followed the death of Ferdinand VII. in 1833, Espartero took the side of Isabella against Don Carlos, and for his success in this struggle he was made captain-general and a grandee of Spain. In 1840 he was made premier, and the next year regent. In 1843 Narvaez proclaimed the young queen of age, and Espartero escaped to England, where he resided four years. In 1854 he again became prime minister, but resigned in 1856. He took part in the revolution of 1868, which resulted in the expulsion of Isabella II., and supported



the republic. He was offered the crown when it was going begging in 1870, but refused it and lived in retirement until his death.

EU (COMTE D'), grandson of Louis Philippe, was born April 28, 1842, and in 1864 married Isabella, daughter of Dom Pedro II., then emperor of Brazil. He held high command in the war with Paraguay, and was made marshal of the army. In 1889 the dislike of the Brazilians to a foreigner and the bigotry of the Comtesse d'Eu, who acted as regent during Dom Pedro's absence in Europe, led to the peaceful revolution which placed Brazil foremost in the ranks of the South American republics. The Comte d'Eu was exiled with his wife and the rest of the imperial family.

EUGENIE, ex-empress of the French, born in Spain, May 5, 1826. She was the granddaughter of Mr. Fitzpatrick, English consul at Malaga, whose daughter married Count de Montijos, an officer in the Spanish army. Her mother, the Comtesse Teba, took her to Paris, where she attracted great attention at the balls given at the Tuileries by Louis Napoleon, then prince president. The latter, after he made himself emperor, began negotiations for a union with the Princess Carola Wasa of Sweden, which were peremptorily rejected. He made overtures to other reigning houses and being each time refused, proposed to the charming young Spaniard, whom he married January 29, 1853. Eugenie bore him a son, March 16, 1856, who was styled the Prince Imperial, and who was killed by Zulus in South Africa in 1879. The empress became the leader of the fashions of Europe, and maintained a brilliant court, but not content with her triumphs in this line she interfered in politics and with most disastrous results, forcing on the war with Germany. She was appointed regent when Napoleon III. went to fight the Germans, and was in Paris when the revolution broke out after Sedan. On September 5, 1870, she escaped from the Tuileries and found refuge in England.

EUSTIS, JAMES B., born in New Orleans in 1834, studied law at Harvard, fought in the war on the Confederate side, served in the Louisiana legislature, in the United States Senate twice, 1877-79 and 1885-91, was professor of civil law in the University of Louisiana in the interim, and in 1893 was appointed by President Cleveland ambassador to France. Died Sept. 9, 1899.

EVANS, AUGUSTA JANE, authoress, born in Georgia, May 8, 1835; has written several novels, of which *Beulah* (1859), and *St. Elmo* (1866), are the best-known. She married Mr. L. M. Wilson in 1868.

EVANS, FREDERIC WILLIAM, born in Herefordshire, England, in 1808; came to this country in 1820. He adopted communistic principles, and in 1830 joined with the "Shakers" at New Lebanon, N. Y. Of this community he became presiding elder, and for many years was at its head. He died March 6, 1893.

EVANS, MARIAN. See ELIOT, GEORGE.

EVANS, OLIVER, born in Delaware, in 1755; died in New York April 21, 1819. He is said to have invented in 1804, the first steam road-carriage ever worked in America. He also made a number of improvements in mill-machinery.

EVARTS, WILLIAM MAXWELL, statesman, born in Boston, Mass., February 6, 1818; graduated at Yale in 1837, studied law in the Harvard law-school, and in New York city, and was admitted to practice in 1841. From 1849 to 1853 he was assistant district attorney in New York city. From 1851 to 1867 he was retained as counsel in a number of important cases, which made his name prominent. From July 15, 1868, until March 5, 1869, he served as attorney-general of the United States, and was chief counsel for Andrew Johnson in the impeachment case. He was also counsel in the

Alabama case, for Rev. Henry Ward Beecher, in the Parish will case, the Gardner will case, and other important and highly remunerative contests at law. During the administration of President Hayes he became secretary of state. In 1881 he visited Paris, as a delegate to the international monetary conference, and on March 4, 1885, became United States senator for one term. He has delivered several orations and a number of public addresses. Died Feb. 28, 1901.

EVE, PAUL F., born in Georgia, June 27, 1806; died at Nashville, Tenn., January 10, 1878. He graduated at Franklin College, Georgia, in 1826, and became M.D. in 1828. In 1832 he was elected professor of surgery in the Medical College of Georgia; in 1850 was called to a similar position in the University of Louisville, and the next year affiliated with the University of Nashville. He was surgeon-general of Tennessee and held other positions in the Confederate medical staff during the Civil war, and was elected president of the American Medical Association. In 1876 he took a prominent part in the International Medical Congress at Philadelphia. He wrote over 600 articles on surgery and medicine.

EVERTS, WILLIAM WALLACE, born in Granville, N.Y., March 13, 1814, became a Baptist minister in 1837, and held pastorates in New York, Kentucky, and Chicago. He was for many years connected with the University of Chicago and the Baptist Theological Seminary. In 1879 he became pastor of a church in Jersey City, and resigned in 1885. He died in Chicago, September 25, 1890.

EWELL, BENJAMIN STODDERT, born in Washington, D.C., June 10, 1810; graduated at West Point in 1832 and served as professor of mathematics and philosophy there until 1836. He was afterward connected as a professor with Hampden-Sidney, Washington College, and William and Mary, of the latter of which he became president in 1854. He served in the Confederate army, and in 1865 was again elected president of William and Mary College. He was made an honorary member of the Royal Historical Society of Great Britain in 1880, and Hobart College made him LL.D. in 1874. Died June 10, 1894.

EWELL, RICHARD STODDERT, brother of the foregoing, born in Georgetown, D. C., February 8, 1817; died January 15, 1872. He was educated at West Point and served in the Mexican war and against the Apaches in New Mexico. He resigned his commission of captain to enter the Confederate army, in which he was made major-general. He lost a leg while serving under Jackson in August, 1862, and took command of the second army corps after Jackson's death. He fought at Winchester, at Gettysburg, and in the Wilderness, but was defeated and captured with his whole command by Sheridan, April 6, 1865.

EWING, THOMAS, born in Ohio county, Va., December 28, 1789; died October 26, 1871. He was admitted to the Ohio bar in 1816, and from 1831 to 1837 was United States senator from Ohio. Under Harrison he was secretary of the treasury for a month, in 1841, and in March, 1849, became the first secretary of the interior, which office he held until September 12, 1850. In 1850 he was appointed to succeed Thomas Corwin in the Senate, but only held office a year, and spent the remainder of his life in the practice of his profession. He adopted as a member of his family his relative, William T. Sherman, who married his daughter, Ellen, in 1850 and became General of the United States.

EWING, THOMAS, son of the foregoing, born in Lancaster, Ohio, August 9, 1829; practiced law in Ohio, removed to Kansas in 1856, and in 1861 became first

chief justice of that State. He served with distinction in the Civil war, and in 1865 was brevetted major-general of volunteers. In 1877 he was elected to congress by his home district, and served until 1881. In 1879 he unsuccessfully contested the governorship of Ohio, on a greenback or "soft money" platform. After 1881 he removed to New York city and resumed the practice of law. Died Jan. 21, 1896.

EYRE, EDWARD JOHN, born in August, 1815, in Yorkshire, England; went to Australia in 1833, and in 1840-41 explored the south coast of Australia and dis-

covered Lake Tappan. He was afterward appointed lieutenant-governor of New Zealand and of the Island of St. Vincent. In 1862 he became governor of Jamaica, and in 1865 suppressed with severity a negro insurrection. Martial law was proclaimed, and a wealthy mulatto named Gordon, who was a member of the House of Assembly, was hanged. Eyre was recalled and prosecuted by a committee, of which John Stuart Mill was a member. Such men as Carlyle, Charles Kingsley, and Sir Roderick Murchison defended Eyre, and he was acquitted by a jury. Died Dec. 21, 1901.

## F.

FABRE, CHARLES EDWARD, born in Montreal, Canada, February 28, 1827, was ordained priest in 1850; became bishop in 1873; was translated to Montreal in 1876, and on June 8, 1886, became the first Catholic archbishop of Montreal. Died Dec., 1896.

FABRE, LOUIS K. H., brother of the foregoing, born in Montreal, August 9, 1834; was called to the bar in 1856, and has long been connected with the newspaper press of Quebec. He entered the senate in 1875.

FAED, JOHN, born in Scotland in 1820, became an associate of the Royal Scottish Academy, and has exhibited his paintings of domestic life and rural scenery in Edinburgh and London. His brother Thomas, born in 1826, is also well and favorably known as an artistic exponent of Scottish peasant life.

FAGNANI, JOSEPH, artist, born in Naples, Italy, December 24, 1819; died in New York city May 22, 1873. In 1851 he came to the United States and settled in New York city. He painted the *Nine Muses* for the Metropolitan Museum of Art, and produced portraits of many celebrities.

FAIDHERBE, LOUIS LÉON CÉSAR, born at Lille, France, June 3, 1818; died September 28, 1889. He studied at the École Polytechnique and served as a military engineer in Algeria. In 1852 he became governor of Senegal, and in 1863 was made general of brigade. From 1867 to 1870 he had military command in Algeria. In November of the latter year he became commander-in-chief of the Army of the North, and succeeded in checking the German advance against Havre. He was elected to the National Assembly in 1871 and to the Senate in 1879. General Faidherbe was a distinguished Egyptian scholar, and published works on the Libyan monuments and inscriptions. He was grand chancellor of the Legion of Honor at the time of his death.

FAIRBAIRN, SIR WILLIAM, born in Kelso, Scotland, February 19, 1789; died in August, 1874. He began life as an engine-wright, and became the head of a great ship-building firm. He then engaged in the erection of bridges under a patent design, and constructed the Britannia and Conway bridges at Menai Straits.

FAIRCHILD, CASSIUS, born in Kent, Ohio, December 16, 1828, died in Milwaukee, Wis., October 26, 1868. He served throughout the Civil war, and was brevetted brigadier-general. From 1865 until his death he was United States marshal of Wisconsin.

FAIRCHILD, CHARLES STEBBINS, born in Cazenovia, N. Y., April 30, 1842; graduated at Harvard in 1863, and practiced law in New York city. In 1874 he was deputy attorney-general of New York, and in 1876-78 was attorney-general. In 1885 he was appointed assistant secretary of the treasury, and on April 1, 1887, on the resignation of Daniel Manning, became secretary

of the treasury in Mr. Cleveland's cabinet, which office he held until March 5, 1889.

FAIRCHILD, LUCIUS, born at Kent, Ohio, December 27, 1831; removed to Wisconsin when a boy. He spent several years mining in California, and on his return to Wisconsin was admitted to the bar. At the beginning of the Civil war he entered the volunteer service as a captain, and in August, 1861, obtained a commission in the 16th United States infantry. He commanded part of the "Iron Brigade" at the second battle of Bull Run. He fought at Antietam, and lost an arm at Gettysburg, was commissioned brigadier-general October 19, 1863, and was soon afterward elected secretary of state of Wisconsin, serving two years. For the next six years he served as governor by successive elections. In 1872 he became United States consul at Liverpool, where he remained six years. He was consul-general at Paris, 1878-80, United States minister to Spain 1880-82, and resigned to return home to Madison, Wis. In 1886 he was elected commander-in-chief of the Grand Army of the Republic. Died May, 1896.

FAITHFULL, EMILY, born in Surrey, England, in 1835; attained a high reputation as a lecturer in England and in this country, her subjects being chiefly those relating to the improvement of the condition of women. She established in London in 1860 the *Victoria Press*, in which women are the only compositors. Miss Faithfull has labored energetically on behalf of her sex, and has done much good. She was also favorably known as an authoress. She died June 2, 1895.

FALCONER, JOHN M., born in Edinburgh, Scotland, May 22, 1820; came to the United States in 1836, and became prominent as an artist in water-colors. He became a member of the Society of Painters in Water-colors, and of many other associations of artists, and well known as an etcher and engraver on copper.

FALK, ADALBERT, born in Silesia, August 10, 1827; held various government positions in his native province, and in 1872 became German minister of Public Worship and Education. In this capacity he carried the "May Laws," limiting the influence of the Roman Catholic Church in educational matters. He resigned in 1879.

FALLOUX, FREDERIC ALFRED, COUNT DE, French author and statesman and academician, born at Angers, May 7, 1811; died January 6, 1886. He was a legitimist and wrote a history of Louis XVI. He became a member of the constituent assembly, and was minister of public instruction for a few months under the Prince-President Louis Napoleon.

FALLOWS, SAMUEL, born near Manchester, England, December 13, 1835, came to the United States when ten years old, graduated at the University of Wisconsin in 1859, and entered the M. E. ministry. He became a chaplain in the army, but afterward colonel and brevet brigadier-general. In 1870 he was state superintendent of public instruction of Wisconsin, and



president of Wesleyan University at Bloomington, Ill., in 1874. In 1875 he joined the newly-organized Reformed Episcopal Church, became rector of St. Paul's, Chicago, and in July, 1876, was chosen Bishop. He is a popular orator and lecturer, has written valuable educational works, and in 1895 engaged in unique and successful temperance work.

FANEUIL, PETER, born at New Rochelle, N. Y., in 1700, of a French Huguenot family. He became a merchant in Boston and in 1740-42 built Faneuil Hall at his own expense and presented it to the town. The original building was burned down in 1761 and rebuilt at public expense. From being used as a meeting-place by the patriots at the beginning of the revolution, Faneuil Hall became known as "the cradle of American liberty." He died Mar. 3, 1743.

FANNING, EDMUND, born in Long Island in 1737; died in London, England, February 28, 1818. He was graduated at Yale in 1757, and practiced law in Hillsborough, N. C. He also became recorder of deeds, and in this office was charged with flagrant abuses by the people of the county. Fanning was a stern Loyalist, who treated all opposition to authority with extreme severity. Governor Tryon was his father-in-law, and, in 1771, when the people rose en masse against his authority, he followed Governor Tryon to New York city as his private secretary. In 1777 he organized a body of about 500 Loyalists into a corps called the "King's American Regiment." Later he went to Nova Scotia, where, in 1783, he became councillor and lieutenant-governor; in 1786 he was governor of Prince Edward Island, which office he held during nineteen years. He rose in succession to become lieutenant-general in 1799, and general of the British army in 1808.

FARJEON, BENJAMIN LEOPOLD, born in London, England, of Jewish parentage, May 12, 1833. He spent some years in New Zealand, and in 1869 returned to London, where he issued several novels, of which *Blade o' Grass* and *London's Heart* are best known. In 1877 he married a daughter of Joseph Jefferson.

FARRAR, FREDERICK WILLIAM, born in Bombay, India, August 7, 1831; educated at London and Cambridge; was ordained in the church of England in 1854. He became a master of Harrow, and from 1871 to 1876 was headmaster of Marlborough College. In 1876 he became canon of Westminster, and in 1883 archdeacon. He ranks among the most eloquent of English pulpit orators, and has published many works on education and other subjects.

FARRAR, HENRY, artist, born in London, England, March 23, 1843; came to this country when a youth. In 1879 he became secretary of the American Water Color Society, and, in 1881, president of the New York Etching Club. He has exhibited in London, Paris, and Philadelphia.

FARRER, EDWARD, born in county Mayo, Ireland, in 1850, came to Canada in 1870, was connected with the press in Toronto, New York, and Winnipeg, and later became editor-in-chief of the *Toronto Mail*.

FARWELL, CHARLES BENJAMIN, born in New York State, July 1, 1823; removed to Illinois in 1838, and, from 1853 to 1861, was county clerk of Cook county. He became the head of a very large dry goods firm in Chicago. In 1870 he was elected to congress, reelected in 1872 and 1874, and again in 1880. On January 19, 1887, he was elected United States senator, to fill the vacancy occasioned by the death of John A. Logan. He was a Republican.

FARWELL, JOHN VILLIERS, brother of the foregoing, was born in Steuben county, N. Y., July 29,

1825, became a merchant in Chicago, and was Indian commissioner under President Grant. He is a prominent supporter of the Young Men's Christian Association, for whom he built a hall in Chicago, and he was an enthusiastic supporter of the evangelist Dwight L. Moody.

FAUCIT, HELEN (Lady Martin), was born in England in 1819, and first played in public as "Julia" in the *Hunchback*, in 1836. She was a leading member of Macready's company, and specially distinguished in Shakespearean characters. In 1851 she married Sir Theodore Martin, and died Oct. 31, 1898.

FAULKNER, CHARLES J., born in Martinsburg, Va., in 1806; died November 1, 1884. He became a lawyer and sat in both branches of the legislature, and in 1851 was elected to congress as a Democrat, and served four terms. In 1859 he was made minister to France, but was recalled by President Lincoln and imprisoned in Fort Warren. When released he joined the Confederate army. In 1874 he was elected to congress from West Virginia.

FAULKNER, CHARLES JAMES, son of the foregoing, born in Martinsburg, Va., in 1840; served in the Confederate army, and afterward became a lawyer, and was elected circuit judge in West Virginia. In 1887 he was elected United States senator from that State as a Democrat, and reelected in 1893.

FAURE, FELIX, President of the French Republic, was born in Paris, January 30, 1841, became a ship owner in Havre, aided in putting down the commune after the Franco-Prussian war, was first elected to the chamber of Deputies as a Republican in 1881; was under-secretary of state in the ministries of Gambetta, 1881, Ferry, 1883, and Tirard, 1885; was minister of marine under M. DuPuy, 1892, and was elected President, January 17, 1895, to succeed M. Casimir-Perier, resigned. He died Feb. 16, 1899.

FAURE, JEAN BAPTISTE, baritone singer, was born in France in 1830, and appeared at the Paris Opera House and the Royal Italian Opera in London. He is chevalier of the Legion of Honor.

FAVRE, JULES CLAUDE GABRIEL, born at Lyons, 1809; died at Versailles, 1880. He took part in the revolution of 1830, held office in the republican ministry in 1848; opposed Louis Napoleon, after 1858 led the opposition in the Corps Legislatif and in 1870 became minister of foreign affairs in the government of the National Defense, and helped negotiate the treaty of peace with Germany. In 1876 he became a senator. He was a brilliant orator and writer and an Academician.

FAWCETT, EDGAR, born in New York city, May 26, 1847; has written numerous novels and sketches, and some plays and poetry.

FAWCETT, HENRY, born at Salisbury, England, in 1833; died November 6, 1884. He graduated at Cambridge (seventh wrangler) in 1856 and was elected to a fellowship. Two years later he lost the sight of both eyes by the accidental discharge of a gun. In 1863 he became professor of political economy at Cambridge, and in 1865 he entered parliament as an advanced liberal. In 1867 he married Miss Millicent Garrett, who has since become well known as a writer and speaker on woman's suffrage. Mr. Fawcett devoted himself in parliament to the amelioration of the condition of the native races in India, and to the advancement of radical legislation. In 1880 he became postmaster-general under Mr. Gladstone and succeeded in greatly improving the condition of the department. Mr. Fawcett was a forcible speaker and an extensive writer on economic subjects. In 1890 his daughter Philippa carried off the highest honors at Cambridge, being bracketed above the senior wrangler.

FAY, THEODORE S., author, born in New York city February 10, 1807; became secretary of legation at Berlin, in 1837 and from 1853 to 1861 was United States minister to Switzerland. He wrote *Dreams and Reveries of a Quiet Man*, *The Minute Book*, *Norman Leslie*, and a *History of Switzerland*. Died Nov., 1898.

FAYE, HERVÉ AUGUSTE, born in France, October 5, 1814. In 1843 he discovered the comet which bears his name, and in 1847 he became a member of the French Academy of Sciences. He has held various positions in the bureau of public instruction, and translated Humboldt's *Cosmos*.

FEBIGER, CHRISTIAN, born on the island of Fünen, Denmark, in 1746; died in Philadelphia, Penn., September 20, 1796. After receiving a military education he went on the staff of his uncle, then governor of St. Croix. In 1772 he journeyed through the British North American colonies, and in 1773 became a trader in New England. On April 28, 1775, he became adjutant of a Massachusetts regiment, and took part in the battle of Bunker Hill. He went with Arnold's expedition, and at the storming of Quebec on December 31, 1775, was taken prisoner. After being exchanged on January 1, 1777, he became lieutenant-colonel of the 11th Virginia regiment, and after the battle of Brandywine was made colonel of the 2d Virginia regiment. At Germantown he fought under General Greene; he led 4,000 men at the battle of Monmouth, and in the attack on Stony Point took the British commander prisoner. After the war he engaged in business in Philadelphia, and from November, 1789, until his death served as treasurer of Pennsylvania.

FECHTER, CHARLES ALBERT, actor, born in London, of German-French parentage, October 23, 1824; died in Pennsylvania, August 5, 1879. He first appeared on the stage in Paris in 1840, and in 1860 began playing in English in London. He was very successful in "Hamlet," "Othello," and other Shakespearian characters. For several years he managed the Lyceum theater, London, but this did not prove a financial success. In 1870, Fechter came to the United States, but his style did not prove acceptable to American critics and his managerial ventures in New York and Boston were failures.

FEEHAN, PATRICK A., born in Tipperary, Ireland, in 1829, was educated at Maynooth, and came to the United States in 1852. He became president of a seminary at Carondelet, held a pastorate in St. Louis, and in 1865 was consecrated bishop of Nashville. In 1880 he became the first archbishop of Chicago.

FELIPILLO, Peruvian Indian, born in Poeches in 1508; died in 1535. In 1527 Francisco Pizarro desired the Peruvians to give him two of their youths to be sent to Spain for an education, one of whom was Felipeillo. In 1531 he returned with Pizarro to Peru, where as an interpreter he made himself useful to the Spaniards and their commanders. In 1533 he and Hernando de Soto were sent to treat with the Peruvian monarch, Atahualpa. On this mission Felipeillo was smitten with one of the Inca's wives, and to further his purposes he gave such incorrect translations of the Inca's replies as to render the Spaniards suspicious of treachery. In September, 1535, when Almazro was on his way to invade Chili, Felipeillo was his interpreter. During the march of the Spaniards he fled from the army, probably for the purpose of betrayal, was taken prisoner and strangled by the general's order. Before his death Felipeillo confessed that he had wrongfully accused Atahualpa.

FELTON, CORNELIUS CONWAY, born in West Newbury, Mass., November 6, 1807; died in Chester, Penn., February 26, 1862. He was graduated at Harvard in

1827, and in 1834 received the Eliot professorship of Greek literature. Later he became a regent of the university. In 1853-54 he visited Europe and studied modern Greek. In 1858 he made a second visit to Europe and in 1860 was chosen president of Harvard, in which office he continued till the time of his death. He was also one of the regents of the Smithsonian Institution. President Felton made many contributions to literature in the leading magazines and reviews.

FENTON, REUBEN E., born at Carroll, N. Y., July 1, 1819; was elected to congress as a Democrat, and became a Republican in 1856. From 1863 to 1868 he was governor of New York, and in 1868 became United States senator. He died August 25, 1885.

FERDINAND, PRINCE OF BULGARIA, was born in Vienna, 1861, youngest son of Prince Augustus of Saxecoburg, served as an officer in the Austrian army, after the deposition of Prince Alexander was offered the vacant throne in 1887, accepted, and on August 14 took the oath to the Bulgarian constitution. His sovereignty has not been formally recognized by the Powers, but he has been received by the Emperor of Austria and by Queen Victoria. He married Princess Marie Louise of Parma, in 1893. In 1894 he quarreled with and dismissed M. Stambuloff, the great Bulgarian statesman.

FERGUSON, SIR SAMUEL, lawyer, born at Belfast, Ireland, in 1810. He wrote an amusing sketch, *Father Tom and the Pope*, and the poem *The Forging of the Anchor*. He was president of the Royal Irish Academy, and died in 1886.

FERGUSON, JAMES, born in Ayr, Scotland, in 1808; wrote the *Cave Temples of India*, a *History of Ancient and Modern Architecture*, and other works. He died January 9, 1886.

FERNANDEZ DE PIEDRAHITA, LUCAS, born in Bogota in 1624; died in Panama in 1688. On his mother's side he was descended from the Incas of Peru. After 1654 he became a favorite preacher and vicar general and governor of the archbishopric of Bogota. In 1663 he went to Spain to write a *Historia del Nuevo Reino de Granada*, a valuable work.

FERRARI, PAOLO, born at Modena, Italy, in 1822; died March 10, 1889. He is best known by his comedies, of which *Goldoni* (1852), and *Parine e la Satira* (1857), are the finest examples.

FERREIRA, ALEXANDRE RODRIGUES, born in Bahia, April 27, 1756; died in Lisbon, Portugal, April 23, 1815. He studied at Coimbra, in 1770, became professor of natural history in that university, and was sent by the government of Portugal to explore the country bordering the Amazon river, in 1783. In 1792 he returned, and in 1796 was made superintendent of the royal cabinet of natural history and botanical gardens.

FERRIER, DAVID, born at Aberdeen, Scotland, in 1843, graduated at the university of that town in 1863, and in medicine at Edinburgh in 1868. His chief medical work related to mental and cerebral diseases and lesions of the brain. He is a fellow of the Royal Society, and of the College of Physicians.

FERRIS, GEORGE W. G., was born at Galesburg, Ill., 1858, studied in California and, in civil engineering, at Troy, N. Y., and died Nov. 22, 1896. He built and erected the great Ferris wheel, 250 feet in diameter and height, which was the mechanical marvel of the World's Columbian Exposition in Chicago in 1893, and the delight of the thousands who rode in it.

FERRY, JULES FRANÇOIS CAMILLE, born in the Vosges, France, April 5, 1832, studied law in Paris, and contributed to *Le Temps* and other newspapers. In 1869 he was elected to the Corps Legislatif as a democrat, and after Sedan he became secretary of the Government



of National Defense, and assisted in suppressing the communistic rising in October, 1870. He became minister to Athens in 1872-73, and in 1876 returned to the National Assembly, where he led the Republican Left. In 1879 he became minister of public instruction under M. Grévy, and in this capacity proposed a law excluding the religious orders from the work of education. In September, 1880, M. Ferry became prime minister, and the next year embarked on the career of aggrandizement in Tunis, which caused his fall from power a year later. He again became premier in 1883, and again entered on the work of colonial expansion in Madagascar and Tonquin, but in March, 1885, had to resign. Called from retirement in 1893 by election as President of the Senate, M. Ferry died March 17, 1893.

FERRY, THOMAS WHITE, born in Mackinac, Mich., June 1, 1827; served in the State legislature some years and in Congress from December, 1865, to March, 1871, and was elected to the United States Senate in 1871. On the death of Vice-president Wilson in 1875, Mr. Ferry became acting vice-president, and served as such until March 4, 1877. He was reelected to the Senate, reelected president *pro tem.* 1877-79, and served until March, 1883. He died Oct. 14, 1896.

FESSENDEN, WILLIAM PITT, born in Boscawen, N. H., October 16, 1806; died in Maine, September 8, 1869. He practiced law in Maine and was elected to the State legislature in 1832, in 1840, and again in 1845-46. In 1840 he was elected to congress as a Whig and served one term. In 1853-54 he was again in the State legislature, and in February, 1854, took the seat in the United States Senate which he retained until 1864. He was a prominent opponent of the Kansas-Nebraska bill; took a leading part in the formation of the Republican party, and opposed slavery. On the resignation of Salmon P. Chase in July, 1864, Mr. Fessenden became secretary of the treasury, an office which he held until March 7, 1865. He was a third time elected to the Senate and became chairman of the joint committee on reconstruction and of the finance committee. He opposed the impeachment of Andrew Johnson, and was one of the seven Republican senators who voted "not guilty" in Johnson's case.

FEUILLET, OCTAVE, born in France, August 11, 1812; a distinguished novelist and dramatist. His most popular works are *The Romance of a Poor Young Man* (1858); *Monsieur de Camors* (1867); *La Veuve* and *La Morte* (1886). He became a member of the Academy in 1862 and died December 29, 1890.

FEVAL, PAUL HENRY, born in France, September 27, 1817, a popular novelist, died March 8, 1887.

FIELD, CYRUS WEST, born in Stockbridge, Mass., November 30, 1819. He received a good education and, in 1834, went to New York city as clerk in a dry-goods store. Some years later he entered the paper business. Retiring in 1853, he traveled for a while in South America, and on his return, in 1854, he began to give his attention to ocean-telegraphs. After some discouragement he was successful in procuring a charter to establish a telegraph from New York city to Newfoundland and thence to Europe. He crossed the Atlantic fifty times, and devoted thirteen years to the execution of this undertaking. He personally engaged in constructing the land line of the telegraph in Newfoundland, and accompanied the expeditions of 1857 and 1858, fitted out to lay the cable in the deep water of the Atlantic Ocean, between Europe and Newfoundland. Undismayed by the breakdown of the 1858 cable, he accompanied the expeditions of 1865 and 1866, the last of which resulted in complete success. For this achievement, Mr. Field received a gold medal from congress, and was covered with foreign decora-

tions. He was an energetic promoter of elevated railroads in New York city. The last year of his life was embittered by financial embarrassment and dishonor brought on by his son. He died July 12, 1892.

FIELD, DAVID DUDLEY, born in Haddam, Conn., in 1805; was admitted to the bar of New York in 1828, and practiced law for nearly sixty years, retiring in 1885, after he had been, for twenty-five years, the admitted head of the American bar. He made the simplification of legal procedure and the codification of laws his life work, and the code which he succeeded, after immense labors, in having adopted by the State of New York, early in the fifties, has been copied in the majority of the States of the union. His work in codifying international law was equally important. He died Apr. 13, 1894.

FIELD, HENRY M., brother of David Dudley, Cyrus and Stephen J. Field, was born in Stockbridge, Mass., April 3, 1822, became a Presbyterian preacher and in 1855 editor and proprietor of *The Evangelist*, New York. He has written a *History of the Atlantic Telegraph* (1866), and numerous books of travel.

FIELD, KATE, born in St. Louis about 1840, became a newspaper correspondent, lecturer, novelist, and actress, playing Peg Woffington in 1874 with success. She lectured on Mormonism and dress reform, and published *Kate Field's Washington*. Died May, 1896.

FIELD, STEPHEN JOHNSON, born in Haddam, Conn., in 1816, and died April 9, 1899. He became a judge of the Supreme Court of that State in 1857 and chief justice two years later. In 1863 he became associate justice of the United States Supreme Court. He was a member of the electoral commission of 1876 and voted with the Democratic minority. In 1880 he was a candidate for the presidential nomination and received sixty-five votes in the convention. In 1889 he was assaulted by Judge Terry, of California, who was killed by United States Marshal Nagle, who had been deputed to protect Judge Field.

FIFER, JOSEPH W., born at Staunton, Va., removed to McLean county, Ill., when a boy, and worked on a farm and as a bricklayer. In 1861 he enlisted in the 33d Illinois volunteers, serving in the ranks until July, 1863, when he was badly wounded at Jackson, Miss., but recovered and rejoined his regiment. After the war he studied at Illinois Wesleyan University, became a lawyer in 1869, corporation counsel of Bloomington in 1871, State's attorney of McLean county, 1877-80, and State Senator, 1880-84. He was elected governor of Illinois as a Republican in November, 1888, over Gen. John M. Palmer, and was defeated for reelection in 1892 by John P. Altgeld.

FINERTY, JOHN F., born in Galway, Ireland, in 1846, became identified, while a boy, with the Irish revolutionary movement, came to this country in 1864, served for a year in the Union army, became a Chicago reporter in 1865, and in this capacity witnessed the Fenian raids in Canada in 1866 and 1870. As war correspondent of the *Chicago Times*, he took part in the historical campaign against Sitting Bull in 1879. Mr. Finerty, although not holding any army appointment, distinguished himself in several battles on the Canadian border. He organized the Irish Land League convention which met in Chicago in 1881, and which raised \$500,000 for the cause of Ireland. In 1882 he began the publication of the *Citizen* newspaper, and in November of that year he was elected to Congress as an Independent from the second district of Illinois. In 1885 he received the Republican nomination for treasurer of the city of Chicago. He published in 1890 an account of his experience while fighting the Indians, under the title of "Wapath and Bivouac, or the Conquest of the Sioux Indians."



FISCHER, ERNST, born in Silesia, July 23, 1824; graduated at Halle, in 1847, and lectured on philosophy at Heidelberg and Jena. He is a follower of Hegel, and has written much on æsthetics and metaphysics.

FISH, HAMILTON, born in New York city, August 3, 1808. In 1827 he was graduated at Columbia, studied law, and was admitted to the bar in 1830. In 1842 he was elected to congress as a Whig, serving until 1845. In 1847-48 Mr. Fish was lieutenant-governor, and from 1849 to 1851 governor of the State of New York. In 1851 he was elected United States senator. After 1857 he spent several years in Europe, and in 1869 was appointed United States minister to France. Under the administration of President Grant, Governor Fish was appointed secretary of state, which office he filled for two terms with signal ability, settling several foreign disputes to this country's advantage. He died Sept. 7, '93.

FISK, CLINTON B., was born at Griggsville, N. Y., Dec. 8, 1828; died July 9, 1890. He served through the war, being appointed brigadier-general in 1862 and brevetted major-general in 1865, founded Fisk University for colored youth at Nashville, Tenn., in 1866, and was its president until his death, and in 1888 was the Prohibition candidate for president of the United States.

FISKE, DANIEL WILLARD, born in Jefferson county, N. Y., November 11, 1831; became assistant in the Astor library 1852-59, and in 1868 librarian at Cornell. He traveled in Sweden and Iceland and has written on the literature of both countries.

FISKE, JOHN, born in Hartford, Conn., March 30, 1842; graduated at Harvard and became lecturer, assistant librarian, and member of the board of overseers. He lectured on American history and published many important historical works. He died July 4, 1901.

FLAGG, GEORGE W., painter, born in New Haven, Conn., June 26, 1816; became a member of the National Academy of Design in 1851. His works include historical and figure pieces and portraits. His brother, JARED BRADLEY, born June 16, 1820, is a minister of the Protestant Episcopal Church and is well-known as a portrait-painter. Died Jan. 5, 1897.

FLAMMARION, CAMILLE, French astronomer, born February 25, 1842, edited the *Cosmos*, and became scientific editor of the *Siècle* in 1865. He made many balloon ascents for scientific purposes, and received in 1880 the Monthyon prize for a work on popular astronomy.

FLAUBERT, GUSTAVE, born at Rouen, France, December 12, 1821; died May 9, 1880. He belonged to the realistic school of novelists, and is well known in America by his *Madame Bovary* and *Salammbô*, which have been translated and extensively circulated.

FLEGEL, EDUARD ROBERT, born in Russia, October 13, 1855; died in equatorial Africa, September 11, 1886. He made several expeditions through the Niger and Cameroon country under the auspices of the German Colonial Society.

FLEISCHER, HEINRICH L., born in Saxony, February 21, 1801; died February 10, 1888. For many years he was professor of Oriental languages at Leipzig, and translated and edited several Arabic works.

FLETCHER, BENJAMIN, governor of New York, born in England about 1650; died about 1720. He was colonel in the British army, and became governor of New York under William and Mary.

FLINT, AUSTIN, born in Petersham, Mass., October 20, 1812; died March 13, 1886. He studied at Amherst and Harvard, and graduated in medicine in 1833. Doctor Flint held professorial chairs in Rush Medical College, Chicago; in Buffalo, Louisville, New Orleans, and New York. He was president of the New

York Academy of Medicine from 1872 to 1885, and president of the American Medical Association in 1884. His medical works cover many volumes, and have had a great circulation.

FLINT, AUSTIN, JR., son of the foregoing, was born in Northampton, Mass., March 28, 1836, and graduated in medicine in 1857. He edited the *Buffalo Medical Journal*, which had been established by his father. For many years he held professional appointments in connection with leading hospitals and schools of medicine in New York and other cities. He has published numerous monographs on medical and scientific subjects.

FLOQUET, CHARLES THOMAS, born in France, October 5, 1828, became a lawyer and appeared as counsel for the accused in numerous political trials during the Second Empire. In February, 1871, he was elected to the National Assembly, but being charged with complicity with the Commune was imprisoned for several months. He served five years in the Municipal Council of Paris as a Radical, returned to the Chamber in 1877 and in 1881 became its vice-president. He favored the separation of church and state and advocated the expulsion of all dynastic pretenders. M. Floquet became president of the Chamber in 1885 and has since served as premier. He is a talented orator and prominent journalist. Died Jan. 18, 1896.

FLORENCE, WILLIAM J., actor, born in Albany, N. Y., July 26, 1831; made his first stage appearance in 1849. He performed with great success in Irish characters and his "Bardwell Slote" in *The Mighty Dollar*, and "Captain Cuttle" in *Dombey and Son* were great favorites. Mr. Florence married in 1853, and his wife became a popular actress. He died Nov. 19, 1891.

FLOTOW, FRIEDRICH VON, composer, born in Mecklenburg April 27, 1812; died January 24, 1883. He spent most of his life in Paris, and his operas, *Stradella*, *Martha*, and the like, are of a light and pleasing character.

FLOWER, ROSWELL P., born in Jefferson county, N. Y., August 7, 1835; was elected to congress from New York city as a Democrat in 1881 and again in 1888 and in 1890. He was a member of the committee on ways and means. In November, 1891, he was elected Governor of New York State. Died May 12, 1899.

FLOYD, JOHN BUCHANAN, born in Virginia June 1, 1807; died August 26, 1863. He served in the Virginia legislature in 1847-49 and in 1853, and was governor of the State 1850-53. Under Buchanan he was secretary of war from March, 1857, until the fall of 1860, when he resigned and went over to the Confederacy. He was charged with having used his official position to aid the rebellion by sending cannon and arms to the South and dispersing the army throughout the country, but a committee of the House of Representatives exonerated him. In 1861 he received a commission as brigadier-general in the Confederate army, was defeated at Fort Donelson February 16, 1862, and relieved from command.

FLOYD, WILLIAM, born in Suffolk county, N. Y., December 17, 1734, died August 4, 1821. He was a member of every continental congress from 1775 to 1782, and signed the Declaration of Independence.

FOLEY, THOMAS, born at Baltimore in 1823; died in 1879. He was ordained priest of the Roman Catholic church in 1846, became chancellor of the arch-diocese of Baltimore in 1848, and vicar-general in 1867. In 1869 he was appointed coadjutor bishop of Chicago, Bishop Duggan having become insane. He built the Cathedral of the Holy Name, and greatly improved the condition of church affairs in his diocese.

FOLGER, CHARLES JAMES, born in Nantucket, Mass., April 16, 1818; died September 4, 1884. He



was admitted to the bar in 1839, and held various judicial offices in New York State. In 1856 he joined the National Republican party, and from 1861 to 1869 sat in the State Senate. In 1869-70 he was assistant treasurer of the United States in New York, in 1871 was elected to the State Court of Appeals, served as Chief Justice in 1880, and was reelected as associate for a full term the same year. In October, 1881, President Arthur made him secretary of the treasury, which office he held until his death. In September, 1882, he received the Republican nomination for governor of New York, but the "mugwumps" voted with the democrats against the "machine," and Grover Cleveland defeated Judge Folger by a majority of more than 190,000.

FONSECA, DEODORO DA, president of the United States of Brazil, attained that office on November 15, 1889, when the empire of Dom Pedro II. was quietly overturned without bloodshed. General Fonseca had held several minor government offices and received a military education. He died Aug. 23, 1892.

FOOTE, ANDREW HULL, born in New Haven, Conn., September 12, 1806; died June 26, 1863. He became a midshipman at sixteen years old, and was made captain in 1849. In February, 1862, he took part in the naval attacks on Fort Henry and Fort Donelson, and on April 7th captured Island No. 10. For these services he was made rear-admiral and received the thanks of Congress.

FOOTE, HENRY STUART, born in Virginia September 20, 1800; died May 20, 1880. He became a lawyer and editor in Mississippi, and in 1847 was elected to the United States senate as a unionist. He resigned in 1852 to run for governor against Jefferson Davis, whom he defeated. Foote opposed secession in the Knoxville convention in 1859, but subsequently sat in the Confederate congress. He opposed Mr. Davis' policy, and was in favor of accepting terms. After the war he became a Republican, and President Grant made him superintendent of the United States mint at New Orleans.

FORAKER, JOSEPH BENSON, born in Highland county, Ohio, July 5, 1846; enlisted in the volunteer service at sixteen years old and served through the war. He graduated at Cornell in 1869, was admitted to the Ohio bar the same year, and from 1879 to 1882 was judge of the superior court of Cincinnati. In 1883 he was the Republican candidate for governor of Ohio, but was defeated. He was successful in 1885 and again in 1887, but was defeated in 1889.

FORBES, ARCHIBALD, born in Morayshire, Scotland, in 1838; was educated at Aberdeen University, and served several years as a trooper in the dragoons. In 1870-71 he went through the Franco-Prussian war as special correspondent for the London *Daily News*. He witnessed the closing scenes of the Paris Commune, described the Civil war in Spain, went to India with the Prince of Wales in 1875-76, and was all through the Russo-Turkish war in 1877. In 1879 he went to Zululand for his paper, and there—as everywhere else—managed to see everything, and to report the events of the war in advance of all competitors. He has lectured in the United States, England, and Australia, and has written some novels and a *Life of Chinese Gordon*.

FORD, CORYDON L., born in Greene county, N. Y., August 29, 1813; graduated in medicine in 1842. He held professional chairs at Geneva, N. Y., Buffalo, Castleton, Vt., Pittsfield, Mass., and Bowdoin College, and was professor of anatomy and physiology at Michigan University. He is considered one of the ablest teachers of anatomy in the country.

FORREST, EDWIN, born in Philadelphia, March 9, 1806; died there December 12, 1872. He made his theatrical debut as "Douglas" in Home's tragedy of that name, and traveled and performed in the theaters of the West and Southwest without attracting much notice. In November, 1826, he played a star engagement at the New York Bowery theater, where he opened in the character of "Othello," which was pronounced a signal success. This was followed by other parts acted with no less ability. He left New York, a prominent tragedian and a great favorite, to repeat his dramatic triumph in other cities of the Union. After playing for several years he visited Europe for recreation and study. He returned to the United States in 1831, and continued playing with unabated attraction until the autumn of 1836, when he sailed for Europe. His first appearance in England was as "Spartacus" in the *Gladiator*, which was followed by "Macbeth," "Lear," and "Othello." In London he married a daughter of John Sinclair, the popular Scottish vocalist, and in November of the same year began an engagement in Philadelphia. In 1845, in company with his wife, he again visited London, and performed at the Princess' theater. Much professional jealousy arose between Forrest and Macready, the favorite tragedian of the British stage, which led to open outbreaks of temper, in consequence of which the American actor lost the favor of the British public. In May, 1849, when Macready was playing in this country as "Macbeth" at the Astor Place opera house, a riot ensued. On this occasion twenty rioters were killed and thirty six wounded. The actor's marriage with his British wife proved an unhappy one; divorce suits were brought on both sides, that occupied the courts for several years, and were finally decided in the wife's favor. In 1853 Forrest performed at the Broadway theater for several weeks. In 1865 he became gouty, and one of his arms was slightly paralyzed. Forrest's trip to California in 1866 was unsuccessful. His last theatrical appearance was made at Boston in March, 1871, when he broke down during the engagement. Later, he endeavored to give readings from Shakespeare's plays, but they failed to attract.

FORREST, NATHAN BEDFORD, born in Tennessee, July 13, 1821; died October 29, 1877. He became a planter and afterward a slave-dealer, and in June, 1861, raised a cavalry regiment for the Confederacy and was engaged at Fort Donelson, Shiloh, Murfreesboro, and Chickamauga. Becoming a major-general, he commanded at the attack on Fort Pillow in April, 1864. The works were taken by assault and the colored troops of the garrison were mercilessly slaughtered, no quarter being given. Forrest was promoted lieutenant-general. Gen. J. H. Wilson defeated him in April, 1865, and he surrendered at Gainesville a month later. After the war he engaged in the railroad business.

FÖRSTER, ERNST JOACHIM, born at Munich in 1800, became well known as a fresco painter and a writer on art. He died April 29, 1885.

FÖRSTER, HEINRICH, born in Silesia, November 24, 1800; became a Catholic priest in 1825, and in 1853 was made prince-bishop of Breslau. He was deprived of his see under the Prussian May laws, and died October 20, 1881.

FORSTER, WILLIAM EDWARD, born in Dorsetshire, England, July 11, 1819; died April 5, 1886. He made a fortune as a woolen manufacturer, and in 1861 entered parliament as an advanced Liberal. After holding several minor offices under Mr. Gladstone he entered the cabinet in 1870, and was instrumental in passing the elementary education bill and the ballot law. In 1874 he visited the United States, and in 1875 was elected



lord rector of Aberdeen University. Mr. Forster accepted in 1880 the office of chief secretary for Ireland. In this capacity he introduced the compensation for disturbance bill, a measure designed to relieve the tenant class. This passed the House of Commons but was rejected by the Lords. The Land Act of 1881 was accompanied by a Coercion act, and when the Land League issued its "No Rent" manifesto Forster retaliated by proclaiming the League as illegal. Under the Coercion Act he imprisoned Mr. Parnell and a great many members of the Irish Parliamentary party, as well as several hundred priests and private citizens. He became known as "Buckshot" Forster, from an order which he gave to the Royal Irish constabulary to load their guns with buckshot instead of ball. When the Gladstone cabinet released the "suspects" Forster resigned, and thereafter opposed all of Mr. Gladstone's remedial measures.

FORSYTH, JAMES W., born in Ohio in 1835; graduated at West Point in 1856, and served on the staff of McClellan and Sheridan. He was brevetted colonel and brigadier-general in the regular army, became brigadier-general of volunteers, and in 1886 colonel of the 7th United States Cavalry, stationed on the frontier.

FORSYTH, JOHN, born in Virginia, October 22, 1780; died October 21, 1841. He practiced law in Georgia, was elected attorney-general of that State in 1808, and sat in congress from 1813 to 1818, when he became United States senator. In 1819 he resigned to become minister to Spain, and negotiated the Florida cession with that country. From 1823 to 1827 he was again in congress, and in 1829 was again elected senator. In 1834 he resigned and served as secretary of state under Jackson and his successor, Van Buren, until March 3, 1841.

FORTIN, PIERRE, born in Quebec in 1823; has held numerous government appointments, and was speaker of the legislative assembly in 1875. In the Canadian parliament he represented Gaspé from 1867 to 1874; sat in the legislative assembly 1867 to 1881, and afterward in the Dominion parliament. He is a prominent Conservative.

FOSS, CYRUS DAVID, born in Kingston, N. Y., January 17, 1834, became an M. E. minister in 1857, and in 1875 was elected president of Wesleyan University. In May, 1880, he was elected and ordained bishop.

FOSTER, BIRKET, artist, born in England, February 4, 1825. He became one of the most prominent of English wood-engravers, and is equally well known as an artist in water-colors. He died in 1893.

FOSTER, CHARLES, born at Tiffin, Ohio, April 12, 1828; engaged in business in Fostoria, and was very successful. In 1870 he was elected to congress as a Republican, and was three times reelected. He became governor of Ohio in 1879, and was reelected in 1881. On the death of Mr. Windom in January, 1891, Mr. Foster became Secretary of the Treasury.

FOSTER, ELLEN H., born in Lowell, Mass., in November, 1840; was married in 1859. She is a lawyer, newspaper editor, and lecturer, and a prominent advocate of woman suffrage and prohibition.

FOSTER, GEORGE E., born in New Brunswick, September 3, 1847, was elected to the Dominion parliament in 1879, and became minister of marine in 1885, and in 1894 was minister of finance in the Dominion cabinet. He is president of the International Temperance Association, and is author of *The Prohibitionists' Handbook*.

FOSTER, JOHN WATSON, born in Indiana, March 2, 1836; became a lawyer, served in the Civil war and

later edited the *Evansville Journal*. He was United States minister to Mexico, 1873-80, to Russia in 1881, and to Spain 1883-85. He was Secretary of State 1892-95 and in 1895 China appointed him as commissioner to secure peace with Japan.

FOSTER, JOHN WELLS, born in Massachusetts, March 4, 1815; died in Chicago, June 29, 1873. He studied geology, made surveys of the Lake Superior copper region, was president of the Chicago Academy of Sciences and wrote many scientific papers.

FOSTER, LAFAYETTE SABINE, born in Franklin, Conn., November 22, 1806; died September 19, 1880. He graduated at Brown University in 1828, practiced law in Connecticut, and edited the *Norwich Journal* in 1835. In 1839-40, and again from 1846 to 1848 he sat in the legislature as a Whig, and for two years was speaker. He was mayor of Norwich 1851-52, twice unsuccessful as a Whig candidate for the governorship, and in 1854 was again elected to the Assembly, and chosen speaker. In May, 1854, he was elected to the United States Senate, and reelected in 1860, serving until March, 1867. He joined the Republican party in 1856, and supported the Union cause during the war. In 1865 he was president *pro tem.* of the Senate, and became acting vice-president of the United States, when Andrew Johnson succeeded to the presidency. In 1870 he again became a member and speaker of the Connecticut assembly, and in June was elected to the State supreme bench by the legislature. He supported Greeley for the presidency in 1872, and was defeated as a Democratic candidate for congress two years later. From 1870 to 1876 he was a judge of the State supreme court.

FOSTER, RANDOLPH S., born in Williamsburg, Ohio, February 22, 1820, entered the Methodist ministry in 1837 and for twenty years held pastorates. In 1856 he became president of the Northwestern University at Evanston, Ill., and in 1870 was elected president of Drew Theological Seminary. In May, 1872, he was elected bishop.

FOWLER, CHARLES HENRY, born in Canada, August 11, 1837; graduated at Garrett Biblical Institute, Evanston, Ill., and held successive Methodist Episcopal pastorates in Chicago till 1872, when he became president of the Northwestern University. In 1876 he became editor of the *New York Christian Advocate*, and in 1884 was elected bishop.

FOX, GUSTAVUS VASA, born in Massachusetts, June 13, 1821; died October 29, 1883. He joined the United States navy as midshipman January 12, 1838, and resigned as lieutenant in 1856. In 1861 he became assistant secretary of the navy, which position he held until the close of the war.

FOX, MARGARET and KATHERINE, spiritualistic jugglers, born in 1836 and 1839 in New York State. The elder sister began to manifest her "wonders" when she was about twelve years of age, under the tuition of some adult. The younger sister also soon became initiated in this mystery. At about this time the family removed to Rochester, and in 1849, under careful management, ventured to appear in public halls before committees, who were unable to trace any human agency in their astounding manipulations. In May, 1850, the sisters appeared in New York city with their alleged "spiritual manifestations," attracting much notice and turning the heads of the credulous. So artful was their juggling that not alone the ignorant, but persons of position and learning were led to believe in them. When Doctor Kane prepared to travel in quest of the North Pole, in 1853, he retired the elder sister from the platform and provided for her wants and education. On his return in 1855 she claimed to have been married to



the explorer and bore his name after his death. The younger sister continued her deceptions for some time longer, until they were exploded and explained by ordinary sleight-of-hand performers. In 1889 Margaret Fox made a public confession of fraud claiming that she produced the rappings with a dislocated big toe, but later she retracted the confession. Katharine continued the seances until 1888 and died in July 1892. Margaret died in destitution, March 8, 1893.

FRANCIS II., ex-king of Naples, known as "Bomba Second," was born January 31, 1836, and succeeded his father, Ferdinand II., in 1858, and married in the same year Caroline of Bavaria, sister of the empress of Austria. In 1860 the Sicilians rose in insurrection, Garibaldi defeated the royalist troops in every battle, and Francis fled. He died Dec. 27, 1894.

FRANCIS JOSEPH I., emperor of Austria and king of Hungary, was born August 18, 1830, and succeeded to the throne of Austria, December 2, 1848, on the abdication of his uncle, Ferdinand I. In April, 1854, he married the Princess Elizabeth, daughter of Duke Maximilian-Joseph. Their son, the Crown Prince Rudolph, born in 1858, married in 1881 the Princess Stéphanie of Belgium, and committed suicide, January 30, 1889. The heir presumptive to the throne is the Archduke Charles Louis, born July 30, 1833, who is married to a daughter of Dom Miguel of Portugal. Francis Joseph, on ascending the throne, promised to govern as a constitutional monarch, but immediately dissolved the national assembly and assumed absolute power. Rebellion in Hungary was put down with the help of Russia, and the Italian provinces were held by the iron hand of Radetsky. The Austrian emperor remained neutral during the Crimean war. In 1855 he signed a concordat with the Pope, giving the clergy full power over education. In 1859 occurred the war with France and Italy, when Francis Joseph took the field in person. The decisive Austrian defeats at Magenta and Solferino led to the treaty of Villafranca, by which Austria lost Lombardy. In the spring of 1864 the Austrians and Prussians combined to rob Denmark of the Schleswig-Holstein duchies, and the quarrel over the spoils led in June, 1866, to war between Austria and the combined forces of Prussia and Italy. The Seven Days' war, which ended at Sadowa, broke the power of Austria. By the treaty of Prague Francis Joseph gave up to Italy all Venetia and the fortresses of the Quadrilateral, and surrendered to Prussia the duchies and all claim to control in Germany. In 1865 the emperor adopted a policy of conciliation toward Hungary, and on June 8, 1867, he was crowned king of that country. A more liberal form of government was granted to the dual monarchy, a civil marriage bill was passed, and in July, 1870, the concordat was suspended. Since that time Francis Joseph has reigned as a constitutional monarch.

FRANKLIN, WILLIAM, illegitimate son of Dr. Benjamin Franklin, born in Philadelphia in 1729; died in England in 1813. He was the last royalist governor of New Jersey, and a bitter Tory, and received a pension from the English Government.

FRANKLIN, WILLIAM BUEL, born in York, Penn., February 27, 1823; graduated at West Point in 1843, and was assigned to the corps of topographical engineers. He was brevetted lieutenant for gallantry at Buena Vista, and became captain in 1857. In May, 1861, he was appointed colonel of the 12th United States infantry, received a brigadier-general's brevet in June, 1862, and that of major-general in March, 1865. He became brevet brigadier-general of volunteers in May, 1861, and brigadier-general in July 1862. He commanded a brigade at Bull Run, and led the sixth army corps through the Peninsula. He was engaged at

South Mountain, and commanded the left grand division at Fredericksburg, December 13, 1862. Burnside removed him for alleged insubordination, but the president did not approve the order of removal, and Burnside resigned his command. Franklin was given command of the nineteenth army corps, took part in the Red River expedition, and was wounded April, 1864, and obliged to leave the army. He resigned in 1866, and engaged in the manufacture of fire-arms. In 1880 he became president of the board of managers of the National Soldiers' Home.

FRANKLIN, SAMUEL R., brother of the foregoing, born in York, Penn., August 25, 1825, became midshipman in 1841, and lieutenant in 1855. He was actively employed in the naval service during the Civil war, became captain in 1868, commodore in 1880, and rear-admiral in 1885. In 1887 he was retired under the rule.

FRANZ, ROBERT, musical composer, born at Halle, June 28, 1815. He wrote a large number of songs and edited and arranged the works of Bach and Handel. He died October 24, 1892.

FRANZOS, KARL EMIL, born of Jewish parents on the Russo-Austrian frontier, October 25, 1848. He became connected with the press of Vienna and Pesth, and has written several novels of marked descriptive power.

FRASER, ALEXANDER, C., D.C.L., LL.D., professor of logic and metaphysics in the University of Edinburgh, was born in Scotland in September, 1819. From 1850 to 1857 he edited the *North British Review*, and he has contributed extensively to the reviews, magazines, and encyclopædias.

FRASER, CHARLES, painter, born at Charleston, S. C., August 20, 1782; died October 5, 1860. His chief works are portraits.

FRASER, CHRISTOPHER F., born in Brockville, Ontario, in 1839; entered the legislature of Ontario in 1872, was provincial secretary and registrar, and in 1874, became commissioner of public works.

FRASER, SIMON, British soldier, born in Scotland, 1729; died in Saratoga, N. Y., October 7, 1777. He entered the British army as ensign, was with the army in the Netherlands and in Germany, later led a regiment in Canada against Louisburg, and followed General Wolfe to the assault on Quebec. For some years he commanded the garrison at Gibraltar, and served in Ireland. On April 5, 1776, he embarked for Quebec, where Sir Guy Carleton appointed him acting brigadier-general. During that year he was engaged in the contest at Three Rivers, and active in repelling the American forces.

FRAZER, JOHN FRIES, born in Philadelphia, July 8, 1812; died October 12, 1872. He acted as laboratory assistant to Prof. Alex. D. Bache, and was afterward connected with the Pennsylvania survey. In 1844 he became professor of chemistry and natural philosophy in the University of Pennsylvania, with which he was connected until his death. From 1850 to 1866 he edited the *Franklin Institute Journal*. He was a member, secretary, and vice-president of the American Philosophical Society and one of the original members of the National Academy of Sciences.

FRAZER, PERSIFOR, son of the foregoing, was born in Philadelphia, July 24, 1844, served in the United States army and navy during the Civil war, and in 1869 became connected with the United States Geological Survey. In 1870 he was appointed professor of chemistry in the University of Pennsylvania, and later held a similar position in the Franklin Institute. He is a member of many home and foreign scientific societies.

FRECHETTE, LOUIS HONORÉ, born in Quebec, November 16, 1849; has been long connected with the



press of Canada, and has published several volumes of poems. In 1884 he became chief editor of *La Patrie*, Montreal.

FREDERICK CHARLES, prince and field-marshal of Germany, was born in Berlin, March 20, 1828, and died June 15, 1885. He was the eldest son of Prince Charles, brother of the Emperor William I. Frederick Charles entered the Prussian army when a boy, served in the first Schleswig-Holstein war, commanded the right wing in the second Danish war, and defeated the Austrians at Königgrätz in 1866. He commanded the second army in 1870, drove Bazaine back into Metz, and received the surrender of that fortress October 27, 1870. Thence he marched on Orleans, which he captured, defeated General Chanzy at Le Mans, and broke up the army of the Loire. He was known as the "Red Prince," from the fact that he always wore a red hussar uniform. His daughter, Louise Margaret, married the duke of Connaught, son of Queen Victoria, in 1879.

FREDERICK WILLIAM, grand duke of Baden, born September 9, 1826; succeeded his father as regent in 1852, and assumed the title of grand duke in 1856. In the same year he married the only daughter of William I. of Prussia. He assisted Prussia in the war of 1870-71.

FREEMAN, EDWARD AUGUSTUS, D.C.L., LL.D., was born in Staffordshire, England, in 1823; was elected scholar of Trinity College, Oxford, in 1841, and fellow in 1845. He was afterward examiner in law and modern history, and in 1884 became regius professor of modern history. His great work is the *History of the Norman Conquest*, one of the leading historical productions of the century. Mr. Freeman is a member of many learned societies, and has been decorated by half a dozen governments. He has written extensively on architecture, history, and conquests of the Saracens, federal government, the Ottoman power in Europe, English and European history, and many other subjects. He died March 16, 1892.

FREEMAN, JAMES, clergyman, born in Charlestown, Mass., April 22, 1759; died November 14, 1835. He was educated in the Episcopal Church, but adopted Unitarian tenets, and was the first American minister of that persuasion. Harvard made him D.D. in 1811.

FREI (or FREY), EMIL, Swiss statesman and diplomat, born at Arlesheim, October 23, 1838; while temporarily in this country in 1861 enlisted in the Union army as a sergeant, was captured at Gettysburg and suffered privations in Libby prison. Returning home after the war, he was sent as minister of Switzerland to the United States, 1882-87, and was elected president of the Swiss Republic, December 14, 1893, for one year.

FRELINGHUYSEN, THEODORE, born in New Jersey, March 28, 1787; died April 12, 1861; was attorney-general of New Jersey, 1817-29, United States senator, 1829-35, and Chancellor of the university of New York. In May, 1834, he was nominated for vice-president by the Whigs, Henry Clay heading the ticket. In 1850 Mr. Frelinghuysen became president of Rutgers' College, which position he held until his death.

FRELINGHUYSEN, FREDERICK THEODORE, born in New Jersey, August 4, 1817; died May 20, 1885. He practiced law and held minor offices in New Jersey, and in 1861 became attorney general of that State. From December, 1866, to March 4, 1869, he served as United States senator. In 1870 he was nominated and confirmed as minister to England, but declined the appointment. In July, 1871, he was again elected to the United States Senate, and served until 1877. He was a strong Republican; voted for the conviction of Andrew Johnson, supported the civil rights bill, and was an ardent protectionist. He was a member of the

Hayes-Tilden electoral commission. On December 12, 1881, he became secretary of state in President Arthur's cabinet, and held office until March 4, 1885.

FRÉMONT, JOHN CHARLES, born in Savannah, Ga., January 21, 1813. He was of French descent. In 1830 he was graduated at Charleston College, and in 1833 received the appointment of teacher of mathematics on the sloop-of-war *Natchez*; two years later he was made professor of mathematics in the United States navy. In 1839 he was commissioned lieutenant in the corps of topographical engineers, and in 1842 conducted a geographical survey of the then almost unknown region between the Missouri river and the Pacific ocean. In May, 1843, he set out on a still longer expedition from the Rocky mountains to the Pacific coast. On his return in 1844 he was brevetted captain, and in the spring of 1845 was sent to explore the great Western basin, and the maritime region along the Pacific, an expedition that resulted in the acquisition of California to the United States. These achievements brought him general notoriety, and he became popularly known as the "Pathfinder." During his absence on the Pacific coast war was declared between the United States and Mexico, and General Kearny was sent to take possession of California. Frémont refused to obey some orders of the general, who was his military superior, was placed under arrest, and ordered to report at Washington. He was tried by court-martial, found guilty, and ordered to be dismissed from the service. President Polk sustained a part of the sentence, but remitted the penalty, and Frémont resigned his commission. In October, 1848, he fitted out, at his own expense, a large expedition, with the object of finding a practicable route over the mountains to California. After many hardships, he and his party reached Sacramento in the spring of 1849. Here he bought a large estate containing rich gold mines. In 1850-51 he was United States senator from California. In 1853 he led a fifth expedition along the line of the fourth, and in 1855 he located in New York city. In 1856 he was the first candidate of the Republican party for president of the United States, and was defeated. When the Civil war began Frémont was made major-general, in command of the Western department, his headquarters being at St. Louis. Here, without authority, he issued a proclamation freeing the slaves in his district, which was not confirmed by the government. Frémont was recalled from the West thereafter and placed in command in Western Virginia; here he was out-generated by the Confederate commander "Stonewall" Jackson. When General Pope was placed in command of all the forces in western Virginia, Frémont resigned his commission and took no further active part in the war. In 1864 the Cleveland convention nominated him for the presidency, but he withdrew his name. Subsequently he devoted himself mainly to the promotion of a southern railroad across the continent, and spent much time in Europe for this purpose. In connection with this enterprise he was charged with irregularities in France, was tried while absent, found guilty, and sentenced to fine and imprisonment; but as he was absent the penalty could not be enforced. From 1878 to 1881 Frémont was governor of Arizona Territory; later he practiced law in New York city. On October 19, 1841, Frémont was secretly married to Jessie, daughter of Senator Thomas H. Benton, of Missouri. In May, 1890, congress placed him on the retired list of the army, with rank of major-general, and on July 13, 1890, he died. His publications include a *Report of the Exploring Expedition to the Rocky Mountains in 1842, and to Oregon and North California in 1843-4* (Washington, 1845; New York, 1846; London, 1849); *Col. J. C.*



*Frémont's Explorations*, an account of all five of his expeditions (2 vols., Philadelphia, 1859); and *Memoirs of my Life* (Chicago, 1886).

FRENCH, BENJAMIN F., born in Richmond, Va., June 8, 1799; died May 30, 1877. He contributed largely to magazines, and published *Biographia Americana* (1825), *Historical Annals of North America* (1861), and other works.

FRENCH, DANIEL CHESTER, sculptor, born in Exeter, N. H., April 20, 1850. He studied in Italy, worked a year or two in Washington, D. C., and, in 1872, returned to Florence, where he has since resided. Among his best-known works are *The Minute Men of Concord*, *The May Queen*, *Elsie Venner*, *Peace and War*, and a bronze bust of *A. Bronson Alcott and Death and the Sculptor*, exhibited in Chicago in 1893.

FRENCH, VIRGINIA, born in Maryland in 1830; died March 31, 1881. She wrote poems and sketches and *Legends of the South*.

FRENCH, MANSFIELD, born in Vermont, February 21, 1810; died March 15, 1876. He became an itinerant Methodist preacher, edited a religious monthly, and was connected with several seminaries and colleges. In 1862 he became agent of the National Freedman's Relief Association, and attempted, with little success, to teach the negroes how to farm.

FRENCH, WILLIAM HENRY, born in Baltimore, Md., January 13, 1815; died May 20, 1881. He graduated at West Point in 1837, entered the artillery, and served in the Seminole and Mexican wars. In 1861 he was appointed brigadier-general of volunteers, and served in the army of the Potomac during the Peninsular campaign. He commanded a division at Antietam and Fredericksburg, and in October, 1862, became major-general of volunteers. He served in the campaign of the Rappahannock, and commanded the third army corps at Mine Run. In May, 1864, he was mustered out of the volunteer service, and, from 1865 until 1880, served in the United States artillery. He was retired under the rule, when lieutenant-colonel, in 1880.

FRENEAU, PHILIP, author, born in New York city January 21, 1752; died near Freehold, N. J., December 18, 1832. He was of French descent, and was graduated at Princeton in 1771. In 1776 he visited the West Indies, and in 1778 went to the Bermuda Islands. In 1780, during the war of the Revolution, he again sailed for the West Indies, when he was captured by a British cruiser. After the return of peace Freneau became in succession editor of a newspaper, and captain of a ship that plied between New York, the West Indies and the Southern States. In 1790 he edited the *New York Daily Advertiser*. Under Jefferson's administration Freneau was made translator for the state department, and also became editor of the *National Gazette*. Later he published the *Jersey Chronicle*, which in 1797 was followed by the publication of the *Time-piece* and *Literary Companion*. From that time until his death he rarely came before the public.

FREPPEL, CHARLES EMILE, born in France, June 1, 1827, entered the priesthood and in 1870 became bishop of Angers. He was returned to the chamber of deputies as a legitimist in 1881, and reelected in 1885. He wrote a criticism on Renan's *Vie de Jesus*, and many histories of church fathers. He died December 22, 1891.

FRERE, SIR HENRY BARTLE EDWARD, born in Wales, March 29, 1815; died May 29, 1884. He entered the Indian civil service in 1833, and in 1862 became governor of Bombay, and in 1867 a member of the Indian council. In 1872 he negotiated a treaty for the abolition of the slave trade with the Sultan of Zanzibar. In 1877 he was appointed governor of the Cape and high commissioner. He antagonized the

Boers and began an unjust, unnecessary, and disastrous war against the Zulus, and in 1880 was recalled. He was president of the Royal Asiatic and Royal Geographical Societies and published several works on African and Indian subjects.

FRÈRE, PIERRE EDOUARD, born in Paris, January 10, 1819; died May 23, 1886. He studied under Delaroche and began to exhibit at the Salon in 1843. Among his best works are the *Student*, *Luncheon*, *The Sempstress*, *Prayer*, and the *Gleaner Boy*. In 1855 Frère became a knight of the Legion of Honor.

FRÈRE-ORBAN, HUBERT JOSEPH, born in Liege, Belgium, April 22, 1812; joined the Liberal party and entered the Chamber in 1841. He served several years as finance minister and minister of public works, became president of the council in 1861, and finance minister again in 1868. In 1870 he resigned and in 1878 became head of the cabinet and minister of foreign affairs. He resigned in 1884 when a Catholic majority was returned to the Chamber. Died Jan. 2, 1896.

FREUND, WILHELM, born in Posen, January 27, 1806, of Jewish parentage. He studied at Berlin and Breslau, and has prepared a number of dictionaries and school-books. Died June 14, 1894.

FRUYCINET, CHARLES LOUIS DE, born in France, November 14, 1828; attained prominence as a constructive engineer. In October, 1870, he became second in command to Gambetta in the war department. In 1876 he was elected senator, in 1877 he became minister of public works, and in 1879 premier and foreign minister. He resigned in September, 1880, but formed ministries in 1882 and 1886, for short periods, and in 1890, serving as premier and minister of war until 1892 and crushing Boulangerism.

FREYTAG, GUSTAV, born in Prussian Silesia, July 13, 1816; was educated at Breslau and Berlin. For twenty-three years he edited the *Grenzboten*, or *Messenger of the Frontier*. He has also published several dramatic compositions, some poems, and a popular novel, *Soll und Haben*. He died May 1, 1895.

FRIEDLÄNDER, MICHAEL, born April 29, 1833, in Prussian Posen, of Jewish parentage. He graduated at Halle in 1862 and in 1865 became principal of the Jews' college. He has published many commentaries and translations from the Hebrew.

FRIEZE, HENRY S., born in Boston, September 15, 1817. He graduated at Brown University in 1841 and in 1854 became professor of Latin language and literature in the University of Michigan, of which he has twice acted as temporary president. He is LL. D. of Chicago, Kalamazoo, Brown University, and the University of Michigan. He died December 7, 1889.

FRISBY, EDGAR, born in England May 22, 1837; graduated at the University of Toronto and became professor of mathematics in the Northwestern University. In 1878 he became professor of mathematics in the United States navy, and he has written extensively on comets and eclipses.

FRITH, WILLIAM POWELL, born near Ripon, England, in 1819; first exhibited at the British Institution in 1839. In 1845 he became A.R.A., and in 1852 was made an academician. His two great pictures *The Derby Day*, and *The Railway Station*, have been engraved many times, and some of his productions, such as *Coming of Age*, *English Merry-making*, *The Village Pastor*, and *Life at the Seaside*, are almost equally well-known. Mr. Frith is a member of the Academies of Vienna, Belgium, and Sweden.

FROEBEL, JULIUS, nephew of the founder of the Kindergarten system, was born in Germany in 1806. He was educated at Jena, Munich, and Berlin, and in 1833 removed to Switzerland, where he edited a Republi-



can paper. In 1848 he was elected to the Frankfort parliament and in the same year was arrested with Robert Blum at Vienna, court-martialed and sentenced to death, but was pardoned. He came to the United States, where he became naturalized, edited a German newspaper and acted as correspondent for the New York *Tribune*. In 1862 he went to Vienna, where he affiliated with the Federal party. In 1873 he became consul of the German Empire at Smyrna, and in 1876 was transferred to Algiers. He wrote an account of his travels in Central America and Mexico. He died in 1893.

FROTHINGHAM, OCTAVIUS BROOKS, born at Boston, November 26, 1822; graduated at Harvard in 1843, and became pastor of a Unitarian church in Salem, Mass. In 1855 he removed to New Jersey, and in 1859 to New York, where he acted as minister of an independent religious organization for twenty years. He wrote on theology. He died Nov. 27, 1895.

FROTHINGHAM, RICHARD, born in Charlestown, Mass., January 31, 1812; died January 29, 1880. He was for many years proprietor and managing editor of the Boston *Post*, served several terms in the State legislature, and in 1851-53 was mayor of his native town.

FROUDE, JAMES ANTHONY, born in Devonshire, England, April 23, 1818; was educated at Westminster and at Oriol College, Oxford, where he took a second class in classics, in 1840. In 1842 he won the chancellor's prize, and became a fellow of Exeter. He took holy orders and became connected with the High Church party, but afterward grew less orthodox. The publication of *The Nemesis of Faith* led to his resignation of his fellowship. In 1856 he published the first two volumes of his *History of England*, completed in 1870. In 1869 he was elected rector of the University of St. Andrews, and was made LL.D. In 1872 he resigned his office of deacon. The same year he lectured in the United States on the relations between England and Ireland, and became involved in a controversy with Father "Tom" Burke. Mr. Froude acted as literary executor of Thomas Carlyle, and published his *Reminiscences* in 1881, and *History* in 1882. He wrote *Oceana* (1886), an account of an Australian voyage and *Life of Lord Beaconsfield* (1890.) He died October 20, 1894.

FRY, CARY HARRISON, born in Kentucky, August 20, 1813; died March 5, 1873. He was graduated at West Point in 1834, served in the Mexican war and was acting paymaster-general during the Civil war. In 1867 he was brevetted brigadier-general in the regular army.

FRY, JAMES BARNET, born in Illinois, February 22, 1827; graduated at West Point in 1847, fought in Mexico, and was adjutant at West Point, 1854-59. He became assistant adjutant-general in March, 1861, and was chief of staff to Gen. Irvin McDowell and Gen. D. C. Buell. On March 17, 1863, he became provost-marshal-general of the United States, which position he held until August, 1866. He received a major-general's brevet in 1865 and retired from active service in June, 1881. He died July 11, 1894.

FRY, JOSEPH, born in Louisiana in 1828; shot at Santiago de Cuba, November 7, 1873. He entered the United States navy in 1841, became lieutenant in 1855, and resigned in 1861 to enter the Confederate army. In 1873 he accepted the command of the filibustering steamer *Virginus*, and, being captured by a Spanish man-of-war, was shot, with thirty-six of his crew.

FRY, WILLIAM HENRY, musician, born in Philadelphia, Penn., August 10, 1815; died in Santa Cruz, West Indies, December 21, 1864. He received a good education at Philadelphia and Emmettsburg, Md., and in 1839 became employed as a writer for his father's newspaper, the Philadelphia *Gazette*. In 1835 he began a thorough study of music, and wrote for full

orchestra four overtures that were performed in public. In 1845 he produced his English opera, *Leonora*, in New York and Philadelphia. In 1846 Fry was engaged as European correspondent for the New York *Tribune* and some other journals. He remained abroad until 1852, when he returned to New York city to become musical editor of the *Tribune*. He wrote the music to an ode for the opening of the New York industrial exhibition of 1853, delivered a number of lectures on musical subjects, and also produced two symphonies, *The Breaking Heart* and *A Day in the Country*.

FRYE, WILLIAM PIERCE, born in Lewiston, Me., September 2, 1830; graduated at Bowdoin in 1850, and began law practice in his native town. After serving two terms in the legislature, one as mayor of Lewiston and one as attorney-general of Maine (1867-9), he was elected to congress as a Republican and was five times reelected, serving from 1869 to 1881, and in the last named year was elected to the United States Senate to fill the vacancy caused by the resignation of James G. Blaine. In 1883 he was reelected and again in 1889 and 1895.

FULLER, GEORGE, born in Deerfield, Mass., in 1822; died March 21, 1884. He studied painting under Henry Kirke Brown, was elected an associate of the National Academy, and exhibited largely from 1873 until his death.

FULLER, MELVILLE W., born in Augusta, Me., February 11, 1833; graduated at Bowdoin College in 1853. He studied law at Bangor, Me., and at Harvard, and in 1855 began practice in his native city. Here he edited the *Augusta Age*, became president of the common council, and in 1856 city-attorney. In the last-named year he removed to Chicago, where, for thirty-two years, he conducted a highly successful law practice. Mr. Fuller was a member of the Illinois Constitutional Convention in 1862, and of the Illinois House of Representatives in 1863. A strong Democrat, he served as a delegate to all the national conventions from 1864 to 1880, inclusive. President Cleveland nominated him chief justice of the United States Supreme Court, April 30, 1888, and he was confirmed by the Senate July 20, and took the oath of office October 8th following. He is LL.D. of Bowdoin College and of the Northwestern University.

FULLER, THOMAS BROCK, born in Kingston, Canada, July 16, 1810; was ordained in the Anglican Church in 1835, became archdeacon of Toronto in 1867, and bishop of Niagara in 1875. Died in 1885.

FULLERTON, LADY GEORGIANA, an English novelist, born in 1812; died in 1885. She was a daughter of Earl Granville and married Captain Alexander Fullerton in 1833. Her works include *Ellen Middleton*, *Grantley Manor*, and *Constance Sherwood*.

FULTON, JUSTIN DEWEY, born at Earlville, N. Y., March 1, 1828; became a Baptist minister in 1853. He held pastorates in St. Louis, Sandusky, Ohio, Albany, N. Y., Boston, and Brooklyn. He is a voluminous author, a strong temperance man, and a bitter opponent of Roman Catholicism. Died April 16, 1901.

FURNESS, WILLIAM HENRY, born at Boston, Mass., in 1802; died May 4, 1867. He in 1825 became pastor of a Unitarian church in Philadelphia. He was an ardent abolitionist. He made some admirable translations of noted German works.

FURNISS, HARRY, caricature artist, was born in Wexford, Ireland, March, 1854; became a staff artist of London *Punch* in 1884, contributed much to American periodicals and founded the comic weekly *Lika Joko* in 1894.

FURNIVALL, FREDERICK JAMES, born in Surrey, England, February 4, 1825; was educated at University College, London, and Trinity Hall, Cambridge. He



has devoted his life mainly to the study of early and middle English literature, and has established societies for the study of special works, such as the early English Text Society, the Chaucer, Wyclif, Browning, and Shelley societies.

FÜRSTENBURG, FREDERICH VON, born at Vienna, Austria, October 8, 1812; became prince-archbishop of Olmutz in 1853, and in 1879 was made a cardinal. He died August 19, 1892.

## G.

GABB, WILLIAM MORE, born in Philadelphia, January 16, 1839; died there May 30, 1878; was one of the foremost of American paleontologists and geologists. His short but active life was devoted to science, and he wrote extensively on the topography and geology of Santo Domingo, Costa Rica, and California. He was a member of the National Academy of Sciences and of other home and foreign scientific societies.

GABORIAU, EMILE, a distinguished French novelist, was born at Sanjon in 1835. He served in a cavalry regiment, and on his discharge from the army worked in a factory. Turning his attention to literature he produced a number of sensational stories, of which the chief were *L'Affaire Lerouge*, *Le Dossier No. 113*, and *Le Crime d'Orival*. Gaboriau died in Paris, September 28, 1873.

GACHARD, LOUIS PROSPER, historian, born in Paris, March 12, 1800; took part in the Belgian revolution of 1830; was naturalized in Belgium, and took charge of the national archives. From these he compiled the correspondence of William the Silent (6 vols.), that of Philip II. (4 vols.), and that of Margaret of Austria (3 vols., 1867-81). Gachard died in 1885.

GADE, NIELS WILHELM, musical composer, was born in Copenhagen, February 22, 1817. He studied at Leipsic under Mendelssohn, whose methods he followed. In 1848 he returned to his native city, and in 1865 he became director of the Conservatory of Music. He wrote many overtures, symphonies, cantatas, and an opera of some merit, and died in 1890.

GADSDEN, CHRISTOPHER, born in Charleston, S. C., in 1724. He was a delegate to the first continental congress which met at Philadelphia in September, 1774. During the Revolutionary war he served as colonel, was promoted brigadier-general, and, as lieutenant-governor of South Carolina, signed the capitulation of Charleston. After suffering nearly a year's imprisonment as a prisoner of war he was released, and elected governor of his State, but declined the office. He died in his native city in 1805.

GADSDEN, CHRISTOPHER EDWARDS, grandson of the patriot, was born in Charleston, S. C., November 25, 1785, and died there June 24, 1852. He graduated at Yale in 1804, took holy orders in 1807, held various pastorates in Charleston and elsewhere, and was consecrated bishop of the Protestant Episcopal church June 21, 1840. He was the author of several religious works, and for some years edited the *Gospel Messenger*.

GADSDEN, JAMES, brother of the foregoing, was born at Charleston, S. C., in 1788; was educated at Yale and served in the war of 1812-14 and in the Seminole campaign. He became a planter in Florida and in 1853 became minister to Mexico. In that capacity he negotiated the treaty, known by his name, which modified the treaty of Guadalupe Hidalgo, and under which the United States acquired territory now included in Arizona and New Mexico on payment of \$10,000,000. Gadsden died December 25, 1858.

GAGE, LYMAN J., banker, was born at De Ruyter, Madison county, N. Y., June 28, 1836. When he was ten years old his parents removed to Rome, Oneida county, N. Y., where he had for a short time the advantages of an academic schooling. At the age of

eighteen he entered the Oneida Central Bank as office boy and general utility clerk. In October, 1855, he resigned that position and came to Chicago to seek his fortune. In August, 1858, he entered the service of the Merchants' Savings, Loan and Trust Company, as bookkeeper. His advancement was rapid. Within a year he was promoted to the position of paying-teller. In 1860 he was made assistant cashier, and in 1861 was appointed cashier. At the organization of the Bankers' Clearing House he was elected manager. This appointment he declined, but filled the duties of manager until a suitable appointment could be made. In August, 1868, he accepted a flattering proposal from the First National Bank of Chicago, thus dissolving his connection with the Merchants' Loan and Trust Company. In 1882, upon the reorganization of the First National Bank, he was elected vice-president, and subsequently president. He has never been a candidate for political office, but has been highly honored in various social and business societies to which he belongs. He was the first president of the Bankers' Club, and in 1883 became president of the Commercial Club of Chicago. In 1883 he was chosen president of the American Banker's Association, which office he held for three successive terms. His services in behalf of the Columbian World's Exposition were great, and he was elected president in May, 1890, but declined reelection in 1891. He was president, 1894-95, of the Civil Federation, and Secretary of the Treasury (1897-1901).

GAGE, MATILDA JOSLYN, born in Cicero, N. Y., March 24, 1826; married in 1845; became well known as an advocate of the abolition of slavery and the extension of the suffrage to women. For eleven years she edited the *National Citizen*, and she also wrote *Woman as an Inventor* and *The History of Woman Suffrage*, the latter work in association with Susan B. Anthony and Elizabeth C. Stanton. She died in 1894.

GAGERN, HEINRICH WILHELM AUGUST, BARON VON, born at Baireuth in 1799; died May 23, 1880. In May, 1848, he became president of the Frankfurt parliament and leader of the liberal constitutional party. In December of the same year he was made president of the council of ministers, but resigned in March following. His brother MAXIMILIAN, born in 1810, also sat in the Frankfurt parliament.

GAGNON, LUCIAN, born in Canada, took part in the abortive rebellion of 1837, and succeeded in escaping to the United States, where he died in 1842.

GAILLARD, CLAUDE FERDINAND, born in Paris, January 7, 1834; died in 1887. He is best known as a painter by his admirable *St. Sebastian*, which he also successfully engraved.

GAILLARD, EDWIN SAMUEL, physician, born in South Carolina, January 16, 1827; died in Louisville, Ky., February 1, 1885. He graduated at the University of South Carolina in 1845, practiced in New York and Baltimore, and served in a professional capacity in the Confederate army. In 1865 he began practice in Richmond, Va., established the Richmond and Louisville *Medical Journal* and the *American Medical Weekly*, and became professor in the Medical College of Virginia, and afterward in the Louisville Medical College, of which he was the first dean. He



was M.A. and LL.D. of the University of North Carolina.

GAILLARD, JOHN, born in South Carolina in 1765; died February 26, 1826; served in the United States Senate from 1805 until his death, and was president *pro tem.* in seven congresses.

GAINE, HUGH, born in Ireland in 1726; died in New York in 1807. In 1752 he established the New York *Mercury* as a weekly Whig organ, but during the Revolution turned it into a Tory paper.

GAINES, EDMUND PENDLETON, was born in Virginia in March, 1777, and died in New Orleans, June 6, 1849. He entered the United States army in 1799, fought on the frontier, resigned in 1811, but reentered the army in 1812, and for gallant conduct at Fort Erie in August, 1814, was brevetted major-general and received the thanks of congress. He afterward fought against the Creeks and Seminoles, and was instrumental in raising troops for the Mexican war.

GAINES, MYRA CLARK, wife of the foregoing, was born in New Orleans in 1805, and died there at the age of eighty. She was the daughter of an Irishman named Daniel Clark, who was United States consul in Louisiana when it was a French possession, and who died, leaving much property, on August 16, 1813. Under a will dated May 20, 1811, his property went to his mother, Mary Clark, of Germantown, Penn. Clark, although supposed to be a bachelor, was said to be the father, by a young French woman named Des Granges, of two daughters, one of whom was Myra. She was brought up by one Davis, a friend of Clark, and was known as Myra Davis. She married in 1832 Mr. Whitney, who learned from Davis of the existence of a will made by Clark in 1813, acknowledging Myra as his legitimate daughter and bequeathing her his property, which included some of the most valuable real estate in New Orleans. A private marriage of Mme. Des Granges to Clark in 1803 was sworn to by several witnesses; the Supreme Court of Louisiana restored the lost will, and the United States Supreme Court declared the marriage valid and Mrs. Whitney legitimate. Whitney died and his widow married General Gaines, who in 1849 died also. In 1856 Mrs. Gaines filed a bill in equity to recover real estate of great value, then in possession of the city of New Orleans, and in 1867 the United States Supreme Court decided in her favor. In 1877 the probate of the will of 1813 was recognized by a United States circuit judge, and an accounting was ordered. In May, 1883, Mrs. Gaines obtained a judgment for nearly \$2,500,000, including interest, and pending an appeal she died.

GALE, SAMUEL, born in Florida in 1783; became a lawyer and afterward a judge in Canada, and died in Montreal, April 15, 1865.

GALIGNANI, JOHN ANTHONY, born in London of Italian parents in 1796; for many years conducted with his brother WILLIAM (1798-1882) the paper known to all European travelers as *Galignani's Messenger*. The elder Galignani died in Paris, December 30, 1873.

GALLAGHER, HUGH P., born in Donegal, Ireland, in 1815; died in California in March, 1882. He came to the United States in 1837 and entered the Roman Catholic priesthood in 1840. After many years of faithful service in Pennsylvania he went to California, where he built many churches and schools and established the *Catholic Standard* newspaper.

GALLAGHER, NICHOLAS A., born in Ohio, February 19, 1846; was ordained priest in the Roman Catholic Church in 1868; filled various pastorates in Ohio, and was administrator of the diocese of Columbus 1878-80. In 1882 he was consecrated bishop of Galveston.

GALLAGHER, WILLIAM DAVIS, born in Philadelphia, August 21, 1808; began life as a printer; edited various journals in Ohio and Louisville, and has written extensively both of prose and verse.

GALLAHER, JOHN NICHOLAS, born in Kentucky, February 17, 1839; studied law, but afterward attended a theological seminary and took priest's orders in the Protestant Episcopal Church in 1869. He held successive pastorates in Louisville, New York, and New Orleans, and on February 5, 1880, was consecrated bishop of Louisiana. He died December 7, 1891.

GALLAUDET, EDWARD MINER, born in Hartford, Conn., February 5, 1837; organized several institutions for the instruction of deaf-mutes and the blind. He is LL.D. of Trinity College, Hartford, and Ph.D. of Columbian University.

GALLE, JOHANN GOTTFRIED, born in Prussian Saxony in 1812; became the director of the Berlin Observatory, and shares with LEVERRIER (*q.v.*) the honor of discovering the planet Neptune. He afterward became professor of astronomy at Breslau.

GALLENCA, ANTONIO CARLO, born at Parma, Italy, November 4, 1810; died December 17, 1895. He took part in the political outbreaks there in 1831; went to France, the United States, and other countries and was naturalized in England in 1849. He wrote for the London *Times*, and is the author of numerous historical works. From 1854 to 1864 he sat in the Piedmontese and Italian parliaments.

GALLIFET, GASTON ALEXANDRE, MARQUIS DE, born at Paris, January 23, 1830; entered the French army in 1848; commanded a regiment in Africa, and became general of brigade in the army of the Rhine 1870-71. During the second siege of Paris he commanded a brigade of the Versailles troops and won unenviable notoriety by his merciless severity in dealing with the Communist prisoners. Notwithstanding this fact he was promoted to high command on the reorganization of the army under Gambetta. In 1875, having meantime won distinction in Africa, he was made a general of division. He is a commander of the Legion of Honor and ranks high as a cavalry officer.

GALLOWAY, CHARLES B., born in Mississippi in 1849; was educated at the University of Mississippi; became an itinerant Methodist preacher, and in 1886 was ordained a bishop of the M. E. Church South. He edited the New Orleans *Christian Advocate* for several years.

GALT, SIR ALEXANDER T., son of John Galt, the Scottish novelist (1779-1839), was born at Chelsea, England, September 6, 1817, and emigrated to Canada when a boy. For many years he was commissioner of the British and American Land Company, and in 1849 he entered the Canadian parliament as a liberal. He was finance minister from 1858 to 1862 and from 1864 to 1866. From July to November, 1867, he was finance minister of the Dominion. He was a member of the fisheries commission under the treaty of Washington, and a member of the Halifax Fisheries Commission. After 1857 he allied himself with the Liberal-Conservative party, and he is considered one of the leading authorities on finances in the Dominion. He became grand commander of the order of St. Michael and St. George in 1878. He died September 19, 1893.

GALT, SIR THOMAS, brother of the foregoing, was born in England in 1815; removed to Canada in 1828, and was called to the bar in 1845. In 1858 he became queen's counsel, in 1869 judge of the common pleas, and afterward chief justice. He was knighted in 1888.

GALTON, FRANCIS, born in 1822 at Birmingham, England, is a grandson of Dr. Erasmus Darwin, and cousin of Charles Darwin, the naturalist. He grad-



uated in Cambridge in 1844, and spent several years in explorations on the White Nile, publishing his *Narrative of an Explorer in Tropical South Africa* in 1853. Professor Galton is an F.R.S.; has been president of the Royal Society and the Royal Geographical Society, and of the Anthropological Institute, and has presided over the geographical and anthropological sections of the British Association on several occasions.

GAMBETTA, LEON, the great French Republican leader to whose efforts was greatly due the rehabilitation of France after the war of 1870-71, was born in Cahors, a small city of the south of France, April 3, 1838. His father was a small trader of Italian extraction, the family originally coming from Genoa. Young Gambetta obtained an ordinary education at a provincial school and college, and in 1858 went to Paris to study law. Baptized and confirmed in the Roman Catholic faith, he practically abandoned all church communion before reaching manhood and became a materialist and a persistent opponent of clericalism. His life in Paris during the years which immediately followed his admission to the bar was one of struggles and poverty. The Napoleonic system denied anything in the nature of advancement to liberal advocates or barristers, and Gambetta had already become known by his fiery denunciations of the sham Caesarism of "Napoleon le Petit." But in 1868 his opportunity came. In that year some of the radical Parisian journals opened a subscription for a monument to the memory of Baudin, the deputy who was murdered during the *coup d'état*. Gambetta appeared for the defense of the veteran Delécluze and against him were arrayed the best forensic talent the government could command. The fiery Southerner's speech in denunciation of the men and methods of December woke a responsive echo in the hearts of the people and proclaimed the moral rottenness of the Second Empire in all its shame.

In the following year Gambetta contested seats in the chamber at both Paris and Marseilles, and being elected at both chose to sit for Paris. In July, 1870, came the declaration of war against Germany, followed swiftly by tidings of repeated disasters from the front. The democratic leader sought vainly to elicit the truth from the ministry, which tried to delude the people with optimistic reports. Earlier than any of his associates he pressed upon the ministry the necessity of arming the national guard and of facing the crisis so rapidly approaching. On the morning of Sunday, September 4, 1870, the overwhelming news of the surrender at Sedan reached Paris, and the Napoleonic dynasty was swept away by the force of an indignant people. Gambetta entered the ministry, which was constituted at the Hôtel de Ville by popular acclamation. He was made minister of the interior in the provisional government, which became the government of the national defense.

His first act was to issue a call for the convocation of the National Assembly on September 8th, but meantime the Prussians were pressing toward Paris, and this could not be held. As the invading army drew its cordons around the city, cutting off the government from all communication with the armies still in the field, it became imperative that some member of the government must leave Paris. The only possible method of escape was by balloon, and early in October Gambetta thus left the city, reaching Tours in safety. As the representative of the government outside Paris he became practically the dictator of France. He formed the nucleus of a government and issued a proclamation calling upon the people to rise and repel the invader. France responded heroically, and there is no parallel in history to the gigantic efforts made by Gambetta to organize the undisciplined patriotism of the country into an army.

It looked for a few brief weeks as if the army of the Loire might have succeeded in stopping the Germans, but Bazaine's treasonable surrender of Metz blasted all hopes, and the raw levies of Faidherbe, Chanzy and d'Aurelles de Paladine melted away before the trained organization of the Germans. Even when starving Paris capitulated in January, 1871, the tireless organizer declared his intention of carrying on the war *d'outrance*, but his proclamation to this effect was nullified February 4th by his colleagues in the capital, and he resigned his position. Four days later ten departments elected him to the National Assembly, which met at Bordeaux to approve the terms of peace preliminarily arranged by Jules Favre. Gambetta chose to sit for the department of the Bas-Rhin, but the surrender of Alsace to Germany left him without a seat. He resigned and retired to St. Sébastien, Spain, in order to avoid voting for the ratification of the treaty.

Meantime Paris fell into the hands of the commune, and had to be reconquered by the troops of M. Thiers. Gambetta was reelected to the assembly at the supplemental elections in July, but his little band of followers were in a hopeless minority, and royalism and clericalism dominated the representative chamber. Little by little Gambetta succeeded in reorganizing the scattered Republicans. In 1872 he made a tour through the south of France, which was one continued ovation. At Grenoble, in September of that year, he made a memorable speech in opposition to the policy of M. Thiers, and when that statesman was driven from power in May, 1873, Gambetta had once more become the leader of a united party, which he ultimately led to victory. At this period of his public career the fiery advocate, the organizer of the patriot army, developed new powers of self-restraint, and displayed a calmness and patience which, in the face of Orleanist plots and clerical schemes, safely led the country to the permanent adoption of a republican form of government.

In February, 1875, the assembly decreed the republican form of constitution, and Gambetta, on April 23d, made a great speech at Belleville, the Communist quarter of Paris, in which he defended and supported the new organic law. It soon became evident that Marshal MacMahon, who had succeeded M. Thiers as president of the republic, with a seven years' term allotted him, had gone over to the reactionary party. The years 1876 and 1877 were probably those of the greatest perils the Third Republic had known. DeBroglie was plotting for the return of the Orleanists; MacMahon was a royalist at heart, and the Ultramontanes and Bonapartists were ready for anything. Gambetta was president of the budget committee of the assembly, and thus controlled the purse-strings of the nation. The reactionary attempt of May 16, 1877, united the Republicans, and in October of that year their triumph at the polls was complete. In January, 1879, Gambetta, by his famous "soumettre ou démettre" (submit or resign) speech addressed to MacMahon, forced his resignation and M. Grévy became president for the first time.

Republican institutions had become incorporated in the law of the land, and the new chief of the state proved anxious to rule constitutionally. Gambetta, while actually holding the power in his own hands, declined to assume the responsibilities of office in 1880, and contented himself with the presidency of the chamber. His great idea was the substitution of the *scrutin de liste*, or vote by departments, for the *scrutin d'arrondissement* or district voting, and until this end was reached he did not desire to take office. In August, 1880, he became president of the council, and, in November, 1881, he assumed the premiership. His ministry lasted but a few weeks, and was, in effect



wrecked by himself. He proposed a reform which would have necessitated a new election by a new body of electors, and to this the chamber would not listen. But in his partial retirement Gambetta retained his leadership of the great Republican party which he had built up and led to victory, and his return to power, either as prime minister or as president of the republic, seemed but a matter of a few months or the possibility of a day. At the height of his power the great popular tribune was stricken down. On November 27, 1882, it was reported that he had met with an accident while handling a revolver. On the last day of the year he died. The circumstances of his untimely taking-off were mysterious, but the generally accepted account refers his death to the hand of a woman. Gambetta was honored and France honored herself by a public funeral of unexampled pomp, and a magnificent colossal statue of him has been raised in Paris, while other great French towns have also reared monuments to his fame.

GANNETT, EZRA STILES, born at Cambridge, Mass., May 4, 1801; graduated at Harvard in 1820, and in 1824 became the assistant of Dr. William Ellery Channing in Boston. In 1842, on the death of Doctor Channing, he became sole pastor, and held this position until his death in August, 1871. He edited the *Christian Examiner*, 1844-49.

GARCIA-CALDERON, FRANCISCO, born in Arequipa, Peru, in April, 1829; became professor of philosophy and mathematics in the university of his native city; was afterward elected to the chamber, and became secretary of the treasury in 1868. He attempted to form a new government after the war with Chili and the fall of Lima, and was sent to Chili as a prisoner. In 1884 he was elected to the Senate and became president of that body.

GARDINER, JAMES TERRY, born in Troy, N. Y., May 6, 1842; was associated with Clarence King in the United States survey and afterward with F. V. Hayden in surveying the Territories. From 1876 to 1886 he directed the State survey of New York. He has been secretary of the American Geographical Society and is a member of several scientific societies.

GARDINER, SAMUEL RAWSON, born in England, March 4, 1829; educated at Oxford, became a fellow of All Souls' College and professor of modern history at King's College, London. He has written a *History of England from 1603 to 1642*, a *History of the Great Civil War*, and other historical works bearing on the times of the later Stuart kings.

GARDNER, CHARLES K., born in New Jersey in 1787; entered the United States army in 1808, and distinguished himself on the northern frontier in 1814-15. He served under Jackson as first assistant postmaster-general, and under Van Buren as auditor of the treasury, and from 1850 to 1867 was connected with the treasury department. He died in Washington, D. C., November 1, 1869.

GARDNER, GEORGE WARREN, born in Vermont, October 8, 1828; became a Baptist minister with pastorates in Massachusetts and Ohio, and in 1881 president of the Central University of Iowa. He was connected with the *Watchman* and other religious papers, and Dartmouth gave him the degree of D.D. in 1867.

GARDNER, JOHN LANE, born in Boston, August 1, 1793; entered the regular army in 1812; fought on the Canadian frontier, and in the Florida war, became lieutenant-colonel, and in 1860 was in command of Charleston, S. C. He was removed by Secretary Floyd, when he announced his determination to defend Fort Moultrie. During the Civil war he was engaged in recruiting service; in 1865 he was breveted brigadier-general, and on February 19, 1869, he died.

GARFIELD, JAMES ABRAM, twentieth president of the United States, was born at Orange, Cuyahoga county, Ohio, November 19, 1831. His father, who died when he was a child, was a native of New York State, and his mother was of New England ancestry. The boy was born in a log cabin, worked around home and on neighbors' farms, and acquired a scanty education at the district school, supplemented by the instruction of his mother, a devout Christian and a woman of superior intelligence. For several months young Garfield drove a mule team on the Ohio canal tow-path.

In the winter of 1849-50 he obtained some additional instruction in a seminary at Chester, Ohio, and on his vacations learned the trade of a carpenter. At an early age he joined the Campbellite (Disciples) church, and in 1851 entered a college of that denomination at Hiram, Portage county, Ohio. Here he remained three years, becoming a good Latin scholar, and acquiring considerable knowledge of mathematics. In 1854 he entered Williams College, Mass., whence he graduated in 1856. Returning to Ohio, he became teacher of the classical languages at Hiram, and in the following year was made, at the age of twenty-six, its president. Here, on November 11, 1858, he married Lucretia Rudolph (born April 19, 1832), whom he had first met as a fellow-student, and by whom he had seven children.

While acting as president of Hiram, Mr. Garfield studied law, and on Sundays preached in neighboring towns. In 1859 he was elected as a State Senator, this being his first entry into the political field. His birth and education made him an active opponent of slavery, a strong Republican, and an out-and-out Union man. He cast his first vote for John C. Frémont as president in 1856. In 1861 began a new chapter in Garfield's history. In August of that year, at the head of a regiment largely composed of his own old pupils, he went to the front, reporting in December to General Buell at Louisville. He was given a brigade, and, with about 1,400 men, was commissioned to act against Gen. Humphrey Marshall, who was in occupancy of eastern Kentucky. In the fighting which followed the Union troops were entirely successful, though contending against odds of six to one, and Marshall was driven from his position. Middle Creek (fought January 10, 1862) was one of the most important of the minor battles of the war, and, being won by raw troops over trained forces commanded by a West Point graduate, the moral effect was the greater.

Mr. Lincoln rewarded the young soldier with a brigadier-generalship, dating his commission from the day of the battle. He was assigned to the command of the twentieth brigade, reached Shiloh in time for the second day's fight, and took a prominent part in the operations before Corinth. Here he became ill with malaria, and, on July 30, 1862, obtained leave of absence and returned home, where he stayed two months. In September he was ordered to Washington, and assigned to court-martial duty. Notable among the cases which he tried was that of Fitz-John Porter. In February, 1863, he reported to General Rosecrans, then in command of the army of the Cumberland, who made him his chief-of-staff. In this capacity he, in the following June, alone of seventeen generals consulted by Rosecrans, advised in favor of an immediate advance against Bragg. At the battle of Chickamauga, Garfield, at great personal risk, carried a message from Rosecrans to Thomas, and for this he was made a major-general September 19, 1863.

Meantime, in November, 1862, the nineteenth congressional district of Ohio had elected Mr. Garfield as its representative in the thirty-eighth congress. He succeeded Joshua R. Giddings, the anti-slavery leader,



who for twenty-one years had represented this important constituency in the national legislature. General Garfield brought to his new field of labor a thorough knowledge of the needs of the army in the field, and he soon became known as an authority on the vital questions of the time. When elected to the State legislature he was the youngest member of the Senate, when promoted to a brigade he was the youngest brigadier-general in the army, and now, at thirty-two, he found himself the youngest member of the house of representatives. He opposed the proposed increase of enlistment bounties for new recruits and advocated the draft. In 1864 he was reelected by a majority of 12,000 votes, and from that time until 1880 he represented his district in congress.

In 1865 he left the committee on military affairs to become chairman of the ways and means committee. He had made a special study of finance and had a natural aptitude for financial legislation. Throughout his public life he was a consistent advocate of a sound currency, and financial heresies of all kinds found in him a sturdy opponent. He was chairman of the committee on banking and currency in the forty-first, and of the committee on appropriations in the forty-second and forty-third congresses, while in the three succeeding (Democratic) congresses his thorough knowledge of finance secured him a place on the ways and means committee. He opposed Andrew Johnson and acted throughout with the Union party in congress. In 1876 he visited Louisiana to watch the counting of the electoral vote, and, although he had opposed the creation of the electoral commission, he became one of the Republican representatives in that body. On January 13, 1880, while still a member of congress, Mr. Garfield was elected United States senator by the legislature of Ohio.

In June, 1880, the Republican convention for the nomination of a candidate for the presidency was held in Chicago. At this historic convention the chief candidates were General Grant, James G. Blaine, and John Sherman. Mr. Garfield came to the convention at the head of his State delegation, and favoring the candidacy of Mr. Sherman. The Grant delegates, 306 in number, held together for 33 ballots. The others were united on but one point, "anything to beat Grant." It became evident that neither Blaine nor Sherman could obtain a majority. The names of Edmunds, Washburne, and others were suggested and received many votes, but there was practically a dead-lock until the thirty-fourth ballot, when Wisconsin voted solidly for Garfield. It was followed in part by Connecticut, Illinois, and Indiana. Mr. Garfield, who had nominated Sherman, and with his whole delegation had supported him throughout, rose and said he had not given his consent, but was ruled out of order. On the thirty-sixth ballot the States one after another voted for Garfield and he received 399 votes, a majority of all cast, and the nomination was declared unanimous.

The campaign which followed was a bitter one, but on November 2, 1880, General Garfield proved the victor over the Democratic nominee, Gen. Winfield Scott Hancock. The Republican candidate received 215 of the electoral votes; his opponent 155. The popular vote was very close; Garfield's majority being only 7,018. On March 4, 1881, President Garfield was inaugurated at the White House. On the following day he announced the names of his cabinet and selected Mr. Blaine as secretary of state. Less than four months later Garfield fell before the pistol of an assassin. On the morning of July 2d he went down to the Washington station of the Baltimore and Potomac railroad to take a train for New York. He was accompanied by Mr. Blaine, and as they passed together

through a waiting-room a man came up behind and fired two shots from a revolver at the president, who fell senseless to the floor. His assailant, who proved to be a half-crazy man named Charles Julius GUITEAU (*q. v.*), was promptly arrested. The wounded president was carried to the White House, and lay there suffering for sixty-six days. An examination showed that one bullet had passed through the arm without breaking any bones, but the other had entered the back, and its course was a matter of uncertainty. The sufferer was attended night and day by several physicians, but it was found impossible to determine the exact location of the ball, and in August it became evident that pyæmia had developed. In the vain hope that change of air might prove beneficial the president was removed to a seaside cottage near Long Branch, and there, on September 19th, after eighty days of suffering, borne with heroic fortitude, he died. Two days later the remains were removed to Washington, where they lay in state in the rotunda of the capitol, and thence were removed to Cleveland, where they were laid to rest in the cemetery of Lakeview, where a magnificent monument has been erected to the memory of America's second martyr president.

GARIBALDI, GIUSEPPE, born at Nice, July 22, 1807. In 1834, having compromised himself by participating in a futile revolutionary outbreak at Genoa, he fled to France simultaneously with the publication in Italy of the sentence of his condemnation to death. He volunteered to serve Uruguay in its war with Buenos Ayres, and soon gave proof of so remarkable a talent for military leadership, that he was raised to the supreme command both of naval and military operations. In 1848, war having broken out between Austria and the liberals of Italy, Garibaldi hastened to Europe. He bore an effective part in the Italian campaign, and distinguished himself at Rome by his resistance to the French forces, which, during four weeks, were successfully kept at bay, and repeatedly repulsed by the republican forces of Rome, under his command. Early in 1860 insurrectionary disturbances broke out in Palermo, and were repeated throughout the interior of the island. Garibaldi assembled at Genoa a volunteer force of 1,070 patriots, and on May 5th set sail for Sicily. On the 11th the landing of his followers was successfully effected in sight, and partially under fire, of the Neapolitan fleet. On the 15th, in the battle of Calatafimi, 3,600 Neapolitan troops were routed by Garibaldi's force, and to this victory may be attributed the subsequent success of the entire expedition. On the 18th of the same month Garibaldi and his little army occupied the heights which command Palermo, and, after a desperate battle with the royalist troops, fought his way into that city. The Neapolitan general capitulated, and on his departure with his troops, Garibaldi remained in possession of the city. On July 20th, at the head of 2,500 men, he gave battle at Melazzo to 7,000 Neapolitans, who were defeated, and compelled to evacuate the fortress. On the 25th the Neapolitans were driven back into Messina, into which city Garibaldi made his triumphal entry on the 27th. Toward the middle of August, Garibaldi made a descent on Calabria, and was immediately joined by large bodies of volunteers from all directions, by whom he was accompanied on his memorable and eventful march to Naples. On September 5th Garibaldi's army of 25,000 or 30,000 men occupied Salerno on the withdrawal of the Royalists, and on the 7th he entered Naples. King Francis II. withdrew to the fortress of Gaeta, and Garibaldi accepted temporarily the office of dictator. On October 1st the royalist troops, numbering 15,000 men, came from Capua, and attacked fiercely the whole line of the Gari-



baldians. Finally the royalists were driven back to Capua in disorder. This was Garibaldi's last triumph in that struggle. Victor Emmanuel, with his army, crossed the Papal frontier, routed the troops under Lamoricière, and passed on into the kingdom of Naples, where he was met by Garibaldi, who relinquished into his sovereign's hands the disposal of his volunteer army, and the sway over the Neapolitan provinces. During the campaign of 1866 he took the field against the Austrians in the Tyrol, where he sustained a severe repulse, which he retrieved next day, and was preparing to advance against the enemy, when the war was brought to a close, and he returned to Caprera. In 1867 he organized an invasion of the States of the Church, to complete the unification of Italy, but was made prisoner, and afterward allowed to return to Caprera, in the neighborhood of which a man-of-war was stationed to prevent his escape. He did escape, however, only to be speedily defeated by the pontifical, reinforced by French, troops. Again Garibaldi retired to his island home, which he left to fight for the French republic in 1870. He was nominated to the command of the irregular forces in the Vosges, and performed the best services in the field during the memorable Franco-Prussian war. In 1871 he was returned a deputy to the French national assembly for Paris, but declined to sit, and returned to Caprera. He entered the Italian parliament in 1875, and accepted an annual pension of 50,000 lire. He died June 2, 1882.

GARLAND, AUGUSTUS HILL, born at Covington, Ky., June 11, 1832; practiced law in Arkansas until 1861, and then entered the Confederate congress, serving in both the House and the Senate. He was elected governor of Arkansas in 1874; in 1877 became United States senator, and in March, 1885, attorney-general in Cleveland's cabinet, which office he held until March, 1889. He died Jan. 26, 1899.

GARMAN, SAMUEL, born in Pennsylvania, June 5, 1846; studied natural history under Louis Agassiz, and in 1873 became connected with the museum of comparative zoology at Cambridge, Mass. He made various scientific explorations in the Rocky Mountains and in South and Central America, and has written extensively on natural history.

GARNET, HENRY HIGHLAND, born of slave parents in Kent county, Md., in 1815; escaped to New York in 1824, and became a student for the ministry. He preached and lectured on temperance and other subjects, and in 1881 was appointed by President Garfield minister to Liberia. He died at Monrovia, February 14, 1882.

GARNETT, RICHARD BROOKE, born in Virginia in 1819; killed at Gettysburg, July 3, 1863. He graduated at West Point in 1841, became a captain in 1855, having served in Florida and Texas, was in the Utah Expedition of 1858, and resigned in May, 1861, to enter the Confederate army. He was attached to Lee's army, and attained the rank of brigadier-general.

GARNETT, ROBERT SELDEN, born in Essex county, Va., December 16, 1819; graduated at West Point in 1841, distinguished himself in Mexico, was two years commandant of cadets at West Point, and commanded an expedition to Puget Sound in 1856. At the outbreak of the war he joined the Confederacy, received a brigadier-general's commission, and was killed in battle in June, 1861.

GARNIER, JEAN LOUIS CHARLES, born at Paris, France, November 6, 1825; studied at the School of Fine Arts, and began to exhibit water colors in 1853. In 1861 he competed for the design of the new Opera House in Paris. His design was accepted, and he constructed the building, which was completed in 1875. He died August 4, 1898.

GARNIER-PAGES, LOUIS ANTOINE, born at Marseilles, France, July 18, 1803; took part in the revolution of 1830, and entered politics as a Republican deputy. He was minister of finance in the provisional government of 1848, lived in retirement under the Second Empire, and in 1870 took part in the defense of Paris. He died October 31, 1878. His principal works were a *History of the Revolution of 1848* and *The Opposition and the Empire* (2 vols., 1872).

GARRARD, KENNER, born in Cincinnati, Ohio, in 1830; was educated at West Point, served throughout the war and was brevetted major-general United States army. He died May 15, 1879.

GARRETT, JOHN WORK, born in Baltimore, July 31, 1820; was best known as president of the Baltimore and Ohio railroad, holding that office from 1858 until his death in 1884. He was also interested in ocean steamship navigation.

GARRETT, ROBERT, son of the foregoing, born in Baltimore, April 9, 1847; became connected with railroad affairs at an early age, and in 1884 was president of the Baltimore and Ohio R. R. Died July, 1896.

GASPARIN, AGÉNOR ETIENNE, COMTE DE, born in France in 1810; sat in the Chamber of Deputies as a Conservative in Louis Philippe's reign, but is best known by his writings in the *Revue des Deux Mondes*, and his writings on the American Civil war. He died in 1871. His wife, VALERIE, Comtesse de Gasparin, has published several works of travel, and essays on various subjects.

GATES, MERRILL EDWARDS, born in Warsaw, N. Y., April 6, 1848; became president of Rutgers College, N. J., in 1882, Indian Commissioner, in 1884, and later President of Amherst College.

GATES, SIR THOMAS, governor of Virginia, was born late in the sixteenth century. His name first appears when the second charter of Virginia was given to a company on May 23, 1609. The officers therein named were West, de la Warr, Somers, Newport, Dale, Wainman, and Sir Thomas Gates as lieutenant-general. The colonization of Virginia thereafter became greatly stimulated, money was contributed in aid of the purpose, and nine vessels with nearly 600 emigrants left Europe for America, under Newport, Somers, and Gates. They sailed in May, 1609. Only seven ships reached Virginia; one with its passengers was lost at sea; the other, that conveyed Gates, was stranded at one of the Bermuda Islands. Here Gates and his companions improvised two small vessels in the course of nine months, and set sail for their original destination, which they reached on May 24, 1610. They found the Virginia colony in a condition of anarchy and neglect, and its numbers reduced by sickness and famine to about fifty individuals. Gates and the colonists then decided to abandon the settlement and sail coastwise for Newfoundland in four remaining pinnaces that still floated on the river, and seek a passage to England. But no sooner had they begun their voyage than they encountered Lord de la Warr, who, ascending the river on June 9, 1610, with new colonists and fresh supplies, persuaded Gates and his party to return to Jamestown. Lord de la Warr had promised to send to the council an early report of the condition of the colony, and for this purpose dispatched Sir Thomas Gates to England. Sir Thomas, with great energy, gathered means and recruits. In August, 1611, he reached Jamestown safely with six vessels and about 300 colonists. He assumed the functions of governor, established divine worship, law and order, and in 1611 made new settlements in Henrico. In March, 1612, a third patent was granted to the company by the crown, that for the time being gave them control of the Bermuda Islands and all other



islands within 300 leagues from the Virginia shore. Sir Thomas Gates returned to England in 1614 in the interest of the colonists. Of his subsequent history we have no record.

GATES, WILLIAM, born in Massachusetts in 1788; he was a son of Lemuel Gates, an officer of the Revolutionary army, was educated at West Point, and served with distinction in the war of 1812. He afterward fought in the Florida war and the war with Mexico, and was brevetted brigadier-general. He died in 1868.

GATLING, RICHARD JORDAN, born in Hertford county, N. C., September 12, 1818, is well known as the inventor of the machine gun which bears his name. First used in 1862, it has been greatly improved by the inventor. It consists of a number of breech-loading rifled barrels, made to revolve around a common center and fed with cartridges by a hopper. The new guns with ten barrels are capable of firing 1,200 shots per minute.

GAULT, MATTHEW HAMILTON, born in Ireland in July, 1822, emigrated to Canada and became connected with insurance and transportation interests there. He was elected a member of the Dominion parliament in 1878, was reelected in 1882, and died in Montreal, June 1, 1887.

GAVAZZI, ALESSANDRO, born at Bologna, Italy, in 1809; entered the order of the Barnabites in 1825. He became professor of rhetoric in the university of Naples. In 1848 he delivered an oration on the patriots who had fallen at Milan, and was made chaplain-general of the forces by Pope Pius IX., who at that time favored the liberal movement. But the Pope went over to the reactionaries, and recalled the Roman legion from Vicenza, and Gavazzi fled to Tuscany and Genoa. On his return to Rome he was arrested, but was freed when the Pope fled and the republican government was established. The French captured Rome in July, 1849, and Gavazzi escaped to London, where he taught Italian and lectured against Romanism. Subsequently he visited Scotland, the United States, and Canada, and in the latter country his orations against Roman Catholicism gave rise to riots. In 1860 he participated in the Garibaldian expedition to Palermo; in 1870 revisited England, and in 1873 made a tour in the United States. He published his *Orations, No Union with Rome*, and other works. He died in January, 1889.

GAY, EDWARD, artist, was born in Ireland in 1837; came to the United States when a boy; studied at Carlsruhe and Düsseldorf, and in 1867 opened a studio in New York. He has contributed regularly both to the academy and the exhibitions of the Water Color Society, and has been quite successful in landscapes.

GAY, SYDNEY HOWARD, born in Massachusetts in 1814; edited the *Anti-Slavery Standard*; was managing editor of the *New York Tribune* during the Civil war; was afterward connected with the *Chicago Tribune* and the *New York Evening Post*. He was an ardent abolitionist; wrote a *History of the United States* in connection with William Cullen Bryant, and was the author of numerous other works. He died June 25, 1888.

GAYARRÉ, CHARLES E. A., born in New Orleans, January 9, 1805; became a lawyer, member of the Louisiana legislature, and judge of the city court of New Orleans. In 1835 he was elected to the United States senate, but on account of ill health resigned his seat. In 1844 he again entered the State legislature, and from 1846 to 1853 was secretary of state of Louisiana. During the Civil war he supported the Confederacy, and after its close became reporter of the State supreme court. He wrote a *History of Louisiana* (3 vols., 1866). He died February 11, 1895.

GEAR, JOHN HENRY, born in New York State in 1825; removed to Iowa, and in 1843 engaged in business at Burlington, of which city he was mayor in 1863. He was three times elected to the State general assembly, and twice speaker of the House, as a Republican; was twice governor, 1878-79 and 1880-81; represented the first Iowa district in the 50th, 51st and 53rd Congresses and became U. S. Senator, 1895. Died July, 1900.

GEARY, JOHN WHITE, born in Westmoreland county, Penn., December 30, 1819; served as lieutenant-colonel of volunteers in the Mexican war, and was wounded at Chapultepec. In 1849 he became postmaster and alcalde (judge) of San Francisco, and in 1850 first mayor of that city. In 1856 he was appointed territorial governor of Kansas. When the Civil war broke out he raised a regiment, was wounded at Bolivar Heights and Cedar Mountain, became a brigadier-general, and led a division at Chancellorsville and Gettysburg. He joined the army of the Cumberland under Hooker; commanded the second division of the twentieth army corps on the march to the sea, became military governor of Savannah, and brevet major-general. In 1866 he was elected governor of Pennsylvania, was reelected in 1870, and held that office until a few weeks before his death, which occurred February 8, 1873.

GEDDES, JAMES LORRAINE, born in Scotland, March 19, 1827; served in India under Gough, Napier, and Campbell, and in 1857 settled in Iowa. He enlisted as a private in an Iowa volunteer regiment in August, 1861, was rapidly promoted to brigadier-general, and did good service at Memphis and Mobile. After the war he had charge of the Blind Asylum at Vinton, Iowa, and was connected with the Iowa College of Agriculture in Story county, where he died in 1887. He was the author of several popular war songs.

GEFFRARD, FABRE, born in Hayti, September 19, 1806, entered the native army, and took part in all the manifold wars of the first half of the century. Soulouque made him a duke in 1850, and in 1858, when the people rose against Soulouque (Faustin I.), Geffrard was made president of the republic then proclaimed. Several attempts were made to assassinate Geffrard, and his daughter was killed. In 1867 a revolution drove him from Hayti, and in 1879 he died in Jamaica.

GEIKIE, SIR ARCHIBALD, born at Edinburgh, in 1835; was educated at the university of his native city. He became director of the geographical survey of Scotland in 1867, professor of mineralogy and geology in Edinburgh University, and in 1881 director-general of the British Geological Survey. He has written extensively on glaciers and other geological subjects. His brother, JAMES, born in Edinburgh, August 23, 1839, is the author of the *Great Ice Age, Prehistoric Europe*, and other scientific works.

GEMÜNDER, GEORGE, violin-maker, born in Ingelfingen, Germany, April 13, 1816. His father was a violin-maker, and the son, in company with his brother, August, learned the art at home; later he studied with a noted violin-maker in Paris. In 1847 he came to the United States, and settled in Boston, Mass. In 1851 his instruments obtained the prize-medal of the world's fair in London. His elder brother, AUGUST (born in 1816), follows the same principles in constructing his instruments, and is nearly equally eminent.

GENEST, EDMOND CHARLES, born in France in 1765; died in New York State, July 14, 1834. He entered the French diplomatic service as *chargé d'affaires* at St. Petersburg in 1789, but was sent home in 1791, and in December, 1792, was accredited to the United States. Genest (or as the name is often written, Genet) transgressed the laws of neutrality by issuing



commissions to privateers to prey upon English commerce, France being then at war with England. He complained bitterly of the lack of sympathy displayed by the young republic to its old ally, and did his best to embroil the United States with Great Britain. Washington demanded and obtained his recall, but Genest decided to become a naturalized citizen. He settled in New York, and married a daughter of Governor Clinton. He was the author of some historical works, and translated a Swedish history.

**GENOA, DUKE OF (THOMAS ALBERT VICTOR DE SAVOY)**, nephew of King Victor Emmanuel, was born February 6, 1854; educated at Harrow, England, and became an officer in the Italian navy. His elder sister, Margaret, born November 20, 1851, is the wife of the reigning monarch, Humbert.

**GENTH, FREDERICK A.**, born in Hesse-Cassel, May 17, 1820; studied under Bunsen; and in 1850 came to the United States. In 1870 he assumed the chair of chemistry and mineralogy in the University of Pennsylvania. He is a member of the National Academy of Sciences, is prominent as an analytical chemist, and has contributed important papers to the scientific journals. He died in Philadelphia, February, 2, 1893.

**GENTRY, MEREDITH POINDEXTER**, born in Rockingham county, N. C., September 15, 1809; became a member of the State legislature of Tennessee in 1835, and was elected to congress in 1839 as a Whig. Although a large slave-holder, he voted in favor of the reception of anti-slavery petitions. He served in the twenty-seventh, twenty-ninth, thirtieth, thirty-first, and thirty-second congresses, and opposed the war with Mexico. After the election of Lincoln he went with the South, and sat in the Confederate congress. He died in Tennessee, November 2, 1866.

**GEORGE I. (KING OF THE HELLENES)**, **CHRISTIAN WILLIAM FERDINAND ADOLPHUS GEORGE**, is the second son of Christian IX., of Denmark, and was born December 24, 1845. In 1863 he was invited to accept the throne of Greece, and in 1867 he married the Princess Olga, daughter of the Grand Duke Constantine of Russia. His son and heir apparent, Prince Constantinos, duke of Sparta (born August 2, 1868), married, on October 27, 1889, the Princess Sophia, sister of the present emperor of Germany.

**GEORGE, HENRY**, born in Philadelphia, September 2, 1839. As a boy he was apprenticed on a sailing vessel, went to California, engaged in newspaper work, and finally removed to New York city. In 1879 he published *Progress and Poverty*, advocating the raising of public revenues by a single tax on land with eventual government ownership of all land, a doctrine which has gained many followers in the United States. He published *The Irish Land Question* in 1881 and visited Great Britain and Ireland, where, in many speeches, he set forth his radical doctrines. In 1886 he was nominated by the Labor party of New York city for mayor, and received nearly 70,000 votes. The Democratic candidate was elected by a majority greatly reduced from its usual number. Mr. George's weekly newspaper, *The Standard*, was founded in 1887, and is still published under his editorship and control. His publications include *Social Problems* (1884), and *Protection or Free Trade* (1886). Died Oct. 29, 1897.

**GEORGE, JAMES ZACHARIAH**, born in Monroe county, Ga., October 20, 1826; removed to Mississippi, served in the Mexican war, and practiced law until the outbreak of the rebellion. He commanded a cavalry regiment during the war, and in 1875 became chief justice of the State Supreme Court. On March 4, 1881, he took his seat in the United States Senate, to which he was reelected in 1886 and 1892. Died, 1897.

**GERHARDT, KARL**, born at Boston, January 7, 1853, of German parentage; began life as a machinist, and developed a talent for sculpture. His principal works are busts of General Grant, Mark Twain, and Henry Ward Beecher, and statues of Nathan Hale, Putnam, Josiah Bartlett, General Warren, and John Fitch.

**GERMAIN, ANTOINE HENRI**, born at Lyons, France, February 19, 1824; founded the *Crédit Lyonnais*, of which he is chairman. In 1869 he entered the National Assembly as a Liberal, and is still a representative, acting with the Left Center, and recognized as a high authority on financial questions.

**GÉROME, JEAN LÉON**, one of the most celebrated of living French artists, was born at Vesoul, May 11, 1824. He studied under Paul Delaroche at the *École des Beaux-Arts*, and first exhibited at the Salon of 1847. He has won many medals for his portraits and scenes of Eastern and classical life. His *Cæsar and Cleopatra*, and the *Slave Market in Rome*, are among his most famous productions, and he has painted many pictures of Arab and Egyptian life.

**GERONIMO**, an Apache Indian chief. Nothing is known of his early history. For a long time this chief was known to the United States Government as the head of a band of hostile Indians who had committed depredations. An expedition under Gen. George Crook was sent in pursuit. Geronimo met with the commanding general on March 25, 1886, when terms were made with the Indians, who were sent to Fort Bowie. On March 29th the Indians escaped to the mountains. The expedition was pronounced a failure. General Crook requested to be relieved, and Gen. Nelson A. Miles became his successor. The latter was instructed to use ceaseless pursuit for the capture of the Indians, and this order was carried out to the letter, until the exhausted band of Geronimo was compelled to come to terms. Against the wishes of the United States Government General Miles saw fit to accept a conditional surrender, stipulating that the tribe should be sent out of Arizona. General Miles had ordered them taken to Fort Marion, at St. Augustine. This order, however, was countermanded by the president, and Geronimo, with fourteen adult companions, were sent to Fort Pickens, Fla.

**GERRY, ELBRIDGE**, born in Marblehead, Mass., July 17, 1744; entered the Massachusetts legislature in 1772, became a member of the Continental Congress, and signed the declaration of independence. He was also a member of the convention which framed the Federal constitution, sat in congress from 1790 to 1795, and in 1797 went on a mission to France. He was elected governor of his native State as a Democrat in 1810, and became vice-president of the United States under Madison in 1812. He died in Washington, D. C., November 23, 1814.

**GERSTER, ETELKA**, born in Hungary, June 16, 1857; made her operatic début at Venice, in 1876, and has since sung as prima donna in grand opera in nearly every capital in Europe, and has made several tours in the United States. She married Carlo Gardini in 1877.

**GETTY, GEORGE W.**, born in Georgetown, D. C., October 2, 1819; graduated at West Point in 1840, became captain during the Mexican war, and served through the Civil war in command of volunteers, being brevetted major-general United States army for services. On October 2, 1883, he retired, and died Oct. 2, 1901.

**GERHARDI, BANCROFT**, United States naval officer, was born in Jackson, La., November 10, 1832; entered the navy from Massachusetts as midshipman in 1846, was made lieutenant-commander in 1862, was present at the engagement at Fort Macon, and took gallant



part in the battle of Mobile Bay in 1864. He was promoted to commander in 1866, made captain in 1874, commodore in 1884 and became rear-admiral in 1887. He supervised the grand review of the naval forces of the world at Hampton Roads in April, 1893.

GIBBON, JOHN, was born in Pennsylvania, April 20, 1827, and died February 6, 1896; served in the Mexican war and in the Civil war, was chief of artillery on General McDowell's staff, until May, 1862; was then made brigadier-general of volunteers, and was successively brevetted major-general of volunteers, lieutenant-colonel, colonel, brigadier-general and major-general United States army, for gallant and meritorious conduct at Antietam, Fredericksburg, Gettysburg, Spottsylvania and Petersburg; commissioned major-general of volunteers, June 7, 1864, and colonel United States army, July 28, 1866; promoted to brigadier-general United States army July 10, 1885, and assigned to the command of the district of the Rocky Mountains. He commanded the column that rescued Reno from the Sioux under Sitting Bull, in 1876. In 1877, with 101 men, he defeated over 500 Nez Percés warriors, under Chief Joseph, in the Big Hole Valley, Montana, killing over 200 of the Indians. He was then given command of the Division of the Pacific.

GIBBONS, JAMES, cardinal, born in Baltimore, July 23, 1834; educated at St. Charles College and St. Mary's Seminary of that city, and was ordained priest June 30, 1861. After a few years' pastorate he became chancellor of the diocese under Archbishop Spalding, and in 1868 was created vicar apostolic of North Carolina with rank and style of bishop. In 1872 he was translated to the see of Richmond, Va., and in 1877 was appointed coadjutor with right of succession to the see of Baltimore. On October 3d of the same year he succeeded to the archiepiscopacy on the death of Archbishop Bailey. In 1883 he visited Rome to confer upon the state of the church, and in November, 1884, he presided over the council of Baltimore. On June 30, 1886, Archbishop Gibbons became a cardinal.

GIBBS, ALFRED, born in Long Island, N. Y., April 22, 1823; graduated from West Point in 1846, and fought in Mexico and against the Apaches. In August, 1862, he was captured by Confederate forces in New Mexico, and being exchanged went to the front as colonel of a New York volunteer regiment. In 1863 he was given a cavalry command, and near the close of the war received all the brevets up to and including that of major-general United States army. He died December 26, 1868, at Fort Leavenworth, Kan.

GIBBS, GEORGE, born in Astoria, L. I., July 17, 1815; made extensive geological explorations in the Territories and wrote several works on Indian ethnology and philology. He was for six years secretary of the New York Historical Society, and died April 9, 1873.

GIBBS, JOSIAH WILLARD, born in Salem, Mass., April 30, 1790; died March 25, 1861. He was graduated at Yale in 1809, and from 1824 until his death was professor of sacred literature in the theological school of Yale. From 1824 until 1843 he also filled the office of librarian. He wrote extensively on grammar and philology and published a number of translations. His son, of the same name, born at New Haven, Conn., February 11, 1839, has held since 1871 the chair of mathematical physics at Yale. He was a member of the National Academy of Sciences and in 1886 was vice-president of the American Association. Professor Gibbs received the Rumford medal for his papers on thermodynamics.

GIBBS, OLIVER WOLCOTT, born in New York city, February 21, 1822; graduated at Columbia in 1841, and studied chemistry in Paris and Berlin. In 1849 he was

chosen professor of physics and chemistry in the College of the City of New York and in 1863 took charge of the Lawrence Scientific School laboratory.

GIBSON, RANDALL LEE, born in Kentucky, September 10, 1832; studied for the bar, and engaged in sugar planting in Louisiana. At the beginning of the Civil war he enlisted as a private, became colonel of the 13th Louisiana infantry, and fought at Shiloh, and under Joseph E. Johnston and General Hood. In 1872 he was elected to congress, but was not allowed to take his seat. He was again elected in 1874 and served until 1882. On March 4, 1883, he took his seat as a Democratic United States senator from Louisiana, and was reelected in 1888. He died December 15, 1892.

GIBSON, THOMAS MILNER, born at Trinidad, West Indies, in 1807; entered the British parliament in 1837 as one of the "Manchester school" of Liberals, and acted with Cobden, Bright and others against the corn laws. Like Bright he lost his seat in 1857 through having opposed the Russian war, but in 1859 he became president of the Board of Trade in Palmerston's cabinet. He retired in 1866, and died in 1885.

GIBSON, WILLIAM, born in Baltimore in 1788; studied medicine abroad, and in 1819 assumed the chair of surgery in the University of Pennsylvania, which he held for over thirty years. He was the first surgeon to perform the Cæsarean operation twice successfully on the same patient. His son, CHARLES BELL GIBSON, born in Baltimore in 1816, became surgeon-general of the Confederate forces and died in April, 1865, in Richmond, Va. William died March 2, 1868.

GIBSON, WILLIAM HAMILTON, artist was born in Sandy Hook, Conn., October 5, 1850. He has exhibited water colors since 1872, and is a member of the New York Water Color Society. He is well known as an author. He died July 16, 1896.

GIDDINGS, JOSHUA REED, born in Bradford county, Penn., October 6, 1795; fought in the Indian war of 1812; became a lawyer, and served one term in the Ohio legislature. In 1838 he was elected to congress on the Whig ticket, and for twenty years represented the same district. He was an active abolitionist, opposed the annexation of Texas and the compromise measures of 1850. In 1861 he was appointed consul-general in Canada, where he died May 27, 1864.

GIERS, NICHOLAS CARLOVITCH DE, born May 9, (O. S.), 1820, in Russia, is of Swedish origin. He entered the diplomatic corps at eighteen years of age, and rose steadily until, in 1863, he was made ambassador to Persia. In 1869 he was transferred to Berne and three years later to Stockholm. In 1876, and again in 1877, during the war with Turkey, M. de Giers directed the affairs of the foreign office. He became a privy councillor, and when Prince Gortchakoff attended the Berlin congress M. de Giers, for a third time took his place. In April, 1882, on the final retirement of Gortchakoff, M. de Giers, who married a niece of that statesman, became minister of foreign affairs, which position he retained until his death, January 26, 1895.

GIFFORD, ROBERT SWAIN, artist, born in Massachusetts, December 23, 1840; became an associate of the National Academy in 1867, and an academician in 1878, and has exhibited many pictures, both in oil and water color.

GIFFORD, SANFORD ROBINSON, artist, born in Saratoga county, N. Y., in 1823; died in 1880. He was a member of the National Academy, and exhibited landscapes at Philadelphia (1876) and Paris (1878).

GILBERT, CHARLES CHAMPION, born in Zanesville, Ohio, March 1, 1822; graduated at West Point in 1846; served in Mexico and during the Civil war obtaining a brevet colonelcy in the regular army for gal-



lant conduct at Perrysville. He retired from active service, March 1, 1886.

GILBERT, DAVID MCC., born in Gettysburg, Penn., February 4, 1836; was ordained in the Lutheran ministry in 1860, and held various pastorates in Virginia. In 1886 he was chosen first president of the United Synod of the South.

GILBERT, GROVE KARL, born in Rochester, N. Y., May 6, 1843; graduated at the university there in 1862, and after serving on several important surveying expeditions became, in July, 1879, geologist to the United States survey. He was president of the American Society of Naturalists, and vice-president or member of several scientific societies, and has written papers on the geology of the Rocky Mountains and the Black Hills.

GILBERT, JOHN GIBBS, actor, born in Boston, Mass., February 27, 1810. On November 28, 1828, he began a series of tragic performances at the old Tremont theater in his native city, where he appeared in the roles of "Jaffier," "Sir Edward Mortimer," and "Shylock." From Boston he directed his course to the western and southwestern theaters, where he played four years, and then returned to Boston. In 1847 he joined the company of the Princess' theater in London, where he played in standard English comedy, appearing at first as "Sir Robert Bramble" in the *Poor Gentleman*. In 1848 he returned to the United States, and performed at the Park theater and at the Bowery theater. In 1851 he went to Philadelphia for five years; in 1856 and 1857 was in Boston; from 1858 until 1862 performed in Philadelphia, and afterward made his home in New York city. He died June 17, 1880.

GILBERT, JOHN THOMAS, was born in Dublin, Ireland, in 1829, and became secretary of the Public Record office of Ireland. He is known as a painstaking investigator of Celtic antiquities and he has published important ancient Irish manuscripts. Died May, 1898.

GILBERT, LINDA, born in Rochester, N. Y., in 1847; became noted for her efforts to improve the condition of prisoners and the dependent classes. She became manager of a prisoners' library and aid society which did much good.

GILBERT, MAHLON NORRIS, born in Morris, N. Y., March 23, 1848; was graduated in 1875, and ordained in the Protestant Episcopal Church. In 1881 he became rector at St. Paul and in 1886 was elected assistant bishop of Minnesota.

GILBERT, RUFUS HENRY, born in Guilford, N. Y., January 26, 1832; served as an army surgeon during the Civil war. He became assistant superintendent of a New Jersey railroad and devoted his attention to the question of rapid transit in New York city. After many difficulties he succeeded in constructing the first elevated railroad in that city. He died in July, 1885.

GILBERT, SIR JOHN, born in England in 1817; has exhibited pictures both in oil and water color at the leading English galleries since 1836. He is a royal academician and president of the Royal Society of Painters in Water Colors. Died Oct. 6, 1897.

GILBERT, WILLIAM SCHWENK, born in London, England, November 18, 1836; well known as a dramatic author, and contributor to periodical literature. He is the author of *Pygmalion and Galatea*, *The Wicked World*, *The Palace of Truth*, and *Trial by Jury*. In conjunction with SIR ARTHUR SULLIVAN (q. v.) he wrote the *Sorcerer*, *H. M. S. Pinafore*, the *Pirates of Penzance*, *Patience*, *Iolanthe*, *Princess Ida*, *The Mikado*, *Ruddigore*, and *The Gondoliers*.

GILDER, JEANNETTE, L., born in 1849, at Flushing, Long Island; became in 1881 associate editor with her brother, Joseph B., of the *Critic*, a high class literary

weekly in New York, and is literary correspondent for the *Chicago Tribune* and other papers.

GILDER, RICHARD WATSON, poet and editor, born in 1844; after five years newspaper work in Newark, N. J., became associate editor of *Scribner's Monthly* in 1870, and editor of the *Century Magazine* in 1881. He has published *The New Day*, *The Poet and his Master* and other poetry of refined, artistic merit.

GILDERSLLEEVE, BASIL L., born in Charleston, S. C., October 23, 1831; graduated at Princeton in 1849, and studied at Berlin, Bonn, and Göttingen. He was professor of Greek in the University of Virginia, 1856-76, and in Johns Hopkins University since 1876. He is LL.D. of William and Mary and of Harvard, and a D.C.L. and edited the *American Journal of Philology*.

GILFERT, AGNES, actress, born in England in 1793; died in Philadelphia, Penn., April 19, 1833, was best known to the stage as Agnes Holman. She made her debut at the Haymarket theater in London, as "Belvidera," in *Venice Preserved*, and in 1812 came to New York city. In 1815 she married Charles Gilfert.

GILFERT, CHARLES, born in Germany in 1787; died in New York city, July 30, 1829. He composed songs and in 1826 managed the New York theater.

GILFILLAN, JAMES, born in Scotland, March 9, 1829; came to the United States when a child. He practiced law in New York State, and in 1857 removed to Minnesota. He served in the campaign against the Sioux Indians in 1862-63, and afterward in the Civil war. In July, 1869, he became chief justice of the State supreme court for one year; was appointed in 1875 and held the office by election until his death, December 16, 1894.

GILL, DAVID, born in Scotland, June 12, 1843, is one of the most prominent astronomers of his time. He has published numerous reports on the solar parallax, the transit of Venus and other astronomical phenomena. He is LL.D. of Aberdeen and Edinburgh, and a fellow of the Royal Society.

GILL, EDMUND, artist, born in London, November 29, 1820, is well known as a landscape painter.

GILL, THEODORE NICHOLAS, born in New York city, March 21, 1837; became in 1863 assistant in the Smithsonian Institution, of which he was afterward librarian. He also acted for some years as senior assistant librarian of congress, and in 1884 became professor of zoology in Columbian University. He is the author of nearly 500 papers on scientific subjects and is a member of several societies.

GILLISS, JAMES MELVILLE, born in Georgetown, D. C., September 6, 1811; died February 9, 1865. He served in the United States navy, became connected with the coast survey, and went to South America to make observations. Among his works are a report on astronomical phenomena observed in Chili, 1849-52, and on the total solar eclipse in September, 1858. He was one of the originators of the National Academy of Sciences.

GILLMORE, QUINCY ADAMS, born in Lorain county, Ohio, February 28, 1825; graduated at West Point in 1849, and was instructor in practical engineering at the military academy 1852-56. In the Civil war he rose to be major-general of volunteers, and after the war was colonel of United States engineers. Among his principal exploits were the reduction of Forts Pulaski, Sumter and Wagner. General Gillmore died April 7, 1888.

GILMAN, ARTHUR, born in Massachusetts, November 5, 1821, died July 11, 1882. He was educated as an architect and constructed many fine public buildings in New York and Boston.

GILMAN, DANIEL COIT, born in Norwich, Conn.,



July 6, 1831; graduated at Yale in 1852. From 1856 until 1860 he was superintendent of schools in New Haven, State superintendent of schools in Connecticut in 1865-66, librarian of Yale 1856-65, professor of physical and political geography at Sheffield Scientific School 1863-72, president of the University of California 1872-75, and since 1875 has been president of Johns Hopkins University in Baltimore, Md. He is a member of various scientific societies, and was elected president of the American Social Science Association in 1879; in 1876 he received the degree of LL.D. from Harvard, and from Columbia in 1887. President Gilman has published many magazine articles and educational reports. He is the author of a number of addresses and reports.

GILMER, JEREMY FRANCIS, born in Guilford county, N. C., February 23, 1818; graduated at West Point in 1839, and served in the engineer corps until 1861, when he resigned to enter the Confederate service. He became attached to the staff of Gen. Albert Sidney Johnston, was wounded at Shiloh, and assisted in the defense of Charleston and Richmond.

GILMORE, JAMES ROBERTS, born in Boston, September 10, 1823; wrote a number of novels of Southern life under the *nom de plume* of "Edmund Kirke." In 1862 he founded the *Continental Monthly*, and he has also written *Adrift in Dixie*, *Down in Tennessee*, *a Life of Garfield*, and many other works.

GILMOUR, RICHARD, born in Glasgow, Scotland, September 28, 1824; came to Canada and then to Pennsylvania with his parents, and at the age of twenty joined the Roman Catholic church. In 1852 he was ordained priest; held pastorates in Cincinnati and other cities in Ohio, and on April 14, 1872, was consecrated bishop of Cleveland. He died April 13, 1891.

GILPIN, HENRY DILWOOD, born in England, April 14, 1801; removed to Pennsylvania and practiced law in Philadelphia. He became successively United States attorney for Pennsylvania, solicitor of the treasury, and in 1840 attorney-general of the United States. He died in Philadelphia, January 29, 1860.

GIOLITTI, GIOVANNI, Italian statesman, born in 1842, became a doctor of laws, was director of customs in 1876, entered parliament in 1882, was minister of finance in 1890 under Crispi, but brought about the fall of his ministry and became premier in May, 1892, holding office two years.

GIRARD, CHARLES, naturalist, born in France in 1822; became an assistant to Agassiz, whom he followed to the United States in 1847. Professor Girard was connected with the Smithsonian Institution for many years and is the author of numerous works on natural history, geology and other scientific subjects.

GIRARDIN, EMILE DE, born in Paris, France, June 22, 1806; died there April 27, 1881. He began his literary career in 1827, with a romance called *Emile*, and in 1836 founded the *Presse*, a conservative daily. He killed Armand Carrel, editor of the *National*, in a duel, was exiled at the *coup d'etat*, but soon returned and conducted the *Presse* until 1856, when he sold it. In June, 1866, he founded *La Liberté*. He opposed the empire and was several times prosecuted. In 1873 he purchased *Le Petit Journal*, and in 1874 became chief editor of *La France*. He was several times elected to the Chamber of Deputies. In 1831 he married Delphine Gay (born 1804; died 1855), who had a brilliant success as an authoress.

GIRTY, SIMON, born in Pennsylvania about 1750, was for several years a prisoner among Indians, and served under Lord Dunmore as a spy. In 1777 he joined the Indians, who were aiding the British troops, became a leader, won an infamous notoriety by encouraging them to torture and murder their prisoners,

among them Col. William Crawford and General Richard Butler. It was variously believed that he was killed at the battle of the Thames, 1813, or died in Canada, 1815.

GIST, CHRISTOPHER, was born in North Carolina. He was employed as a surveyor by the Ohio Company to trace the course of rivers, and mark the mountain passes of the northwestern territory. On October 31, 1750, he crossed the mountains, and in 1751 reached the great Miami river. On March 1st of that year Gist descended the river to its union with the Ohio, ascended the valley of the Kentucky river, discovered a pass and returned home by way of Roanoke. In 1753 Gist settled on a plantation in Pennsylvania near the Voughioghny river. At the end of that year he acted as a guide to Washington, who had been sent by Governor Dinwiddie, of Virginia, to make a journey to Lake Erie. On their return the two were fired on by some Indians, but escaped unhurt. A fort was located where Pittsburg now stands, on the favorable report of the two travelers, which was taken by the French, and named Fort Du Quesne. From this point Gist's history is unknown.

GIVIN, WILLIAM MCKENDREE, senator, born in Sumner county, Tenn., October 9, 1805; died in New York city, September 3, 1885. His father was a Methodist clergyman. Young Givin received a good education, read law, and thereafter studied medicine, taking his degree in 1828. He went to Clinton, Miss., and was appointed by President Jackson United States marshal for the district of Mississippi. In 1840 he was elected to congress. On the accession of President Polk he was appointed to superintend the building of the new custom house in New Orleans. In 1849, on the election of General Taylor, he resigned his place to seek his fortune in California. Here he became at once active in favor of a State government, and was chosen a member of the convention held in Monterey to frame its constitution. In December, 1850, Doctor Givin was chosen United States senator, was reelected in 1854 and served until March 3, 1861. At the beginning of the Civil war he was arrested as a pronounced sympathizer with the rebellion and kept in durance until 1863. The following year he spent in Paris, in the interest of the Southern Confederacy. At the conclusion of the war Doctor Givin returned to California.

GLADDEN, WASHINGTON, born in Pennsylvania, February 11, 1836; graduated at Williams College, Massachusetts, in 1859, and became a Congregational minister in Brooklyn and in Massachusetts, removing in 1883 to Columbus, Ohio, where he became pastor of the First church. He wrote for the *New York Independent*, and has published many essays.

GLADSTONE, THE RIGHT HON. WILLIAM EWART, M. P., fourth son of the late Sir John Gladstone, Bart., of Fasque, county Kincardine, Scotland, a well known merchant of Liverpool, was born there, December 29, 1809, and was educated at Eton and Christ Church, Oxford, at which he graduated, taking a double first class in Michaelmas term, 1831. He was returned at the general election in December, 1832, in the Conservative interest for Newark, and entered parliament just as the struggle of parties was at its height. In the House of Commons his mercantile origin, the success of his university career, his habits of business, and his high character, recommended him to the notice of Sir Robert Peel, who, in December, 1834, appointed him to a junior lordship of the treasury, and in February, 1835, under-secretary for Colonial affairs. Mr. Gladstone retired from office with his ministerial leader in April, 1835, and remained in opposition until Sir Robert Peel's return to power in September, 1841. On accepting office under Sir Robert Peel in 1841, as vice-president of the Board of Trade and master of the



ment, Mr. Gladstone was sworn a member of the Privy Council. In his new position he had to explain and defend in the lower house of parliament the commercial policy of the government; and in the discharge of this duty he had whatever advantage his mercantile origin and connection could give him. The revision of the tariff in 1842 was almost entirely the result of his energy and industry. When this laborious work was brought before the House of Commons, it was found to be as admirably executed in its details as it was complete in its mastery of general principles, and it received the sanction of both Houses with scarcely an alteration. In 1843 Mr. Gladstone succeeded the earl of Ripon as president of the Board of Trade, but resigned that office early in 1845. In January, 1846, Sir Robert Peel announced his intention of proposing a modification of the corn laws. Mr. Gladstone, who had succeeded Lord Stanley (the late earl of Derby) in the post of secretary of state for the Colonies, adhered to the leader under whom he had entered upon ministerial life; but, possibly unwilling to remain under obligations to the late duke of Newcastle, who sympathized strongly with the opposition party, resigned his seat for Newark, and remained for some time out of parliament. At the general election in August, 1847, he was, with the late Sir Robert Harry Inglis, elected for the University of Oxford. In the parliament of 1847-52, the questions of university reform and the removal of Jewish disabilities were frequently and earnestly agitated in the lower House. Though Mr. Gladstone's early sympathies, no doubt, bound him to the High Church and Tory party, yet he felt that on both these points the exigencies of the times required that some concessions should be made. He consequently found himself frequently opposed to his former friends, and eventually separated himself from the Conservative party in February, 1851. At the general election in July following, Mr. Gladstone was reelected for the University of Oxford, but not without a severe contest. On the formation of what is generally known as the "Coalition" ministry, under the earl of Aberdeen, in December, 1852, Mr. Gladstone was appointed to the chancellorship of the exchequer, in which office the thorough knowledge of finance which he had acquired in former life, and had tested by practical experience at the Board of Trade, proved of the greatest assistance to the ministry. After the breaking up of the Aberdeen administration, or rather on its reconstruction under Lord Palmerston at the beginning of 1855, Mr. Gladstone at first continued to occupy the same post, but he resigned in the course of a few weeks, on finding that it was not the intention of the ministry, collectively, to oppose the vote of censure implied in the resolution of Mr. Roebuck, in favor of the appointment of a committee of inquiry into the state of the British army before Sebastopol and the causes of its sufferings. For some time Mr. Gladstone, who held no public office, gave Lord Palmerston's ministry an independent support. In the winter of 1858-9 he accepted under Lord Derby's second cabinet, a special mission to the Ionian Islands, to arrange certain difficulties which had arisen in the administration of that dependency; and in June, 1859, resumed office under Lord Palmerston as chancellor of the exchequer. In this capacity he was mainly instrumental in repealing the paper duty, and in promoting the negotiations conducted by Mr. Cobden, which resulted in the commercial treaty between England and France. Mr. Gladstone, though originally very jealous of any intervention by the state in the matter of university reform, lent the government from time to time very valuable assistance, by supporting the suggestions of the Oxford

university commissioners, through his extensive personal and official influence with the authorities of Oxford as one of the representatives of that university in parliament.

Besides being eminent as a statesman, Mr. Gladstone had acquired celebrity as an author. His first work, a treatise entitled *The State in its Relations with the Church*, published in 1838 (4th edition enlarged, 2 vols., 1841), and followed in 1841 by his *Church Principles, Considered in their Results*, stamped him, while still a young man, as a deep and original thinker. His views on these subjects, as they are unfolded in these treatises, had been formed and molded by the education and associations of Oxford, to which university they are dedicated as the first fruits of her teaching and training. Soon after their appearance they were thought worthy of a long and elaborate criticism by the late Lord Macaulay in the pages of the *Edinburgh Review*. Mr. Gladstone's *Remarks on Recent Commercial Legislation*, published in 1845, while England was on the eve of an important change in her commercial system, were intended to pave the way for the extensive modification in the restrictions on commerce imposed by the corn laws, and contain an able and comprehensive summary of the beneficial results of the tariff of 1842. In 1851 he published a work of a different kind, which created considerable interest both at home and abroad. During a visit to Naples in the previous year, he learned that a large number of citizens of that place who had formed the "Opposition" in the Neapolitan chamber of deputies, were exiled or imprisoned by King Ferdinand (Bomba), and that above 20,000 of his subjects had been thrown into prison on charges of political disaffection. Having ascertained the truth of these statements, Mr. Gladstone wrote to the earl of Aberdeen, urging his interposition in their behalf, and remonstrances proving ineffectual, he published an indignant letter on the subject of the state prosecutions at Naples, which was translated into several foreign languages, and was sent by Lord Palmerston to ambassadors and ministers on the Continent, with orders to forward copies of it to their respective courts. In 1858 Mr. Gladstone published an elaborate work on Homer (*Studies on Homer and the Homeric Age*, 3 vols.), and in July, 1861, he was solicited to become a candidate, in the liberal interest, for South Lancashire, but refused to forsake his former constituents. Having been rejected by the University of Oxford at the general election in July, 1865, Mr. Gladstone was returned, being third on the poll, for South Lancashire. After the death of Lord Palmerston he became leader of the House of Commons, retaining the chancellorship of the exchequer in Lord Russell's second administration. Early in the session of 1866 he brought in a reform bill, and a motion in committee having been carried, June 18th, against the government by eleven votes, Mr. Gladstone and his colleagues resigned. The divisions in the Liberal ranks prevented him from defeating Mr. Disraeli's reform bill, which he strenuously opposed. In the early part of the session of 1868 Mr. Gladstone brought forward and passed through the House of Commons a series of resolutions, having for their object the disestablishment and disendowment of the Irish church. These resolutions were the basis of the Irish Church Suspensory Bill, which, on May 22d, was read a second time in the lower house by 312 votes to 258, but was soon afterward rejected in the house of peers by a majority of 95.

At the general election of 1868 Mr. Gladstone stood as one of the candidates for Southwest Lancashire. After a fierce contest, which excited the most intense interest throughout the country, he was defeated, but



this defeat did not exclude him from the House of Commons, as, in anticipation of such an event, the electors of Greenwich, a few days previously, returned him by a large majority as one of the members of that borough. On the resignation of Mr. Disraeli's ministry, in December, 1868, Mr. Gladstone succeeded that statesman as first lord of the treasury. The principal events of his administration were the passing of the Irish Church Disestablishment Act (1869); of the Irish Land Act (1870), and of the Elementary Education Act (1870); the abolition of purchase in the army by the exercise of the royal prerogative, in consequence of an adverse vote by the House of Lords on the Army Regulation Bill (1871); the negotiation of the treaty of Washington respecting the Alabama claims (1871); the passing of the Ballot Act (1872); and the Judicature Act (1873). The principal measure proposed by the government in the session of 1873 was the University Education (Ireland) Bill, which was opposed by the Roman Catholic members, who, voting on this occasion with the Conservatives, caused the rejection of the bill by 287 votes against 284 (March 11th). Upon this Mr. Gladstone tendered his resignation to Her Majesty, and Mr. Disraeli was sent for; but, as he declined to take office, Mr. Gladstone, though with reluctance, undertook (March 16th) to reconstruct the cabinet. In August, 1873, immediately after the close of the session, the cabinet was considerably remodeled, Mr. Gladstone assuming the chancellorship of the exchequer, in addition to his office of first lord of the treasury. On January 24, 1874, a fortnight before both houses were to have met for the dispatch of public business, Mr. Gladstone took everybody by surprise by announcing the immediate dissolution of parliament, and issuing his address to his constituents at Greenwich, in which he promised to abolish the income tax. At the general election which ensued the votes were, for the first time, taken by secret ballot. The result proved most disastrous to the Liberal party. The returns, completed on February 27th, showed that 351 Conservatives had been elected and 302 Liberals, inclusive of the Home Rulers who declined to identify themselves with either of the old political parties. Mr. Gladstone at once resigned and Mr. Disraeli became prime minister. In the session of 1874 Mr. Gladstone, who had been reelected for Greenwich, was rarely to be seen in his place in the House of Commons; but at its close he offered a persistent opposition to the Public Worship Regulation Bill.

Even amid the turmoil of political life Mr. Gladstone had devoted a portion of his time to literature. His *Ecce Homo*, reprinted from *Good Words*, appeared in 1868; a pamphlet on the Irish Church question, entitled *A Chapter of Autobiography*, was published November 23, 1868; and *Juventus Mundi: the Gods and Men of the Heroic Age*, in 1869. After his unsuccessful attempt to prevent the passing of the Public Worship Regulation Bill, he contributed to the *Contemporary Review* for October, 1874, an article on "Ritualism," which gave rise to an animated controversy. In it he asserted that "Rome had substituted for the proud boast of *semper eadem* a policy of violence and change of faith," that "no one could become her convert without renouncing his moral and mental freedom, and placing his civil loyalty and duty at the mercy of another," and that "she had equally repudiated modern thought and ancient history." Challenged by his Roman Catholic friends to substantiate these grave charges, Mr. Gladstone published (November 7, 1874) a bulky pamphlet entitled *The Vatican Decrees in Their Bearing on Civil Allegiance: A Political Exposition*, which elicited numerous elaborate replies from

Mgr. Capel, Doctor Newman, Archbishop Manning, and other distinguished members of the Roman Catholic church. Mr. Gladstone's reply to his opponents, published February 24, 1875, is entitled *Vaticanism: An Answer to Replies and Reproofs*. Mr. Gladstone followed up his attacks on the Roman Catholic church in an article on the *Speeches of Pius IX.*, in the *Quarterly Review* for January, 1875. On January 13, 1875, three weeks before the assembling of parliament, Mr. Gladstone announced in a letter to Earl Granville his determination to retire from the leadership of the Liberal party. Soon afterward the Marquis of Hartington was chosen by the Liberal party to be their leader in the House of Commons. Subsequently, however, Mr. Gladstone constantly took part in the discussions at that assembly. In 1876 he published *Homeric Synchronism: an Inquiry into the Time and Place of Homer*, and on September 6th, in the same year, appeared his famous pamphlet on *Bulgarian Horrors and the Question of the East*. It was followed (March 13, 1877) by another pamphlet, entitled *Lessons in Massacre: an Exposition of the Conduct of the Porte in and about Bulgaria since May, 1876*. Mr. Gladstone took an active part in the agitation respecting the massacres in Bulgaria, and strenuously opposed, both in and out of parliament, the policy of the Conservative government, which resulted in the Treaty of Berlin and the signing of the Anglo-Turkish Convention. In the autumn of 1877 (October 17th to November 12th) he paid a visit to Ireland, and was presented with the freedom of the city of Dublin. On November 15th in that year he was elected lord rector of the University of Glasgow, succeeding Lord Beaconsfield. Mr. Gladstone sent a letter to the president of the Greenwich Liberal "Five Hundred" on March 9, 1878, stating that he should only represent the borough until the next general election. Early in 1879 he had been invited to become the Liberal candidate for Midlothian, and the crowning incident of the electoral campaign in the ensuing parliamentary recess was his visit to Scotland in connection with his purpose of contesting that county at the general election. On the dissolution of parliament at Easter, 1880, Mr. Gladstone renewed in Midlothian the oratorical *tours de force* of the preceding winter, and was successful in his candidature, polling 1,597 votes against 1,368 recorded in favor of the earl of Dalkeith, his Conservative opponent. When the composition of the new House of Commons was made known, it appeared that it consisted of 349 Liberals, 243 Conservatives, and 60 Home Rulers. The earl of Beaconsfield tendered his resignation to the queen as soon as it was manifest that the Liberal party had obtained an unquestionable majority. The marquis of Hartington, who had been leader of the opposition in the Lower House, and Earl Granville, the opposition leader in the House of Peers, were sent for in the first instance, but, in accordance with consultations among the chiefs of the party, they recommended the queen to entrust the task of forming a cabinet to Mr. Gladstone. He consented to accept the duty (April 23d), and his cabinet was constructed with a view to conciliate and to represent the different sections of the Liberal majority. Mr. Gladstone himself superadded to his duties as first lord of the treasury the functions of chancellor of the exchequer, but resigned the latter office in 1883 into the hands of Mr. Childers. The history of Mr. Gladstone's second ministry may be summed up in three words—Ireland, Egypt and Franchise—though of course a large number of other matters (such as Mr. Chamberlain's bankruptcy bill and merchant shipping bill) were long under consideration. Ireland was the great question during the sessions of 1880 (May to



August), 1881 and 1882, and the debates on the compensation for disturbance bill, on Mr. Foster's coercion bill, and (after the murder of Lord Frederick Cavendish and Mr. Burke, May 6, 1882) on the crimes bill, occupied the greater part of the time and attention of the country. What prolonged and exasperated the discussions was the method of obstruction invented and practiced not only by the followers of Mr. Parnell, but also by some members of the Tory party. After the passing of the Crimes act, which closed a period of almost unexampled parliamentary and administrative difficulty, Egypt began to occupy the mind of parliament. The struggle with ARABI PASHA (*q.v.*) came to a head in July, when Admiral Seymour bombarded the forts of Alexandria; and was ended on September 13th, when Sir Garnet Wolsley won the battle of Tel-el-Kebir. But Mr. Gladstone's difficulties were only just beginning. The revolt of the Arab tribes of the Soudan, the destruction of Hicks Pasha's Egyptian army, the two Suakim expeditions, the dispatch of General Gordon to Khartoum, and long afterward of Lord Wolsley's relieving force; the advance of this latter, its difficulties, its hard-won victories, its failure to reach Khartoum in time to save Gordon, are too fresh in memory to need a detailed repetition. The session of 1884 was occupied, as far as home politics was concerned, with the franchise bill, a bill for extending household suffrage to the counties. Passed in the Commons, it was thrown out by the Lords, who, under the guidance of Lord Salisbury, declined to pass it until the redistribution scheme was before them. But after an autumn of popular "demonstrations," a series of conferences between the Liberal and Tory leaders were held, in which the lines of a redistribution bill were settled. After this both bills passed in due course (1885), but soon afterward, on June 9th, Mr. Gladstone was overthrown by a vote on the budget, and Lord Salisbury came into power. At the general election of November, 1885, the Liberals were returned with numbers almost exactly equal to those of Tories and Parnellites combined. Soon afterward Mr. Gladstone returned to office, and at the same time caused it to be known that he was prepared to introduce a home rule measure. This broke up the Liberal party. Lord Hartington and others refused office, and Mr. Chamberlain and Mr. Trevelyan only accepted on grounds which were soon afterward shown to be untenable. Mr. Gladstone introduced his home rule bill in a long and powerful speech on April 8th, and on June 9th the second reading was rejected by a majority of thirty. He appealed to the country, and as a result an overwhelming majority of Conservatives and Unionist Liberals was returned. He remained out of power for six years but was by no means inactive. He delivered many speeches for Home Rule in 1887, visited Italy in 1888 and in 1889; paid tribute to John Bright in the Commons in March, 1889, made a great campaign in the west of England in that year, celebrated his golden wedding, July 25, 1889, and in 1892 made another Midlothian campaign and was returned at the general election, supported by a Liberal majority of 44, increased to 50 through bye-elections, and August 15 he succeeded Lord Salisbury, becoming premier for the fourth time. In 1893 he secured the passage of the Home Rule bill by the Commons, but was doomed to see its defeat by the Lords. He resigned the premiership March 2, 1894, being succeeded by Lord Roseberry, for the reported cause of a cataract in his eye, which, however, was successfully removed. Mr. Gladstone kept up his literary activity in later life, publishing *Landmarks of Homeric Study* (1890) and a volume of translations of the *Odes of Horace* in November, 1894. He died May 19, 1898.

GLEIG, GEORGE ROBERT, born in Scotland in 1796; received an army commission in 1812, took holy orders in 1822, was a rector, and, 1846-75, chaplain-general to the forces. He wrote a novel, *The Subaltern*, and military biographies. He died in 1888.

GLIDDEN, GEORGE D. B., born in Maine, April 15, 1844; graduated at Annapolis Naval Academy, 1863, rose to be commander, 1883, and died in 1885.

GLISSON, OLIVER S., born in Ohio in 1809; entered the United States navy in 1826, saw much active service during the Civil war, and, in 1870, became rear-admiral. He died November 20, 1890.

GLYNN, JAMES, born in 1800; served in the United States navy from 1815 to 1855, and died in 1871.

GNEIST, RUDOLPH, born in Berlin, Prussia, August 13, 1816; a noted German jurist. In 1858 he was elected to the Chamber, where he acted with the moderate Liberals. He died July 21, 1895.

GODKIN, EUGENE LAWRENCE, born in Ireland, October 2, 1831; was connected with the London, England, press as a war correspondent in the Crimea, and, in 1856, came to New York. In 1865 he became editor of the *Nation*, which fourteen years later was incorporated in the *Evening Post*. Died May 24, 1902.

GODWIN, PARKE, born in New Jersey, February 25, 1816; graduated at Princeton in 1834, and for twenty-four years assisted his father-in-law, William Cullen Bryant, in editing the *New York Evening Post*. He was also one of the editors of *Putnam's Monthly*, published a *History of France*, and a *Cyclopædia of Biography*, and wrote a biography of Mr. Bryant.

GOFFE, WILLIAM, born in England about 1605; died in Hartford, Conn., in 1679. He was early trained to follow a business career, but entered the Parliamentary army, where, in 1865, he rose to be a major-general. He was a member of parliament in 1654, and again in 1656, and was one of the commission who condemned Charles I. to death. When King Charles II. was called to return, Goffe, with Whalley, his father-in-law, set out for America. On July 27, 1660, they arrived at Boston, and settled at Cambridge. A reward was offered for their arrests, and the two retired from Cambridge to New Haven, where for a time they remained. In 1664 they removed to Hadley. They were several times seen during their stay at New Haven, but lived concealed from the pursuit of the crown officers. It is believed Whalley died at Hadley in 1675. Goffe, in 1679, went to Hartford, where he shortly afterward died.

GOLDSBOROUGH, LOUIS M., born in Washington, D. C., February 18, 1805; entered the United States navy in 1821; fought against pirates in the Mediterranean, and was second in command at the attack on Vera Cruz. In 1861 he was flag-officer of the North Atlantic squadron; in 1862 became rear-admiral, and after the war commanded the European squadron. He died February 20, 1878.

GOLDSCHMIDT, MADAME, best known by her maiden name of Jenny Lind, was born at Stockholm, Sweden, October 6, 1821. She studied under Garcia, and first appeared in her native city in 1843. Later she sang in Berlin, Dresden, Frankfort, Cologne, and Vienna, and in 1847 made her first appearance in England. Fresh from her triumphs there, "the Swedish Nightingale" in 1850 visited the United States, where she gave over a hundred concerts and awoke the wildest enthusiasm. In 1851 she married Otto Goldschmidt, a noted pianist, and shortly after retired from the stage. She resided in England until her death, November 2, 1887.

GONZALEZ, MANUEL, born in Mexico in 1820; became a guerrilla leader in 1853, and was prominent in the reactionary party. In 1861-65 he assisted Juarez



against the French and Imperialists, and in 1876 joined with Diaz to overthrow Lerdo de Tejada. In 1878 he became secretary of war under Diaz, whom, in November, 1880, he succeeded as president. This office he held four years, and afterward became governor of the State of Guanajuato. He died in March, 1893.

GOOCH, FRANK AUSTIN, chemist, born in Massachusetts, May 2, 1852; graduated at Harvard in 1872, and became attached to the chemical laboratory there. He served with the United States geological survey, and in 1886 was appointed professor of chemistry at Yale. He is a member of many scientific societies and has written on improved methods of analysis.

GOODALE, GEORGE LINCOLN, botanist, born in Saco, Me., August 3, 1839; graduated at Amherst, and in medicine at Harvard and Bowdoin. He held professorial chairs at Harvard and other institutions, and is a member of the council of Harvard College library and of the museum of comparative anatomy. He has written several works on botany and vegetable histology.

GOODALL, FREDERICK, artist, was born in London, England, in 1820; became A.R.A. in 1852, and R.A. in 1863. His *By the Sea of Galilee* and *The Palm Offering* were seen in Chicago in 1893.

GOODE, GEORGE BROWN, born at New Albany, Ind., February 13, 1851; became in 1874 connected with the United States fish commission and the national museum, and has written several works on food fishes.

GOODRICH, CHAUNCEY ALLEN, born at New Haven, Conn., in October, 1790; was professor of rhetoric and oratory in Yale College, 1817-39, and afterward filled the chair of theology there. He edited *Webster's Unabridged Dictionary* and died in 1860.

GOODSELL, DANIEL AYRES, born in Newburg, N. Y., November 5, 1840; became a Methodist Episcopal preacher, and in May, 1888, was elected bishop.

GOODWIN, NAT C., a popular American comedian, was born in Boston in 1857 and went on the stage in 1876, achieving instant success. Some of his latest triumphs have been in *The Gilded Fool*, *In Mizsoura*, *The Nominee* and *A Gold Mine*.

GOODWIN, WILLIAM WATSON, born at Concord, Mass., May 9, 1831; graduated at Harvard in 1851, studied in Germany and in 1860 became Eliot professor of Greek literature at Harvard. He wrote numerous works on philology.

GORDON, CHARLES GEORGE (Chinese Gordon), born at Woolwich, England, January 28, 1833. He was present at the surrender of Peking, and the burning of the Summer Palace in 1860. In the service of China he commanded a native force 3,000 to 5,000 strong, with 150 European officers, which in a sixteen months' campaign (1863-64), suppressed the rebellious Tae-Pings. He was British commissioner on the Danube at Galatz (1871-73); next, in Egypt's service, he strove to put down the slave-hunting in the Soudan (1874-79). In 1880 he went to China, where his counsels prevented a war with Russia. In 1881-82 he was chief engineer in Mauritius. On January 18, 1884, the British Government dispatched him to Khartoum, to extricate the Egyptian garrisons in the Soudan, menaced by the revolt of the Mahdi. He reached Khartoum February 18th. In March he began a nine months' defense; on January 28, 1885, the van of Lord Wolseley's rescue expedition reached Khartoum, to find that it had fallen two days earlier, and that Gordon was dead. Gordon was religious almost to fanaticism, a determined enemy of slavery, and an enthusiast of the Puritan type.

GORDON, GEORGE HENRY, born in Charlestown, Mass., July 19, 1825; graduated at West Point in 1846,

and was wounded at Cerro Gordo. He resigned to practice law, but in 1861 reentered the service, fought at Antietam, took part in the operations against Mobile, and was brevetted major-general of volunteers. He died in 1886.

GORDON, GEORGE WILLIAM, born in Jamaica, West Indies; died there October 23, 1865. In 1865 he was a member of the legislature of the island, and an active exhorter on public measures at negro mass-meetings. In October some negroes had "squatted" on a district of wild land in Morant, from which the whites endeavored to eject them. This led to disturbance and rioting. Twenty-eight rioters were arrested, and when they were brought to court for trial a new riot was begun. The military, volunteers, and several magistrates were overpowered by the negroes, and the court-house burnt; sixteen whites were killed and eighteen wounded. In the districts adjoining, the negroes plundered the plantations, but refrained from bloodshed; while the returning government troops sent forward reported they had not lost a soldier, but had, on their part, shot and hanged, without trial, hundreds who were suspected to be implicated in the uprising. At that time Gordon lived at Kingston, and the governor of the island declared he had proofs that Gordon was chief instigator of the disturbances. He was taken to Morant Bay, tried by a court-martial, found guilty, and hanged on October 13th. Governor Eyre (see EYRE, *ante*) sanctioned the finding, and was indicted for murder in England, but was acquitted.

GORDON, JOHN BROWN, born in Upson county, Ga., February 6, 1832; became a lawyer, and in 1861 entered the Confederate service, in which he rose to the rank of lieutenant-general. He commanded under Lee at Appomattox, and was several times wounded in battle. In 1868 he was the unsuccessful Democratic candidate for governor of his native state, and in 1873 was elected to the United States Senate. Re-elected in 1879, he resigned the following year, and in 1886 was elected governor of Georgia. In November, 1890, he was again elected to the United States Senate for the term beginning in March, 1891.

GORGES, SIR FERDINANDO, born in England about 1565; assisted in the formation of the Plymouth Company and in 1639 became lord-proprietary of the province of Maine, and died in England in 1647.

GORMAN, ARTHUR P., Democratic United States Senator, an astute politician, was born in Howard county, Maryland, March 11, 1839; in 1852 was appointed page in the Senate of the United States, continued in its service until 1866, held various offices in Maryland and in its legislature and was elected to the United States Senate in 1880 and re-elected in 1886 and 1892. He was elected president of the Chesapeake and Ohio Canal company in 1872.

GORRINGE, HENRY HONEYCHURCH, born in Barbadoes, West Indies, August 11, 1811; died in New York city, July 7, 1885. He came to the United States as a lad, entered the United States navy as a sailor, in July, 1862, rose to the rank of commander and when in 1879 the Khedive of Egypt offered to the United States one of the noted Alexandrian obelisks, he was commissioned to bring it to this country. He arrived at Alexandria, October 16, 1879, and, with the assistance of one hundred natives, entered on his labors. On December 6, 1879, the stone was moved from its pedestal and placed in a horizontal position, an iron steamer was purchased at a cost of \$25,000, and the obelisk introduced through an opening made in the side of the vessel. It was safely transported to New York city, arriving July 20, 1880, and was con-



veyed from the Hudson river to Central Park. The shaft is sixty-nine feet high, was erected at Heliopolis about 1600 B.C., and removed to Alexandria in the year 22 B.C. The total expense of its removal and erection in the park amounted to over \$100,000. Goringe published a *History of Egyptian Obelisks* (New York, 1885).

GORTSCHAKOFF, ALEXANDER MICHAELOWITSCH (Prince), was born in Russia, July 16, 1798, and in 1824 entered the diplomatic service of his country. During the Crimean war he was ambassador at Vienna, and in 1856 he became minister of foreign affairs. He took part in the negotiations over the treaty of San Stefano and in the congress of Berlin, retired from office in 1882, and died at Baden-Baden, March 11, 1883.

GOSCHEN, GEORGE JOACHIM, born in London, August 10, 1831, of German parentage. He became a member of parliament for the city of London in 1863, and supported the Whig-Liberal party. In November, 1865, he became vice-president of the Board of Trade, and in 1866 was made Chancellor of the Duchy of Lancaster. In the Gladstone ministry of 1868 he was president of the Poor Law Board, and from March, 1871, until February, 1874, was First Lord of the Admiralty. Becoming dissatisfied with the course of the Liberal party on the question of extension of the franchise, he withdrew from parliament in 1878. He was many years connected with a leading banking firm in London, and in 1876 he concluded an arrangement with the Khedive for a reorganization of the bonded debt of Egypt. In 1883 he was sent to Constantinople as a special representative to arranged disputed questions with the Sultan. He succeeded Lord Randolph Churchill as chancellor of the exchequer in the Salisbury ministry in 1887. In 1900, he was raised to the Peerage.

GOSNOLD, BARTHOLOMEW, born in England about the middle of the sixteenth century; died in Virginia, August 22, 1607. He was associated with Sir Walter Raleigh in his attempt to found a colony in Virginia, and later headed an expedition fitted out by the Earl of Southampton, to found a colony in New England. On March 26, 1602, he left Falmouth for this purpose with a ship and twenty colonists, attempting to cross the ocean in a direct line. Contrary winds took his vessel to the Azores, whence, after a tedious voyage of seven weeks he reached the coast of Maine. Following the coast south, he anchored near York Harbor on May 14, and discovered and named Cape Cod, May 15. The navigators landed on an island near the mouth of Buzzard's Bay, which they named Elizabeth, in honor of the queen, and left after a hard winter. Gosnold then united with the company of which Capt. John Smith was a leader, to locate in Virginia. They received their charter April 10, 1606, the first granted for a British settlement in North America. On December 19 Gosnold left England with three small ships and about 100 colonists, and, in 1607 they reached James river, and settled Jamestown. The place was unhealthy, and within a year Gosnold and half the colonists died.

GOSSE, EDMUND WILLIAM, English author and sometime Clark lecturer on English literature at Trinity College, Cambridge, was born in London in 1849. He wrote *From Shakespeare to Pope* (1885); *The History of Eighteenth Century Literature, 1660-1780* (1889); a volume of essays, *Gossip in a Library* (1891); a novel, *The Secret of Narcisse* (1892); a volume on the Jacobean poets (1893); a collection of lyrical poems, *In Russet and Silver* (1894), and other works.

GOSSE, PHILIP HENRY, born in England, April 6, 1810; traveled in Newfoundland, Canada, the United States, and the West Indies, where he made extended studies of geology and natural history. In 1856 he became a fellow of the Royal Society. He wrote exten-

sively on birds, animals and reptilia. He died August 23, 1888.

GOT, FRANÇOIS JULES EDMOND, an eminent French comedian, born at Lignerolles (Orne), October 1, 1822; received his education at the College Charlemagne, and after being employed for a short time at the prefecture of the Seine, entered M. Provost's class at the Conservatoire, where in 1842 he carried off the second, and in 1843 the first, prize for comedy. After a year's compulsory service in the army, he made his first bow to a Parisian audience in 1844 at the *Comédie Française*, of which society he became a member in 1850. M. Got's reputation steadily increased, and he is now most deservedly regarded as one of the greatest actors on the French stage. He excels in the representation of the leading comic parts in the old classical dramas, and has created scores of original characters in modern pieces. M. Got's name has been frequently before the public in connection with the internal dissensions of the *Comédie Française*. When M. Got and his colleagues of the *Théâtre Française*, visited London in 1871, they were entertained at a public dinner at the Crystal Palace. On August 4, 1881, M. Turquet, the Under Secretary of State for fine arts, publicly conferred the cross of the Legion of Honor on M. Got. Died March, 1901.

GOTTSCALK, LOUIS MOREAU, musician, born in New Orleans, La., May 8, 1829; died in Tijuca, Brazil, December 18, 1869. His father sent him to Paris to complete his musical education. He appeared in 1845 in Paris at a concert, and gave promise of coming distinction as a performer on the piano-forte. Later he gave concerts in Spain and Switzerland, and in 1853 returned to the United States. His first concert was given in Boston; thereafter he made the rounds of other cities, and visited Mexico and the West Indies. In Rio Janeiro he was engaged to perform during a musical festival in November, 1869, and on the second evening's performance was taken seriously ill, and a few days later he died.

GOUGH, JOHN BARTHOLOMEW, born in Kent, England, August 22, 1817; died in Pennsylvania in February, 1886. He came to New York when a boy, and worked as a bookbinder, but fell into dissipated habits, but in 1842 abandoned the use of intoxicants and devoted his life to the temperance cause. Gough was a born orator and one of the most popular lecturers ever heard from the platform.

GOULD, BENJAMIN APTHORPE, born at Boston, Mass., September 27, 1824; graduated at Harvard College in 1844, and afterward studied at Göttingen, where he took his degree in 1848, and was for some time an assistant in the observatory at Altona. After visiting the principal observatories in Europe, he returned to America in 1851 and was employed in the coast survey, having in special charge the longitude determinations, the methods of which he greatly improved. In 1856 he was appointed director of the Dudley observatory, at Albany, N. Y., retaining that post until the beginning of 1859. In 1866 he established an observatory at Valentia in Ireland, and made the first determination of transatlantic longitude by telegraph cable. In 1868 he was appointed by the government of the Argentine Republic to organize and direct the national observatory at Cordova, where he remained until 1885. While in South America he completed a set of maps of the stars visible to the naked eye from the observatory, and also undertook a series of zone observations on the southern stars. In 1849 he founded, at Cambridge, Mass., the *Astronomical Journal*, which he edited until its suspension in 1861, the expenses being defrayed by himself and a few friends. His principal works are,



*Report on the Discovery of the Planet Neptune, Smithsonian Institution Reports* (1850); *Investigation of the Orbit of the Comet V.* (1847); *Discussions of Observations made by the United States Astronomical Expedition to Chili, to determine the Solar Parallax* (1856); *On the Transatlantic Longitude* (1869); *Military and Anthropological Statistics of American Soldiers* (1869), and several charts of stars of scarcely less importance than those already noted. Died Nov. 27, 1896.

GOULD, EDWARD SHERMAN, born in Litchfield, Conn., May 11, 1808; became a contributor to the *Knickerbocker Magazine* and other journals and published a number of sketches. He died in New York city, February 21, 1885.

GOULD, JAY, born in Roxbury, N. Y., May 27, 1836. At the age of fourteen he entered Hobart Academy, N. Y. Here he studied surveying and mathematics, and after leaving school was employed in making surveys for a map of Ulster county. In 1856 he published a *History of Delaware County*. After marrying, he became interested as partner in the business of Colonel Zadok Pratt, a noted tanner of hemlock sole leather, and, with the ample means provided by his wife, bought out the old tanner's interest. In 1857 Mr. Gould was controlling director of the Stroudsburg, Pa., bank, and soon after became the owner of the Rutland and Washington railroad. He also consolidated the Rensselaer and Saratoga roads. In 1859 he removed to New York city with an abundance of capital, and established himself as a stock-broker and speculator. Here his operations, partly in connection with the noted "Jim" Fisk, were on a gigantic scale, founded on a series of original combinations, united with consolidations, "cornerings" and "waterings" of stocks to the amazement and often ruin of his long-practiced competitors. At that time he rose to be president of the Erie railroad, but in 1872 he was compelled to relinquish control and disgorge \$9,000,000 to English stockholders. In 1882, his financial stability being questioned, he produced stock certificates for \$53,000,000 and offered to produce \$20,000,000 more. He gained control of the elevated railroads of New York in 1882 and in 1887 was said to control 13,000 miles of steam railroads, one-tenth the entire mileage of the country. He died December 2, 1892, leaving \$72,000,000 to six children, with the management of the property to GEORGE J., his eldest son, and not a cent to charity.

GOULD, WALTER, artist, was born in Philadelphia in 1829; belonged to an artists' society there for some years, and afterward removed to Italy, where he painted many portraits. He died in January, 1893.

GOUNOD, CHARLES FRANÇOIS, composer, was born at Paris, June 17, 1818. After the usual course of training in musical science M. Gounod became known as a lyric composer for the stage by his pastoral of *Philemon and Baucis*. This was followed by *La Nonne Sanglante*, *Sappho*, a cantata, and *La Colombe*. Although these works contained unquestionable marks of genius, none achieved success. Indeed few composers who have risen to eminence have had more failures at the outset of their career than the author of one of the most successful of modern operas, *Faust*. M. Gounod was the composer, among other works, of a comic opera founded on Molière's *Médecin malgré lui*, produced in London by the English Opera Company, under the title of the *Mock Doctor*; of *La Reine de Saba*; *Mirelle*, brought out in London, 1864; *Romeo and Juliet*, produced at Paris and London in 1867; and *Polyeucte*, produced at the Grand Opera, Paris, October 7, 1878. He was elected a member of the French Institute, section of music, in May, 1866, and was promoted to

the rank of commander of the Legion of Honor in August, 1877. His opera, *The Tribute of Zamora*, was produced at the Grand Opera at Paris, April 1, 1881; and in the following year his sacred work, *The Redemption*, was produced at the Birmingham Musical Festival. In 1885 his new oratorio, *Mors et Vita*, was produced at the Albert Hall, and a second performance, by special command of the queen, took place in February, 1886. He died October 18, 1893.

GOURGUES, DOMINIQUE DE, French soldier, born in Mont-de-Marsan, France, in 1537; died in Tours, France, in 1593. He served as an officer in the French army in Italy, and was captured by the Spaniards and Turks in succession. For several years he was kept in confinement on the galleys. After his liberation he returned to his own country; from there sailed for South America and the West Indies. The Spaniards attacked a French Huguenot colony on the St. John's river, in Florida, and put the inhabitants to the sword. For this the French government made unheeded complaint to the Spanish court. De Gourgues determined to avenge this outrage, and on August 22, 1567, fitted out three vessels with soldiery. Touching at Puerto de la Palta, the command secured a pilot for the Florida coast. The French force consisted of 150 soldiers and 80 sailors trained to the use of arms. Passing two Spanish batteries at the opening of St. John's river, the expedition anchored at the mouth of the St. Mary's. The native chieftain, Saturiba, who was opposed to the Spaniards, readily united with the newcomers for an attack on the Spanish forts. Forty-five Spaniards were killed, and fifteen others captured and hanged. The expedition then returned to France, June 6, 1568.

GOURKO, COUNT JOSEPH VASILYEVITCH, one of the most distinguished generals of the Russo-Turkish war, is of Polish origin, and was born in 1828, and educated in the imperial "Corps de Pages." He was created ensign of the regiment of hussars of the imperial body guard in 1846, took part in the Crimean war, 1853-57, became captain in 1857, commanding a squadron in the same regiment, and in 1860 was made adjutant to the emperor. In 1861 he received his colonel's commission. In 1866 Gourko was appointed commander of the fourth hussar regiment at Marinopol. In 1867 the emperor named him major-general. Then he commanded the grenadier regiment of the imperial guards, and in 1873 the first brigade of the second division of the Cavallerie de la Garde. At the outbreak of the war with Turkey in 1877 he commanded the Russian vanguard. June 25, with a detachment of cavalry he attacked and took the strong and powerfully defended town of Tyrnovo. July 5 he occupied Kazanlyk and the village of Shipka, and after occupying and defending the passes of Shipka and Hanko he led his troops across the Balkans in the middle of winter with but few losses, one of the most brilliant feats in the annals of war, and led the victorious Russian troops into the fertile valleys beyond, occupying Sofia, Philippopolis, and Adrianople. Count Gourko has been elevated to the rank of adjutant-general, is a knight of St. George of the second class, and of several other high orders. He was made a count in 1878, and governor of Warsaw in 1883. Died Jan. 29, 1901.

GOWEN, FRANKLIN B., born in Philadelphia, February 9, 1836; practiced law and became district-attorney of Schuylkill county. He then became interested in railroads and organized the Philadelphia and Reading Coal and Iron Company. It was largely by his efforts that the "Molly Maguire" organization of murderers was stamped out. He died December 14, 1889.

GRACE, WILLIAM GILBERT, a famous cricketer, was born near Bristol, England, July 18, 1848. He



early evinced a great aptitude for cricket, and in 1864 played with the South Wales team at Brighton against the Gentlemen of Sussex. The next year he was eagerly sought for, and his reputation established. Between 1864 and 1879 Mr. Grace completed 415 innings in first-class matches and obtained in all 20,842 runs, the most wonderful record of batting performances ever chronicled. In July of the latter year he was presented with a costly testimonial subscribed for by all classes of players, in recognition of his merits as an all-round cricketer. He was the best bat in England, a good bowler, an excellent fielder, and a first-rate captain. In 1884 he played three innings of over one hundred against the Australians, and in 1886 his record was equally high. Like his father and brother (Dr. E. M. Grace) he is a member of the medical profession, and took his M.D. degree in 1879.

GRACE, THOMAS L., born in Charleston, S. C., November 16, 1814; was ordained priest December 21, 1839, and was consecrated bishop of St. Paul in 1859. After twenty-five years' service he resigned his see and was created titular bishop of Mennith.

GRADY, HENRY WOODFIN, born at Athens, Ga., in 1851; died at Atlanta, Ga., December 23, 1889. He was educated at the State University at Athens, and took a post-graduate course at the University of Virginia. He became editor of the Rome (Ga.), *Daily Commercial*, and afterward of the Atlanta *Herald*. For some time he acted as Southern correspondent of the New York *Herald*, and, in 1880, he became part owner and managing editor of the Atlanta *Constitution*, which he conducted until his death. He was a fine speaker, a man of broad and liberal views; and, during his brief public life, did as much as any one man could to advance the interests of Georgia and the South.

GRAHAM, JAMES DUNCAN, born in Virginia, April 4, 1799; graduated at West Point in 1817, and became lieutenant of artillery. He was employed on topographical engineering, and established the boundary line between the United States and the Republic of Texas, the northeast boundary line of the United States, and, in 1851, the line between the United States and Mexico. He died December 28, 1865.

GRAHAM, SYLVESTER, born in Suffield, Conn., in 1794; entered the Presbyterian ministry, and became a lecturer on temperance and vegetarianism. He published essays on diet and other subjects, and died in 1851.

GRAHAM, WILLIAM ALEXANDER, born in Lincoln county, N. C., September 5, 1804; practiced law in his native State, and between 1833 and 1840 was several times elected to the legislature, of which he was twice speaker. From 1840 to 1843 he served in the United States senate, and in 1844 and 1846 was elected governor as a Whig. In 1850 he became secretary of the navy in Fillmore's cabinet, and resigned in 1852 to accept the Whig nomination for vice-president on the ticket with General Winfield Scott. He acted with the South during the Civil war, and sat in the second Confederate senate in 1864-65. He died August 11, 1875.

GRAHAM, WILLIAM MONTROSE, born in Virginia in 1798; graduated at West Point in 1817; took part in the Seminole war, and in several engagements in Mexico, and was killed at Molino del Rey, September 8, 1847.

GRAMONT, ANTOINE, DUC DE, born in Paris, August 14, 1819; was educated at the École Polytechnique, and entered the diplomatic service of France. Under the Second Empire he was successively minister to Cassel, Stuttgart, Turin, Rome, and Vienna. In May, 1870, he joined the short-lived Ollivier cabinet, and became the instrument of Napoleon III. in forcing on the declaration of war against Prussia. He resigned

in August, and never appeared in public life again, and died at Paris, January 18, 1880.

GRANBERY, JOHN COWPER, born in Norfolk, Va., December 5, 1829; became a Methodist Episcopal preacher in 1848; served in the Confederate army as chaplain, and from 1875 to 1882 was a professor in Vanderbilt University, Nashville. In 1882 he was appointed a bishop of the Methodist Episcopal Church South.

GRANGER, FRANCIS, born in Suffield, Conn., December 1, 1792; graduated at Yale in 1811, and became a lawyer and member of the legislature. He was twice Whig candidate for governor, and was both times defeated. In 1836 he was candidate for vice-president on the ticket with General Harrison, and was again defeated. In 1838 he was elected to congress, and in March, 1841, became postmaster-general under Harrison, holding office until the dissolution of the cabinet under Tyler. Later he again served in Congress, and a party over whose convention he presided received the name of the "Silver Grays," in allusion to his hair. He died August 28, 1868.

GRANGER, GORDON, born in New York in 1821; graduated at West Point in 1845, and distinguished himself in the Mexican war. In 1861 he was attached to McClellan's staff, became a brigadier-general and commanded the cavalry at Corinth. He became a major-general of volunteers in September, 1862, and commanded the army of Kentucky. After Chickamauga, where he distinguished himself, he was given command of the fourth army corps, and took part in the fights at Chickamauga and Missionary Ridge. Later, he commanded a division at Fort Gaines, and during the Mobile campaign. He finally received a major-general's brevet, and died while in command of the district of New Mexico, January 10, 1876.

GRANGER, ROBERT SEAMAN, born in Zanesville, Ohio, May 24, 1816; graduated at West Point in 1838, and served in the Florida and Mexican wars, becoming captain in 1847. He was captured by the Confederates early in the Civil war, but was exchanged; became a brigadier-general of volunteers, and did good service in Tennessee and Alabama. He was brevetted major-general United States army; became colonel in 1871, and was retired, January 1, 1873. He died April 25, 1894.

GRANIER DE CASSAGNAC, PAUL ADOLPHE, son of Adolphe Granier de Cassagnac, born about 1840, became at an early age a contributor to the minor Parisian journals. In 1866, under the auspices of his father, he joined the staff of *Le Pays*, of which soon afterward he became the principal editor. Since then he has been perpetually embroiled in quarrels with his brother journalists and anti-Bonapartist politicians. It would be difficult to enumerate all the "affairs of honor" in which he has been engaged, but his duel with the late M. Gustave Flourens in 1869 may be mentioned as one of the most desperate fought in recent times. M. Paul de Cassagnac was decorated with the Legion of Honor on the Emperor's fête day in 1868, and in July, 1869, was elected a member of the conseil general for the department of Gers. On the declaration of war against Prussia, in August, 1870, M. Paul de Cassagnac, who was still suffering from a recent wound in the chest, and who had just been appointed a major of the garde mobile of the department of Gers, preferred to enroll himself as a volunteer in the first regiment of Zouaves. Taken prisoner at Sedan he was imprisoned for eight months at Kosel in Silesia. On recovering his liberty he went to Venice for the benefit of his health; and afterward he established in the department of Gers, *L'Appel au Peuple*, a political journal which met with considerable success. Returning to Paris in January, 1872, he resumed the



editorship of *Le Pays*. He was tried in Paris, July 2, 1874, for the publication in *Le Pays* of articles calculated to disturb the public peace, and to stir up hatred and contempt among citizens. M. Paul de Cassagnac undertook his own defense and obtained a verdict of "not guilty," a result that was regarded by the Bonapartists as a signal triumph. M. Paul de Cassagnac was returned to the national assembly by the arrondissement of Condom in the department of Gers, at the general elections of February, 1876, and October, 1877. The latter election was annulled by the Chamber, November 11, 1878, but in the following February M. de Cassagnac was again elected, as he has been at subsequent general elections. Died Jan. 31, 1880.

GRANT, HUGH J., was born in New York city in 1854, and educated in the common schools of that city, subsequently graduating at Columbia College. He began the study of law at the law school of Columbia College, and was admitted to the bar. He entered politics early in life, identifying himself with the Tammany organizations of the nineteenth assembly district, and from the first exerted a potent influence. He was elected a member of the board of aldermen in 1881, and twice thereafter reelected. He was defeated for mayor of the city in 1884, but in 1885 was elected sheriff of the county over Andrew J. White and John W. Jacobus, candidates respectively of the county Democracy and the Republicans. He was elected mayor of New York in 1888 and 1890, retiring in 1892, but ran again in 1894 and was beaten badly by William J. Strong, Republican, on a reform ticket.

GRANT, JAMES, was born at Edinburgh, Scotland, August 1, 1822. When only ten years old he sailed with his father, who had the command of a detachment of soldiers, for Newfoundland, and was several years with the troops in America, his education being principally received in barracks. To this military training may be traced the style and character of many of his works. Returning home in 1839, he was gazetted to an ensigncy in the sixty-second foot, joined the provisional battalion at Chatham, and in 1840 had charge of the depot. He left the army soon afterward, and devoted himself to literature and the study of Scottish antiquities. His first work, *The Romance of War, or Highlanders in Spain*, was published in 1846, an additional volume appearing in 1847, with a secondary title of *Highlanders in Belgium*. This work had an immediate success, and has since been read with delight by thousands of school-boys. During the next thirty years Mr. Grant published a large number of novels, among which may be mentioned *Walter Fenton*, *Philip Rollo*, or the *Scottish Musketeers*, *Legends of the Black Watch*, *Only an Ensign*, and *Dulcie Carlyon*. Most of his works have been printed in the United States. All have been translated into German and Danish, and several into French. Mr. Grant has been a constant contributor of memoirs to the *Dublin University Magazine*, the *United Service Magazine*, etc. In December, 1875, Mr. Grant abjured Protestantism, and was received into the Roman Catholic Church by the Cardinal Archbishop of Westminster. He died in 1887.

GRANT, JAMES, born in Scotland in 1806; was for many years connected with the *London Morning Advertiser*, and was the author of numerous popular works. He died May 27, 1879.

GRANT, SIR JAMES ALEXANDER, born in Scotland in 1829, was educated at Montreal, Canada, and practiced as a physician in Ottawa. He was president of the Canadian Medical Association. From 1867 to 1874 he sat in the Dominion parliament, and introduced the Canadian Pacific railway bill.

GRANT, ULYSSES SIMPSON, eighteenth president of the United States, and the most successful of modern American generals, was born at Point Pleasant, Clermont county, Ohio, April 27, 1822. He was of Scottish ancestry, a descendant of Matthew Grant, who came from Scotland to Dorchester, Mass., in May, 1630. His baptismal name was Hiram Ulysses, but when he applied to the congressman of his district for a nomination to West Point, the congressman misunderstood his name. The error went into the record at West Point, and was never altered. General Grant's father was Jesse R. Grant, and his mother's maiden name was Hannah Simpson. They were married in June, 1821, and Ulysses, the oldest of their six children, spent his boyhood on the farm, and acquired his education at the village school. In the spring of 1839 he was appointed to a cadetship in the United States Military Academy, on the recommendation of Congressman Hamer. Young Grant served his term at West Point with credit, being especially proficient in mathematics. He graduated in 1843, twenty-first in a class of thirty-nine. On graduation he received a brevet second lieutenancy, was attached to the 4th infantry, and assigned to duty at Jefferson Barracks, St. Louis. In May, 1844, the regiment was transferred to Louisiana, and a year later young Grant received a commission as second lieutenant. The regiment was ordered to Texas to join the army of occupation under General Zachary Taylor, then awaiting orders on the frontier. The Mexican war began, and Lieutenant Grant was an active participant in the battles of Palo Alto, May 8, 1846, and of Resaca de la Palma, May 9th. In August the army moved to Monterey, Mexico, Lieutenant Grant acting as quartermaster until the assault, on September 21st, on one of the protecting parties at Monterey, when Lieutenant Grant charged with his command on horseback and was made adjutant. His brigade was transferred to Worth's division, and ordered to the Rio Grande, whence it embarked for Vera Cruz to join the army under General Scott. Lieutenant Grant served with his regiment during the siege until the capture of Vera Cruz, March 29, 1847.

Early in May his division marched for the city of Mexico, and on April 17th and 18th he participated in the battle of Cerro Gordo. On May 15th the troops entered Puebla. He took part in the capture of San Antonio, and the battles of Churubusco and Molino del Rey, and was brevetted lieutenant. He distinguished himself by his services at Chapultepec on September 13th, for which services he was brevetted captain. On September 14th, at the head of 1,200 men, he captured a church and mounted a howitzer in the belfry with so much effect against the enemy as to receive the congratulations of the commanding general. The same day he entered the city of Mexico with the army, and in a few days was promoted first lieutenant. He remained with the army in the city of Mexico until the troops were withdrawn in the summer of 1848. He accompanied his regiment to Pascagoula, Miss., and obtaining leave of absence returned to St. Louis, where, on August 22, 1848, he married Julia B. Dent. He was afterward ordered to Sacketts Harbor, N. Y., thence to Detroit, and in July, 1852, sailed from New York with his regiment for California, via the isthmus of Panama. Cholera attacked the troops on the isthmus and Lieutenant Grant was left behind in charge of the sick. From California he went with his regiment to Fort Vancouver, Oregon. He was promoted to a captaincy August 5, 1853, and stationed at Humboldt, Cal. On July 31, 1854, he resigned his commission, returned to St. Louis, settled on a small farm, and engaged, with but little success, in the real estate business until May, 1860. At that date he removed to Galena, Ill., where his father



had opened a hardware and leather store. He worked there for small wages until the war broke out. When Lincoln's proclamation was issued calling for troops, a public meeting was called in Galena, and Captain Grant, as the only man of military experience in the meeting, was called upon to preside. He spoke in favor of a vigorous prosecution of the war, and a company of volunteers was raised, which he drilled and accompanied to the State capital. Here he was employed in the adjutant-general's department by direction of Governor Yates. In May, 1861, he made application to the war department for a commission, offering to serve in any capacity, but stating that his military experience qualified him for the command of a regiment. For some reason no answer was made to this communication, but on June 17th Captain Grant was appointed colonel of the twenty-first Illinois infantry. The regiment reported for service at Springfield, and on July 3d Colonel Grant marched with it to Palmyra, Mo., and thence to Mexico, Mo., where he reported to General Pope. On July 31st General Pope assigned him to the command of a sub-district, and on August 7th he was appointed brigadier-general of volunteers, his commission being dated back to May 17th. He was ordered to Ironton, Mo., thence to St. Louis, and thence to Jefferson City. About the beginning of September he was directed to report at St. Louis, and found that he had been appointed to the command of the district of southeastern Missouri, with headquarters at Cairo. He arrived at Cairo, September 4th, received information that the Confederates were about to seize Paducah, Ky., at the mouth of the Tennessee river, and immediately moved against them with two regiments of infantry and one battery of artillery. This prompt measure prevented the Confederates from getting a foothold in Kentucky and did much to retain the State in the Union. On November 6th Grant marched to meet Gen. Sterling Price, who was advancing through Missouri with a large force. On November 7th he found that Price had established his camp at Belmont, on the opposite side of the river, and at the head of 2,500 men he engaged the enemy. During the engagement Grant's horse was shot under him. General Price's camp was captured, but his forces rallied and received reinforcements from Columbus, and Grant fell back, reembarked his troops in safety, and returned to his headquarters. In this, the first of his engagements, he captured 175 prisoners and two cannon, with a loss of 485 men, while the Confederates lost 650. His 2,500 men had been opposed by nearly 7,000. In January, 1862, he made a reconnaissance in force toward Columbus. His objective points were Fort Henry, on the Tennessee river, and Fort Donelson, on the Cumberland river. His idea was that with the assistance of gunboats he could capture these two forts before they were strengthened. He returned to St. Louis and submitted in person his proposition to General Halleck, but his views were not approved. On January 28th he telegraphed Halleck that he believed he "could take and hold Fort Henry on the Tennessee." Commodore Foote, who was in command of the gunboats, sent a similar dispatch, and the next day Grant wrote urging the expedition. He obtained leave to move on February 1st, and started on the following day. On the 6th General Tilghman surrendered Fort Henry after a severe bombardment by the gunboats. He and his staff were captured, but most of the garrison escaped and joined the troops in Fort Donelson. This important point was garrisoned by over 20,000 men, commanded by General Floyd. Grant at once invested Fort Donelson, and on February 12th began a siege, having then under him some 15,000 men, afterward increased by reinforcements to 27,000. His artil-

lery consisted of eight light batteries, and owing to the extremely cold weather the soldiers suffered severely. For three days there was very heavy fighting, and on February 15th Floyd made a sortie with the intention of cutting his way out, which Grant repelled. Floyd, seeing that all hope was lost, turned his command over to General Pillow, who in turn resigned it to General Buckner. Floyd and Pillow escaped on a steamboat with a large number of men. The next day Buckner wrote offering to capitulate upon terms. The reply of General Grant was: "No terms other than unconditional and immediate surrender can be accepted. I propose to move immediately upon your works." This epigrammatic answer gained him the name of "Unconditional Surrender Grant," which harmonized with his initials. The same day the garrison surrendered unconditionally. In included 15,000 men, 65 cannon, and 18,000 stand of arms. The Confederates had lost 2,500 men during the siege, killed and wounded; Grant's loss was somewhat less.

The greatest enthusiasm prevailed in the North on receipt of the news of this decided victory, really the first substantial gain made by the Union army in the West. It opened up two navigable rivers to the Union, and left the Confederates no hold in Kentucky or Tennessee. Grant was made a major-general of volunteers, his commission dating from February 16th, and he at once became popular throughout the country. On February 28th he went forward to Nashville, Tenn., without having waited for instructions. He had telegraphed headquarters that in the absence of orders he should do so, but as it was held that he had exceeded his instructions he was deprived of his command and ordered to remain at Fort Henry. On March 13th it became apparent that his services would again be required, and he was ordered to transfer his headquarters to Savannah, on the Tennessee river. Here he found himself at the head of about 38,000 men. He was directed not to attack the enemy, but to await the arrival of General Buell's army, which was marching southward to join him. Gen. Albert Sidney Johnston, who was in command of the Confederate forces, of about 50,000 men, did not propose to wait for this juncture of the national forces, and on April 6th made a vigorous attack upon Grant's troops at Shiloh. The Union forces were driven back in confusion, and during the whole of the day the Confederates seemed to gain. Johnston was killed at 1 p.m., and the command devolved upon Beauregard. All that Grant could do was to hold his own until the head of Buell's column arrived. That night the troops camped upon the field, and in the morning the joint armies advanced and drove the enemy back to Corinth, nineteen miles from the battlefield. Grant's loss in the two days' fighting was over 13,000 killed, wounded, and missing. The Confederate authorities say that their total loss was 11,000, but that is no doubt much underestimated. This was the second great victory of the Western army. On April 11th General Halleck arrived at headquarters and took command, Grant being named second. The Federal forces now numbered over 100,000 men, and the enemy, who were strongly fortified, half that number. The Confederates evacuated Corinth on May 30th, and on June 21st Grant moved his headquarters to Memphis. On July 11th Halleck was appointed general-in-chief of all the armies, and later on he returned to Washington, leaving Grant in command of the army of the Tennessee. On October 25th General Grant was assigned to the command of the Department of the Tennessee, and ordered a new movement against Price. A battle was fought September 19th and 20th, in which the Federal loss was 700 and that of the Confederates double that number. Grant strengthened his position around Cor-



lth, and, when again attacked by the enemy, repulsed them with great loss.

After the battle of Corinth, Grant proposed to Halleck in October to move toward Vicksburg. On November 3d he left Jackson, Tenn., with 20,000 men, occupied Holly Springs, and on December 1st entered the enemy's works on the Tallahatchie river, which they had evacuated. On the 8th Sherman moved down the Mississippi from Memphis to attack Vicksburg from the river, Grant's column to coöperate with him by land. On December 20th the Confederate troops captured Holly Springs, with a great quantity of supplies. Grant abandoned his land expedition, and took command of the movement down the Mississippi. He established his headquarters at Memphis, January 10, 1863, and prepared for the concentrated movement against Vicksburg, and on the 29th he invested that city with 20,000 troops. Admiral Porter's fleet of gunboats of all classes, carrying 280 guns, coöperated by river. Grant attempted to cut a canal across the peninsula opposite Vicksburg for a passage for the gunboats, but this plan failed, and so also did an attempt to turn the Mississippi by opening a new channel. It was not until March that General Grant decided to try a bolder and more hazardous plan, which in the end proved successful. Weeks of hard fighting followed upon his advance, and finally he overcame General Pemberton at Champion Hill, in which battle the Confederates lost 4,000 killed and wounded, 3,000 prisoners, and 30 cannon, Grant's loss being 400 killed, 2,000 wounded and missing. On the 18th the Union army was close up to the outworks of Vicksburg, and by the 30th its 220 guns were in position. Grant now had 70,000 men, with which force he had no difficulty in conducting the siege and defending his rear against Johnston. He pressed on Vicksburg's lines by day and night, the investment became closer and closer, and finally, on July 3d, General Pemberton proposed an armistice. General Grant replied with his usual terms of "unconditional surrender," and on July 4th Pemberton surrendered unconditionally. The officers and men were paroled, and the officers permitted to retain their horses and private baggage. Thus early in his career General Grant showed, as he did throughout the war, the utmost consideration for his vanquished enemy. He supplied them with full rations, and issued an order instructing his men to make no offensive remarks as the Confederates passed out. The capitulation included 30,000 prisoners, 172 cannon, 60,000 stand of arms, and an immense amount of ammunition. In the whole Vicksburg campaign General Grant's loss was less than 9,000, while the Confederate army had at least a loss of 60,000 men. Fort Hudson surrendered next, and the Mississippi was opened from its source to its mouth. General Grant was made a major-general in the regular army, and congress ordered the presentation to him of a gold medal. His next operations were against Chattanooga, to which he sent his forces to coöperate with Rosecrans on October 23d. He arrived at Chattanooga on October 23d, and on the 29th, by the victory of Wauhatchie, a communication for supplies was opened to the Union troops.

General Thomas commanded the army of the Cumberland, which held Chattanooga. Sherman was ordered to bring down the army of the Tennessee to reinforce General Thomas, while Burnside, who was holding Knoxville against Longstreet, was instructed to hold his position at all cost until relieved. On November 23d Grant made an assault upon the enemy's lines, which was continued two days, the result being the complete rout of the Confederate troops. Of the latter 6,000 men were captured, while Grant's loss was 750

killed and about 4,500 wounded. On the 28th the Union troops relieved Knoxville. Before Sherman, who had been given the command of the troops, could reach that city, Longstreet made an attack and was defeated. Grant visited Knoxville in December, and from there went to Nashville, where he established his headquarters January 13, 1864. Sherman marched from Vicksburg into the interior as far as Meridian, and, after destroying railroads and a great quantity of supplies, returned to Vicksburg.

In February congress revived the grade of lieutenant-general, and Grant was nominated to that office on March 9th. He returned to Washington to confer with the president and the war department, and on March 12th was assigned to the command of all the armies of the United States, Sherman being given the command of the Mississippi division on the 18th. General Grant removed to the east, and established his headquarters with the army of the Potomac at Culpeper, Va., on the 26th. With this began a new and most important chapter in the history of the war.

The condition of the great struggle at the time when General Grant assumed supreme command is told tersely by the commander himself in his *Memoirs* as follows: "The Mississippi river was guarded from St. Louis to its mouth; the line of the Arkansas was also held; thus giving us all the Northwest north of that river. A few points in Louisiana not remote from the river were held by the Federal troops, as was also the mouth of the Rio Grande. East of the Mississippi we held all north of the Memphis and Charleston railroad as far east as Chattanooga, thence along the line of the Tennessee and Holston rivers, taking in nearly all the State of Tennessee. West Virginia was in our hands, and that part of Old Virginia north of the Rapidan and east of the Blue Ridge we also held. On the seacoast we had Fortress Monroe and Norfolk in Virginia; Plymouth, Washington, and New Berne in North Carolina; Beaufort, Folly, and Morris islands, Hilton Head, Port Royal, and Fort Pulaski in South Carolina and Georgia; Fernandina, St. Augustine, Key West, and Pensacola in Florida. The balance of the Southern territory, an empire in extent, was still in the hands of the enemy."

Sherman, who had succeeded General Grant in command of the military division of the Mississippi, commanded all the troops north of Natchez, and west of the Alleghanies, with a large movable force around Chattanooga. In the east the opposing forces lay between Washington and Richmond, practically as they were when the war began three years before. The Union army of the Potomac lay on the northern bank of the Rapidan; the Confederate army of northern Virginia, under Robert E. Lee, was strongly intrenched on its southern bank. Behind it were strongly fortified positions at intervals all the way to Richmond. Gen. Joseph E. Johnston, with the second army of the Confederacy, was at Dalton, Georgia, watching Sherman, who still lay around Chattanooga. Between the two armies the Confederates watched the Shenandoah Valley, while Forrest, at the head of a large cavalry force, kept the Northern troops busy in middle and west Tennessee.

Grant concentrated his forces and ordered a general advance all along the line. Sherman in the West was to move from Chattanooga against Johnston; Atlanta, Ga., being his objective point. General Crook, commanding in West Virginia, was instructed to strike for the Virginia and Tennessee railroad with the object of destroying the enemy's communications and cutting off their supplies; Sigel was to advance up the valley of Virginia, and Butler to move by the James river toward



Petersburg and Richmond. Grant was displeased with the little execution that so far had been accomplished by the cavalry, and demanded Sheridan for chief of the cavalry corps of the army of the Potomac. Meantime Forrest had captured Fort Pillow and murdered the negro garrison, while Banks' Red river expedition, ordered from Washington before Grant had been promoted to the general command, proved a failure, its only result being to deprive the army of the West of the coöperation of 40,000 men. Sigel's part of the programme failed ingloriously, but Crook and Averill managed to do the enemy a good deal of damage. Butler advanced from Fortress Monroe according to orders and seized City Point and Bermuda Hundred without loss. His right was protected by the James river, his left by the Appomattox, and his rear by their junction. But the Confederate forces drew a line across the peninsula, and Butler, though perfectly safe from attack, was, as General Grant expressed it, "bottled," and there was little to be hoped for from his coöperation.

On the night of May 4, 1864, Grant crossed the Rapidan and the campaign of the Wilderness began. In the thirty days which followed the Union forces lost 40,000 men, killed, wounded and missing, but received reinforcements of equal strength. Lee's losses were estimated at 30,000, and his reinforcements are supposed to have equaled that number. (See WILDERNESS CAMPAIGN, THE.) On June 13-16 Grant transferred the army of the Potomac to the south side of the James, and moved a force by water to City Point, where Lee again confronted him with his full strength. Sheridan and Wilson had raided through the enemy's country, while Hunter, who had replaced Sigel, after destroying a great quantity of stores, had been driven back to the Kanawha river. But Jubal Early had driven the Federal troops out of Martinsburg, had crossed the Upper Potomac and threatened Hagerstown and Frederick, Md. During July and August a continuous series of skirmishes with little result, except loss of men, characterized the campaign, but in September Sheridan routed Early at Winchester.

Meantime Sherman was not idle in carrying out his part of the plan. In a series of brilliant battles he forced Johnston out of Atlanta, which was entered by the Federal troops September 2d. On November 16th Sherman destroyed the railroads in his rear, cut away from his base and struck out for the sea. Hood, who had superseded Johnston, instead of following Sherman, moved against Thomas, who was in command at Nashville, and on December 15-16 suffered a tremendous defeat at his hands. Sherman reached the sea-coast near Savannah, December 14th, and took the city six days later, having laid waste the whole country behind him. The Confederacy was cut in half, and it only remained to close in upon Lee to effect the destruction or surrender of its last great army. Butler meantime had been sent to coöperate with a naval force under Admiral Porter against Fort Fisher, but this, too, was not a success. Sherman's army of 60,000 men was ordered north by land early in January, while Schofield marched from Tennessee to Wilmington, which he occupied February 2d. Five days later Sheridan swept down the valley of Virginia, driving Early before him, and on March 19th joined the army of the Potomac. Sherman captured Columbia on February 17th, and destroyed the arsenal, and the Confederates evacuated Charleston. After a month of stubborn fighting, Sherman effected a junction with Schofield at Goldsboro.

The final campaign began on March 25, 1865, with an attack by Lee on Grant's right, in which he captured Fort Steadman and several batteries, but was driven back

with heavy loss. On April 1st Sheridan gained a brilliant victory at Five Forks, capturing the Confederate works and 6,000 prisoners. Next day Grant closed in upon Petersburg, took Fort Gregg by assault and occupied Fort Whitworth, which had been evacuated. During this day's fighting 12,000 prisoners and fifty guns were taken. Richmond and Petersburg were evacuated by the Confederates that night and on April 3d were occupied by the Federal forces. For the next six days the army of the Potomac pushed on by forced marches after Lee, the Union cavalry doing fearful execution in the running fights which ensued. On April 9th Lee, recognizing the utter hopelessness of the struggle, surrendered his whole army at Appomattox, and the Civil war, so far as the Virginia end of it was concerned, was over. It was not, however, until April 26th that Kirby Smith surrendered his last command west of the Mississippi.

Grant's treatment of his conquered foes was generous to a degree. The men and officers were paroled on condition that they returned to their homes, the officers were allowed to keep their side-arms, and both officers and men to retain their horses and personal baggage. The victorious army began to fire salutes in honor of their victory, but Grant at once put a stop to this, saying: "The war is over, the rebels are again our countrymen, and the best sign of rejoicing for the victory will be to abstain from all demonstrations in the field." The number of prisoners paroled was nearly 30,000, in addition to over 20,000 captured during the campaign. After the surrender more than 20,000 stragglers came in and gave themselves up. The Union losses in the final campaign were 11,000 killed, wounded, and missing. During the year beginning with the battles of the Wilderness, the total loss of the Federal troops, including those of Butler's army, was 12,000 killed, 50,000 wounded, and 20,000 missing. There is no accurate record of the Confederate losses, but Grant took in battle nearly 70,000 prisoners. The day after the surrender at Appomattox General Grant went to Washington, without stopping to visit Richmond, for the purpose of arranging for the immediate disbandment of the armies. On the 14th Lincoln was assassinated, and there is no doubt but that the plotters intended to have also made away with Grant, but, fortunately, he left Washington on the morning of that day. On the 26th Joseph E. Johnston surrendered to Sherman on the same terms as were given to Lee, and 30,000 more Confederate troops were paroled. Canby's force captured Mobile on April 11th, with 200 guns and 4,000 prisoners, and on the 26th Kirby Smith surrendered his last command.

In June, 1865, General Grant made a tour through the northern United States and Canada, receiving ovations in every city. He ordered Sheridan with an army corps to the Rio Grande river, and this demonstration led to the withdrawal of the French troops from Mexico. The government was not at first disposed to treat the surrendered rebels in accordance with Grant's agreement. General Lee and other prominent officers were indicted in Virginia by the United States Court, and the cry for vengeance went up. General Grant insisted that he had the power to grant the terms that he had made at Appomattox, and that the president was bound to respect that agreement. He threatened to resign his commission if there was any breach of faith, and the result was the abandonment of the prosecution of Lee and the other officers. This led to ill-feeling between Grant and President Johnson. In December Grant made a tour of inspection through the South, and his report of the situation formed the basis of the reconstruction laws. Congress passed an act cerating the title of "General" for the first time



in American history, and on July 25, 1866, General Grant received his commission. President Johnson, finding that Grant refused to support him in his course, ordered him out of the country on a special mission to Mexico. This Grant refused to accept, saying that as a military man he was willing to serve his country in any army post, but he considered that he had a right to refuse any civil or diplomatic appointment. In an attachment to the army appropriation bill on March 4, 1867, it was provided that "all orders and instructions relating to military operations should be issued through the general of the army," and that "he should neither be removed, suspended or relieved from command or assigned to duty elsewhere than at the headquarters at Washington, except at his own request, without the previous approval of the Senate." President Johnson obtained an opinion from his attorney general that this provision was unconstitutional, and issued this opinion to the army through the adjutant-general's offices, the secretary of war refusing to formulate it. General Sheridan, then in command at New Orleans, inquired what he should do on the receipt of this opinion. Grant replied that "a legal opinion was not entitled to the force of an order," and that General Sheridan "should enforce his own construction of the law until otherwise ordered." In July congress passed a law making the orders of the district commanders subject to the disapproval of the general of the army, thus giving Grant all control of affairs relating to the reconstruction of the Southern States. But Johnson still retained the power of removal, and after Congress had adjourned, he replaced Sheridan in command of the fifth military district by Hancock. Grant revoked some of Hancock's orders, which gave rise to some trouble. Under the "Tenure of Office" act the president could not remove a cabinet officer without the consent of the Senate, but on August 12, 1867, Johnson suspended Stanton, and appointed Grant secretary of war *ad interim*. Grant protested, but retained the office until January 12, 1868. When the Senate refused to confirm the suspension, Johnson ordered Grant to disregard Stanton's orders, which the general declined to do, unless instructed in writing by the president. On February 21st the president appointed Lorenzo Thomas, the adjutant general of the army, secretary of war. On February 24th the impeachment proceedings against Johnson began.

Grant's action throughout this unpleasant affair met with the general approval of the people. In 1868 the Republican national convention met at Chicago, and Ulysses Simpson Grant was unanimously nominated for the presidency. In his letter of acceptance he made use of the famous phrase, "Let us have peace." Horatio Seymour, of New York, was nominated by the Democratic party, but, in the election which followed, Grant received the electoral vote of twenty-six States, and Seymour of only eight. Grant's electoral votes numbered 218, Seymour's 80; Mississippi, Texas and Virginia did not vote. On March 4, 1869, Grant was inaugurated as president. He nominated as his cabinet: for secretary of state, E. B. Washburne (who resigned in a few days, and was succeeded by Hamilton Fish); secretary of the treasury, Geo. S. Boutwell; secretary of war, John A. Rawlins; secretary of the navy, Adolph E. Borie; secretary of the interior, Jacob D. Cox; postmaster general, John A. J. Creswell; attorney-general, E. Rockwood Hoar.

At this time the condition of the currency and the public credit was the most important subject requiring the attention of congress. General Grant took strong ground in his inaugural message in regard to the honest discharge of the national indebtedness. He declared

that the government bonds should be paid in lawful money. "Let it be understood," he said, "that no repudiator of the public debt will be trusted in public place." Congress acted on his recommendation, and in March, 1866, passed an act entitled "An Act to Strengthen the Public Credit." It pledged the United States to discharge its indebtedness in coin, excepting where special obligations to the contrary existed. General Grant took equally strong ground on the question of the treatment of the Indians, and made great reforms in the interior department. He recommended the adoption of the fifteenth amendment to the constitution, and when it was ratified by the required number of States, he sent a special message to congress, in which he said: "I regard this as a measure of greater importance than any one act of the kind from the foundation of the government to the present date."

The next incident of importance in the history of Grant's administration was his advocacy of the annexation of Santo Domingo to the United States. A committee was sent to investigate it, and they reported favorably to annexation, but the Senate was opposed, and the treaty failed to receive the necessary two-thirds vote. During Grant's first administration the first bill for the funding of the public debt at a lower rate of interest was carried.

Meantime in the South the opposition to the reconstruction measures had taken the form of oppression of the negroes, while armed bands under the title of the Ku-Klux-Klan terrorized the newly enfranchised voters, and prevented the expression of public opinion. To meet this state of affairs congress empowered the president under certain circumstances to suspend the writ of habeas corpus in disturbed districts and to use the United States army and navy to suppress insurrection. The vigorous measures taken by President Grant under the provisions of this law proved sufficient to restore order.

The most important feature of Grant's foreign policy during his first term was the negotiation of the treaty with Great Britain May, 1871, known as the treaty of Washington. Under this the San Juan question was referred to the emperor of Germany as arbitrator, and was peacefully settled. Under the same treaty the claims of United States citizens against Great Britain for the depredations of the *Alabama*, *Florida*, and other Confederate cruisers were referred to the court of arbitration, which met at Geneva, Switzerland. This court awarded the United States the sum of \$15,500,000, in full settlement of all claims. While the matter was being discussed, Charles Sumner, of Massachusetts, made a demand in the United States Senate for the inclusion in the consideration of the arbitrators of what is known as the claims for indirect damage to commerce, by the transfer of freight to ships of neutral powers. This damage, he claimed, amounted to \$200,000,000. The arbitrators refused to consider the question of indirect claims, the damages for direct claims were paid, and this episode, which for years had threatened to disturb the peace between Great Britain and the United States, was happily ended. In May, 1872, congress passed an amnesty bill, restoring practically all who had served the South during the war to their civil rights.

Some dissatisfaction had arisen in the Republican party during Grant's term, and a number of disgruntled Republicans called a convention at Cincinnati, which styled itself "Liberal Republican." This convention placed in nomination for the presidency, Horace Greeley, the editor of the *New York Tribune*. The Democratic convention indorsed the nomination of Greeley. The Republican convention which met in Philadelphia, June 5, 1872, renominated Grant, and



thoroughly indorsed his administration. At the election which followed General Grant received 286 electoral votes, while, had Greeley lived, only 66 votes would have been cast for him. The votes of Arkansas and Louisiana were not counted, on account of fraud. General Grant's second term of office was marked by a continuation of the same policy as prevailed in the first. The capture by Spain of the American filibustering vessel, the *Virginia*, and the execution of its captain and crew, gave rise to a clamor for war against Spain. But the president, acting with promptness and firmness, succeeded in averting the collision, and received full apology and reparation. Difficulties arose in Louisiana, Arkansas, Texas, and Mississippi, between the Democrats and Republicans, but these were handled vigorously by General Sheridan under the instructions of the president. In April, 1874, congress passed what became known as the "Inflation Bill" and Grant performed a service to his country by vetoing it. The arguments contained in his veto message were unanswerable, and no act of General Grant's administration was more highly approved of by the people at large than this. In June, 1875, the Resumption Act was passed, embodying largely the views of the president. Under this bill the paper money of the United States rapidly appreciated to a gold standard, and the danger of an inconvertible and degraded currency was averted.

During 1875 it became known to the United States authorities that a gigantic ring existed among public officers, revenue officials, and manufacturers of whisky, for the purpose of defrauding the internal revenue. Much of the money thus raised had been used for election purposes, and the revenue robbers were strongly entrenched in high places. General Grant issued an order for the prosecution of all the guilty, without respect of persons, closing with his epigrammatical "Let no guilty man escape."

In September, 1875, General Grant, while in attendance upon an army reunion at Des Moines, Iowa, struck the keynote on a subject of vital interest to the American people. Speaking on the question of education, he said: "Let us labor for the security of free thought, free speech, free press, pure morals, unfettered religious sentiments, and equal rights and privileges for all men, irrespective of nationality, color, or religion; encourage free schools, resolve that not one dollar appropriated to them shall go to the support of any sectarian school; resolve that neither State nor nation shall support any institution save those where every child may get a common school education, unmixed with any atheistic, pagan or sectarian teaching; leave the matter of religious teaching to the family altar, and keep church and state forever separate."

As the end of Grant's second term approached the question of his successor began to be actively mooted, and a New York journal of wide circulation published a series of alarmist articles, in which it professed to believe that the election of Grant for a third term meant the advent of a Cæsar and a Catiline. General Grant had no idea of accepting a third term, and recognized the existence of a sentimental feeling on the part of the American people against exceeding the term of Washington. He retired on March 4, 1877, from the office which he had filled for eight years, and Rutherford B. Hayes was peacefully inaugurated.

On May 17, 1877, General Grant sailed from Philadelphia for a trip round the world. He was accompanied by his wife and one of his sons, and an immense crowd gathered to bid him farewell. Wherever he went in England or on the continent of Europe, in India, China, Japan and Mexico, he was received by princes and people with every manifestation of respect. In

England he was welcomed by Queen Victoria and the Prince of Wales, and was presented with the freedom of London and other great cities. After a visit to Berlin, where he met Prince Bismarck, Count Moltke and other distinguished men, and a tour through the continent, he made a cruise through the Mediterranean in a United States man-of-war which had been placed at his disposal, visiting also Egypt and Palestine. From Bombay to Calcutta his reception was of the character of a royal progress. At Peking he was the guest of Prince Kung, and in Japan of the Mikado. On September 20th he landed at San Francisco, and his journey east was one continued series of demonstrations. Early in 1880 he visited Mexico and Cuba and traveled through the Southern States. He retired to his old home, Galena, Ill., where he settled down in a modest house presented him by some friends. During the months which followed there was much agitation of his name as a candidate for the presidency, and when the Republican national convention met in Chicago in June, 1880, his name was presented by Senators Conkling, Logan, and Cameron. The opposition was divided principally between John Sherman and James G. Blaine, but finally, after a most exciting contest, extending over several days, the nomination was given to James A. Garfield. General Grant in 1881 removed to New York. Notwithstanding that he had been at the head of the greatest and most successful of armies and for eight years chief of a nation of 50,000,000 people, he was a comparatively poor man. He invested his moderate capital in a banking concern in New York, bearing the name of "Grant & Ward," in which his sons were interested, but he took no part in its management. Two of the partners in this firm robbed their associates and the public, and in 1884 General Grant found himself financially ruined. Under these circumstances he accepted an offer to contribute a series of articles on his principal campaigns to a magazine, and thus the old soldier earned his bread. Although he had never before engaged in literary work, he proved himself a clear and lucid writer, and his contributions to the history of the war are of great value.

In the summer of 1884 General Grant first noticed a soreness of his mouth and throat, and on consultation with a physician the trouble was pronounced to be of a cancerous nature. It grew worse rapidly, and it was soon known to him that his days were numbered. Then with a heroism transcending his most gallant conduct on the battle-field, the slowly dying man sat himself down to provide, by the preparation of his own memoirs, for those who were nearest and dearest to him. On March 4, 1885, congress restored him to the army rank which he had resigned on accepting the presidency, and thus with the pay of a general on the retired list he was secured from want. Suffering constant agony and unable to speak, he toiled ceaselessly at his memoirs, his last page being written only four days before his death. This occurred on July 23, 1885, at Mount McGregor, near Saratoga, N. Y. He was given a public funeral, with all the honors befitting his high character and matchless services to the republic, the interment taking place on August 8th, at Riverside, N. Y., overlooking the Hudson river. General Grant's widow, it is pleasant to know, benefited largely by the sale of her husband's last work, and is also in receipt of a pension of \$5,000 a year. She resides in New York. Her daughter Nellie, who in 1874 married Mr. Algernon Sartoris, of England, resided in that country until her separation from her husband in 1891.

GRANVILLE, EARL (THE RIGHT HON. GRANVILLE GEORGE LEVISON-GOWER, K. G.), eldest son of the first earl, born May 11, 1815; was educated at Eton



and Christ Church, Oxford, where he took his degree in 1834. He became an attaché to the embassy at Paris in 1835, and was elected to the House of Commons for the borough of Morpeth in 1836, being reelected in 1837. In 1840 he accepted the appointment of under-secretary of state for foreign affairs, which he held for some months, and shortly after took his seat as member for Lichfield. While in the House of Commons he supported the Liberal party, and was an able and consistent advocate of free trade. In 1846 he succeeded to the peerage, in 1848 was appointed vice-president of the board of trade, in 1851 obtained a seat in the cabinet, and in December of that year he succeeded Lord Palmerston in the foreign office, retiring with the Russell ministry early in 1852. Lord Granville, who had held the offices of master of the buckhounds, paymaster-general of the forces, chancellor of the duchy of Lancaster, and treasurer of the navy, was appointed president of the council in 1853, and in 1855 undertook the ministerial leadership in the House of Lords. In 1850 Lord Granville acted as vice-president of the royal commission for the great exhibition, of which he was one of the most diligent working members, and accepted in the autumn of 1860 the chairmanship of the commission of the great exhibition of 1862. In 1856 he was sent upon an extraordinary mission to the court of St. Petersburg as representative of the English nation at the coronation of Alexander II. Lord Granville, who retired with Lord Palmerston's first ministry in 1858, was re-appointed president of the council (having failed in an attempt to form a ministry himself), in Lord Palmerston's second administration in 1859, and retired on the fall of Lord Russell's second administration in 1866. Lord Granville was made lord warden of the Cinque Ports in December, 1865. In December, 1868, his lordship accepted office under Mr. Gladstone as colonial secretary, and retained that position until July, 1870, when he was appointed secretary for foreign affairs in succession to the late earl of Clarendon. He occupied the latter position until the resignation of the Liberal cabinet in February, 1874. Early in the following year, when Mr. Gladstone retired from the leadership of the opposition, Lord Granville became, by general consent, the leader of the Liberal party in the House of Lords, Lord Hartington being chosen as its spokesman in the House of Commons. On Mr. Gladstone returning to power in May, 1880, Earl Granville again became secretary of state for foreign affairs. In Mr. Gladstone's ministry of 1886 Lord Granville was secretary of State for the colonies. He died March 31, 1891.

GRAVES, WILLIAM JORDAN, born in Newcastle, Ky., in 1805; became a member of the State legislature in 1834, and served in congress as a Whig from 1835 to 1841. In 1838 he fought a duel at Bladensburg, Md., with Jonathan Cilley, a fellow congressman, in which the latter was killed. Graves sat in the Kentucky legislature in 1843, and died in 1848.

GRAY, ALBERT Z., born in New York city in 1840; served during the Civil war as an army chaplain, and after holding several pastorates, was elected in 1882 warden of Racine (Wis.) College (Protestant Episcopal). He died February 16, 1889.

GRAY, ASA, M.D., LL.D., born at Paris, N. Y., November 18, 1810; graduated M.D. at Fairfield Medical College in 1831, but soon relinquished the practice of medicine and devoted himself, under Professor Torrey, of New York, to the study of botany. In 1834 he received the appointment of botanist of the United States Exploring Expedition, but declined it. In 1842 he was elected Fisher professor of Natural History, of Harvard College. In addition to his lec-

tures at Cambridge he delivered three courses of lectures before the Lowell Institute in Boston. He published in 1836 his *Elements of Botany*, enlarged into the *Botanical Text-Book*, and in 1838 began, with Doctor Torrey, the *Flora of North America*. He published in 1848 *The Manual of Botany for the Northern United States*, and the first volume of the *Genera Boreali-Americana Illustrata*, and the first volume of his botany of the United States Pacific Exploring Expedition under Captain Wilkes in 1854. He afterwards published the following works, mostly text-books: *How Plants Grow, Lessons in Botany, with Drawings from Nature, The School and Field Book of Botany, The Manual of Botany, Structural and Systematic Botany* (new edition in 1879); a revised edition of the *Botanical Text-Book* with 1,300 illustrations; *Flora of the Southern United States, Free Examination of Darwin's Treatise*, 1861; *Darwiniana*, 1876; *New Flora of North America*, 1878; *Natural Science and Religion*, 1880; and *Synoptical Flora of North America*, 1884. He visited Europe in 1838-9 and in 1850-1, and contributed numerous papers to scientific periodicals, and to the transactions of learned societies. In 1874 he was chosen one of the regents of the Smithsonian Institution, and in 1878 the Académie des Sciences of Paris elected him a corresponding member in the section of botany. He died January 30, 1888.

GRAY, E. DWYER, member of parliament for Dublin, son of the late Sir John Gray, member of parliament for Kilkenny, was born in Dublin in 1845. He was lord mayor of Dublin in 1880, and high sheriff in 1882. He unsuccessfully contested Kilkenny on the death of Sir John Gray in 1875, and was elected in 1877 for Tipperary and in 1880 for Carlow county, for which he was again returned in 1885, but elected to sit for Dublin. He succeeded Sir John Gray as proprietor of the *Freeman's Journal*, the leading Irish newspaper, and was also the proprietor of the *Belfast Morning News*, both Nationalist organs. He took a very active part, both personally and as the conductor of the above named papers, in all the popular movements in Ireland during his last twenty years. He was chairman of the Dublin Mansion House Committee, by which \$900,000 was collected for the relief of distress in Ireland in 1880. When high sheriff of Dublin he was sentenced by Lord Justice Lawson to three months' imprisonment and a fine of \$2,500 for contempt of court, on account of comments written by him in the *Freeman's Journal*, upon alleged misconduct of the jury which was trying Francis Hynes for murder. After six weeks he was liberated by order of the judge, the fine having been paid by public subscription. Mr. Gray was a member of the Irish parliamentary party, took an active part in the promotion of sanitary and municipal reform in Dublin, and was a member of the royal commission on the housing of the working classes, appointed in 1884. He died March 27, 1888.

GRAY, ELISHA, born in Ohio, August 2, 1835; was educated at Oberlin College. He made experiments with telegraphy, and obtained his first patent in 1867. In 1876 he invented a telephone, and in 1877 a multiplex telegraph, and took out more than fifty patents for improvements in telegraph apparatus and telephones. In 1893 he announced his invention of the telautograph, for transmitting autograph messages. Died Jan., 1901.

GRAY, HENRY PETERS, artist, was born in New York city in 1819, and died there in 1877. From 1869 to 1871 he was president of the National Academy, and he painted a large number of historical paintings and portraits.

GRAY, HORACE, born in Boston, Mass., in 1828; became a lawyer in 1851, and in succession reporter,



associate, and in September, 1883, chief justice of the Supreme Court of the State. In 1882 he was made associate justice of the United States Supreme Court, which position he still holds.

GRAY, ISAAC PUSEY, born in Chester county, Pa., in 1828; served in the war, practiced law in Indiana, held various offices as a Democrat and was elected Governor in 1884. In March, 1893, he was appointed by President Cleveland, minister to Mexico, where he died, February 14, 1895.

GRAY, JOHN HAMILTON, born in Bermuda in 1814; became a lawyer in Canada, entered parliament, acted as umpire between the United States and Great Britain under the Washington treaty in 1857, and in 1872 became judge of the Supreme Court of British Columbia.

GRAY, JOHN PERDUE, born in Pennsylvania, 1825, died Nov. 29, 1886, was for many years at the head of the New York State Insane Asylum at Utica, and edited the *American Journal of Insanity*.

GREELY, ADOLPHUS W., was born at Newburyport, Mass., March 27, 1844. Entering the volunteer service, he attained the rank of captain during the Civil war, and at its close was transferred to the regular army with the rank of lieutenant. In 1868 he was placed in the signal service, and in 1881 was assigned to the command of the Lady Franklin Bay expedition to northern Greenland. After suffering extreme and terrible hardships, Greely and a few surviving members of his command were rescued in 1884, by an expedition sent to his relief by the United States Government. Lieutenant Greely has the honor of having reached the farthest point north of any Arctic explorer. He published an account of the expedition in 1886, under the title of *Three Years of Arctic Service*. In 1887 he became chief of the United States signal service, which position he held for some years.

GREEN, ANNA KATHERINE, novelist, daughter of James Wilson Green, a lawyer, who has held public positions in New York and elsewhere, was born at Brooklyn, N. Y., and educated at Ripley College, Poughkeepsie, Vt. She has published the *Leavenworth Case*, 1878; *A Strange Disappearance*, 1879; *The Sword of Damocles*, 1881; *The Defense of the Bride*, and other poems, 1882; *X Y Z*, 1883; *Hand and Ring*, 1883; *The Mill Mystery*, 1886. On November 24, 1884, she was married to Mr. Charles Rohlf, of Brooklyn, N. Y.

GREEN, JOHN RICHARD, born at Oxford, England, in 1837, was ordained in the Church of England in 1860, and acted as a pastor until 1868, when he became librarian of Lambeth Palace, London. His principal works are a *Short History of the English People* (1874), and a *History of the English People*, and *The Making of England* (1883). He died at Mentone, Nice, March 9, 1883.

GREEN, NORVIN, born in New Albany, Ind., April 17, 1818; practiced medicine, and served three terms in the legislature of Kentucky. In 1854 he became connected with the telegraph service, and from 1878 was president of the Western Union Telegraph Company, until his death, February 12, 1893.

GREEN, SAMUEL ABBOTT, physician, was born in Massachusetts, March 16, 1830. He graduated in medicine in 1854, and during the Civil war was post-surgeon and staff-surgeon, and had charge of the hospital ships. He was brevetted lieutenant-general of volunteers for his services. From 1865 to 1872 he was superintendent of the Boston dispensary, and from 1871 to 1880 city physician of Boston, of which city he was in 1882 elected mayor.

GREEN, SETH, born in Rochester, N. Y., in 1817; died there in August, 1888. He devoted most of his life to the artificial propagation of food-fishes and was

instrumental in stocking the lakes and streams of the United States with many millions of valuable fish. Mr. Green was State superintendent of fisheries for New York, was decorated by the *Société d'acclimation* of Paris, and wrote books on fish culture.

GREENAWAY, KATE, artist, born in England in 1855; studied at the South Kensington School of Design, and has become well and favorably known by her quaint illustrations of children's books and her pictures of little boys and girls. Died in 1901.

GREENE, CHARLES EZRA, born at Cambridge, Mass., February 12, 1842; graduated at Harvard in 1862, and served in the Union army during the Civil war. In 1872 he became professor of civil engineering in the University of Michigan.

GREENE, CHARLES GORDON, born in New Hampshire in 1804; edited for many years the Boston *Statesman*, and in 1831 established the Boston *Post*. He died December 7, 1886.

GREENE, GEORGE WASHINGTON, author, was a grandson of Gen. Nathanael GREENE (q.v.), and was born in Kent county R. I., in 1811. He wrote lives of his grandfather and other biographical and historical works, and from 1837 to 1845 was United States consul at Rome. He died February 2, 1883.

GREENE, NATHANIEL, brother of Charles Gordon Greene, noticed above, was born in New Hampshire in 1797; was for many years connected with journalism, and in 1829 was appointed postmaster of Boston. He died in 1877.

GREENE, SAMUEL DANA, born in Cumberland, Md., February 11, 1839; graduated at Annapolis, and in 1861 volunteered for service on the iron-clad *Monitor*. He had charge of the guns during her fight with the *Merrimac*, and commanded her after Lieutenant Worden had been disabled. After the sinking of the *Monitor* in December, 1862, he served on blockade duty, and in 1872 became commander. He also held various appointments in connection with the naval academy, and died December 11, 1884.

GREENE, SAMUEL STILLMAN, born in Massachusetts, May 3, 1810; was for many years connected with educational matters in that State and in Rhode Island. In 1855 he became professor of mathematics and civil engineering in Brown University, and in 1864 was made professor of astronomy there, retaining the last position until his death in 1884.

GREENE, THEODORE P., born in Montreal, Canada, November 1, 1809; removed to Vermont, and entered the United States navy as midshipman in 1826. He became commander in 1855 and did considerable service with the gulf squadrons during the war. In 1867 he was made commodore and had charge of the Pensacola navy yard until 1871. In March, 1872, he became rear-admiral on the retired list and he died August 30, 1887.

GREENE, WILLIAM BATCHELDER, born at Haverhill, Mass., April 4, 1819; studied at West Point, and served in the Florida war, resigning in 1841. He became connected with the Brook Farm socialistic experiment, and was afterward a Unitarian minister. He served in the infantry and afterward in the artillery during the early part of the Civil war. He died May 30, 1878.

GREENE, WILLIAM HOUSTON, born in Columbia, Penn., December 30, 1854, graduated in medicine and became demonstrator in chemistry at Jefferson College and in the University of Pennsylvania. He is a member of many scientific societies and has translated and edited several works on chemistry.

GREENER, RICHARD THEODORE, born in Philadelphia, January 30, 1844; studied at Oberlin and



**Phillips' Andover Academy**, and was the first colored graduate of Harvard (1870). For several years he held a professorial chair in the University of South Carolina, and from 1877 to 1882 was dean of the law faculty of Howard University. He has written addresses on Garrison, Sumner, and other prominent abolitionists.

**GREENLEAF, JONATHAN**, clergyman, was born in Massachusetts in 1785 and died in 1865. He wrote numerous historical pamphlets, and served for twenty-two years as a Presbyterian minister.

**GREENWALD, EMANUEL**, born in Maryland, January 13, 1811; died December 21, 1885. He was licensed to preach by the Lutheran synod in 1831, and held pastorates until his death. He was the author of numerous theological works.

**GREER, JAMES AUGUSTIN**, born in Cincinnati, Ohio, February 28, 1833; entered the United States navy in 1848; commanded the *Benton* and a division at Vicksburg, and was with the Red river expedition. In 1873 he participated in the *Polaris* search expedition, having command of the *Tigress*. He became captain in 1870 and commodore ten years later.

**GREGG, ALEXANDER P.**, born in South Carolina, October 8, 1819; entered the Protestant Episcopal ministry in 1846, and became rector in the same year. In 1859 he was elected bishop of Texas, which position he held till his death in Galveston; July 11, 1893.

**GREGG, ANDREW**, born in Carlisle, Penn., June 10, 1755; became a member of congress in 1791, and served as such until 1807, from which year until 1813 he was one of the United States senators from Pennsylvania. In 1816 he was appointed secretary of state of his native State; and he died in 1835.

**GREGG, DAVID MCMURTRIE**, born in Huntingdon, Penn., April 10, 1833; graduated at West Point in 1855. In January, 1861, he became colonel of a Pennsylvania cavalry regiment, and was engaged in the Peninsular campaign. He commanded a division of cavalry in the army of the Potomac, and from August, 1864, as major-general of volunteers, had full command of the cavalry arm of that army. In 1874 he became United States consul at Prague, Bohemia.

**GREGG, JOHN IRVIN**, grandson of Senator Andrew Gregg, above-mentioned, was born in Bellefonte, Penn., July 19, 1826. He enlisted as a private in the Mexican war, and came out a captain. In May, 1861, he was commissioned captain of United States cavalry. He commanded a cavalry brigade in the army of the Potomac from April, 1863, to April, 1865, and was severely wounded. At the close of the war he was brevetted major-general of volunteers and brigadier-general United States army. In July, 1868, he became colonel of the 8th cavalry, and died in 1892.

**GREGG, WILLIAM**, born in Donegal, Ireland, July 5, 1817; studied at Glasgow and Edinburgh, and in 1846 came to Canada as a missionary preacher of the Free Church of Scotland. For ten years he was minister of a church at Belleville, Ont., and from 1857 to 1872 of a church in Toronto. In 1872 he became professor of apologetics in Knox College, Toronto.

**GREGORI, LUIGI**, artist, was born in Bologna, Italy, July 8, 1819; studied in Rome and at the academy of his native city, and for several years was engaged in the restoration of old paintings in the Vatican galleries. In 1874 he came to the United States and became director of the art museum of the University of Notre Dame, Indiana. In 1891, returned to Italy.

**GREGORY, DANIEL SEELEY**, born in Putnam county, N. Y., August 21, 1832; graduated at Princeton in 1857, and held pastorates in Illinois, New York and Connecticut until 1871, when he became professor

of metaphysics and logic in Wooster University, Ohio. In 1879 he became president of Lake Forest University, Cook county, Illinois.

**GREGORY, FRANK M.**, artist, born at Mansfield, Penn., October 21, 1848; is well known as a painter, both in oil and water color, and has also executed many etchings and designs.

**GREGORY, JOHN MILTON**, born in New York State, July 6, 1822; became a Baptist clergyman, and in 1858 State Superintendent of Public Instruction of Michigan. He was afterward president of the Kalamazoo College and of the Illinois Industrial University at Champaign; from 1882 to 1885 he was a member of the Civil Service Commission.

**GRESHAM, WALTER Q.**, born in Harrison county, Ind., March 17, 1832; was admitted to the bar in 1853. He was elected to the State Legislature in 1860, but resigned to accept a commission in an Indiana regiment. Colonel Gresham was severely wounded at Atlanta and received the brevet of major-general of volunteers for his gallantry. In 1869 he was appointed United States judge for the district of Indiana by President Grant, and in 1880 he was prominently mentioned for United States senator. In April, 1882, he resigned from the bench to become postmaster-general under President Arthur, and on the death of Secretary Folger, in July, 1884, he became secretary of the treasury. In October, 1884, he was appointed United States judge for the seventh circuit. He received 123 votes for president in the Republican convention in 1888, became a Democrat in 1892 and in March, 1893, became Secretary of State. He died May 28, 1895.

**GREY, EARL (THE RIGHT HON. HENRY GREY, K.G.)**, born December 28, 1802; the eldest son of the late earl, who was premier in 1830-34; was educated at Trinity College, Cambridge, and as Lord Howick was returned to the House of Commons in 1826 as member for Winchelsea, in 1830 for Higham Ferraras, at the general election of 1831 for Northumberland, and after the passing of the Reform Bill for the northern division of that county. On the formation of his father's ministry he was appointed under-secretary for the colonies, but in 1833 resigned in consequence of the determination of the cabinet not to attempt the immediate emancipation of slaves. He afterward held for a short period the post of under-secretary for home affairs, and on the formation of the Melbourne administration in 1835 became secretary of war. Having at the general election of 1841 lost his seat for Northumberland, which he had represented for ten years, he was returned in September of that year for Sunderland, and exercised his powers as a debater in opposition to the Peel government. Lord Howick succeeded his father as third Earl Grey, July 17, 1845, and on the construction of a Whig cabinet by Lord J. Russell, in 1846, accepted the position of secretary of state for the colonies, resigning with his colleagues in 1852. Lord Grey, who figured prominently in the opposition to Lord Derby, was not included in the "coalition" cabinet, did not approve the policy of Lord Aberdeen's cabinet in declaring war against Russia, and explained his peculiar views on this question in a long speech, May 25, 1855. For many years he spoke but very rarely in the House of Lords, but he frequently wrote long and weighty letters to the *Times* on the questions of the day. His lordship was the author of *Colonial Policy of Lord Russell's Administration*, 1853, and of *Essay on Parliamentary Government as to Reform*, 1858, of which a new edition appeared in 1864. He died October 9, 1894.

**GREVY, FRANÇOIS JULES POLE**, ex-president of the French Republic, was born at Mont-sous-Vaudrey, in the Jura, August 15, 1807. He was educated in the



college of Poligny, afterward studied law in Paris, and in due course was admitted an advocate. He took part in the revolution of July, 1830, and was subsequently much employed at the bar as a defender of members of the Radical party, who were charged with the commission of political offenses. In 1848 he was appointed commissary of the provincial government in his department, and was returned to the constituent assembly, heading a list of the successful candidates for the Jura. As a member of the committee of justice and vice-president of the assembly, M. Grevy frequently ascended the tribune and proved himself to be one of the most able speakers among the democratic party. While maintaining an independent attitude, far removed from the socialists, and not so far from the "mountain," he usually voted with the extreme left. Above all, his name is connected with a radical amendment on the question of the presidency. He proposed that articles 41, 43, and 45 of the constitution should run in the following terms: "Article 41. The national assembly delegates the executive power to a citizen who receives the title of president of the council of ministers." "Article 43. The president of the council of ministers is appointed by the national assembly by secret ballot and by an absolute majority of votes." "Article 45. The president of the council is elected for an unlimited period. The appointment is always revocable." This amendment was rejected by 633 votes to 158 at the sitting of October 7, 1848, when the assembly decided that the president of the republic should be elected by universal suffrage and hold office for four years. After the election of December 10, M. Grevy opposed the government of Louis Napoleon, and protested against the expedition to Rome. After the *coup d'état* he held aloof from politics, and confined himself to the practice of his profession. In 1868 he was appointed *bâtonnier* of the order of advocates, and the following year he was again returned as deputy for the Jura. On February 17, 1871, M. Grevy was elected president of the national assembly, then sitting at Bordeaux, and afterward removed to Versailles; and in discharging the duties of this important office, he displayed remarkable tact, judgment and moderation. He resigned this office in April, 1873, when he was succeeded by M. Buffet. In October, 1873, he published a pamphlet entitled *The Necessary Government*, in which he declared that France had been transformed and had become a pure democracy, that "her first mistake was not to have founded a constitutional monarchy, when she possessed the elements of one," and that "her second mistake would be to attempt to establish one when those elements no longer exist." At the general election of February, 1876, he was returned to the National Assembly by the arrondissement of Dole, in the department of the Jura, and on the meeting of the Chamber he was elected its president. He was reelected by the new Chamber of Deputies, November 10, 1877, and again in January, 1879. After the resignation of Marshal MacMahon, M. Grevy was elected president of the republic for seven years, on January 30, 1879, when 563 votes were recorded in his favor, ninety-nine being given to General Chanzy (against his will), five for M. Gambetta, one each for General Ladmirault, the Duc d'Aumale, and General Gallifet. On the expiration of this period, he was again elected for a second time, in 1885, but retired in December, 1887, and was succeeded by M. Sadi Carnot. M. Grevy died September 9, 1891.

GRIER, ROBERT COOPER, born in Cumberland county, Penn., March 5, 1794; died in Philadelphia, September 26, 1870. He became a lawyer and judge in his native state and, in 1846, was appointed by

President Polk justice of the United States Supreme Court, which office he held until his death.

GRIER, WILLIAM NICHOLSON, born in Pennsylvania in 1812; graduated at West Point in 1835; served on the frontier and in Mexico and was brevetted major in 1848. He was acting inspector-general of the army of the Potomac in 1861-62, was wounded at Williamsburg and later was detailed on recruiting service. He was brevetted brigadier-general United States army, and in August, 1866, became colonel of the 3d cavalry. He retired in 1870 and died in July, 1885.

GRIERSON, BENJAMIN HENRY, born in Pittsburgh, Penn., July 8, 1826; joined the volunteer service from Illinois early in 1861, and by December, 1862, had command of a brigade of cavalry. He was engaged in cavalry operations in Tennessee, Mississippi, and Arkansas, and in 1867 was brevetted brigadier and major-general United States army. After the war he commanded the district of the Indian Territory, and in November, 1886, that of New Mexico.

GRIFFIN, CHARLES, born in Ohio in 1826; graduated at West Point, and served in the Mexican war and against the Navajo Indians. From 1859 to 1861 he was instructor of artillery at West Point. At Malvern Hill, second Bull Run, Antietam, Fredericksburg, Gettysburg, and in the Wilderness he commanded a division, and at Lee's surrender he received the arms and colors of the army of Northern Virginia. He was brevetted brigadier and major-general in the regular army, commanded the district of Maine, and in 1867 the district of Texas, with headquarters at Galveston. The yellow fever broke out and he was ordered to transfer his headquarters to New Orleans, but refused to leave, caught the fever, and died September 15, 1867.

GRIFFIN, SIMON GOODSELL, born in New Hampshire, August 9, 1824, practiced law in Concord until 1860, and entered the volunteer service at the beginning of the Civil war. He was at both battles of Bull Run, at Chantilly, Antietam, and Fredericksburg, and after the latter (May, 1863), was given a brigade, with which he operated against Vicksburg. In 1864 he commanded a brigade in the Wilderness, and on June 16th stormed the Confederate lines at Petersburg and captured 1,000 prisoners. He was mustered out as brevet major-general, and in 1866-68 served in the New Hampshire legislature, being speaker of the lower house for two terms.

GRIFFITHS, JOHN WILLIS, born in New York city, October 6, 1809; died in April, 1882. He acquired prominence as a naval architect; designed a number of ships of war, and invented many new features in ship building. He was the author of a *Treatise on Marine and Naval Architecture*.

GRIGSBY, HUGH BLAIR, born in Norfolk, Va., November 22, 1806; represented his native county in the legislature and State convention, and devoted himself to literature. In 1871 he became chancellor of William and Mary College. He died April 28, 1881.

GRIMES, JAMES WILSON, born in New Hampshire, October 20, 1816, removed in 1836 to Burlington, now in Iowa, then in Michigan Territory. He sat in the Iowa territorial legislature and in that of the State, and from 1854 to 1858 served as governor. In 1859 he became United States senator, and was reelected in 1865. He was a consistent Republican, but a man of independent character, and he was one of the few Republican senators who voted "not guilty" in the impeachment trial of Andrew Johnson. Senator Grimes resigned his seat in December, 1869, in consequence of impaired health, and died at Burlington, February 7, 1872.



CRIMSHAW, WILLIAM, born in Ireland in 1782; came to the United States in 1815, and settled in Philadelphia. He was the author of several school histories, dictionaries and other works. He died in 1852.

GRINNELL, JULIUS S., born November 13, 1842, in St. Lawrence county, N. Y.; graduated at Middlebury College, Vt., in 1866. He became principal of Ogdensburg (N. Y.) Academy, studied law, and was admitted to the bar at Schenectady in 1868. He removed to Chicago in December, 1870, was elected city attorney on the Democratic ticket in 1879, 1881, and 1883, and, in the fall of 1884, was elected state's attorney of Cook county, which office he resigned on December 1, 1887, having been elected judge of the circuit court. During his incumbency of the state's attorneyship, Judge Grinnell prosecuted the anarchists for the Haymarket murders, and secured convictions against the "hoodle" county commissioners. He resigned in 1891, to become general counsel for the Chicago City Ry. Co.

GRISI, GIULIA, was born at Milan, in 1810, died at Berlin, 1869, and from 1832 was one of the most celebrated operatic singers in Europe. She married in 1855, Mario, the great tenor, with whom she sang in America.

GRISWOLD, ALPHONSO M., born in Oneida county, N. Y., January 26, 1834; became well known as editor of *Texas Siftings*. He died in March, 1891.

GRISWOLD, RUFUS WILMOT, born in Benson, Vt., February 15, 1815; died in New York city, August 27, 1857. At first a printer and then a clergyman, he finally devoted himself to literature, editing in succession *Graham's Magazine* from 1841 until 1843, the *New Yorker*, *Brother Jonathan*, and *New World*, the last three in connection with Horace Greeley and Park Benjamin. In 1852 he edited the *International Magazine*, a semi-eclectic monthly publication issued in New York city. On the death of Poe he became his literary executor, and did much to lower the public estimate of Poe's character. Griswold's volumes on the many poets and poetesses of America are not without historical interest, although he absurdly endeavored to sustain the shallow claims of many incompetent versifiers.

GROSS, SAMUEL DAVID, born at Easton, Penn., July 8, 1805; graduated in medicine in 1828, and filled the chairs of anatomy and surgery in the Medical College of Ohio, the University of Louisville, the University of New York, and in Jefferson Medical College. He wrote extensively for medical publications, and made many valuable contributions to operative surgery. He was made D.C.L. of Oxford, and LL.D. of Cambridge University, England. He died in 1884.

GROSS, SAMUEL W., son of the foregoing, was born in Cincinnati in 1837, served in the Union army as brigade surgeon, and was brevetted lieutenant-colonel. He was attached to several colleges in Philadelphia as surgeon and professor of clinical surgery, and wrote many valuable papers on anatomy and diseases of various organs. He died April 16, 1889.

GROSS, WILLIAM HICKLEY, born in Baltimore, June 13, 1837, entered the Redemptorist order in 1857, and was ordained priest in the Roman Catholic Church in 1863. On April 27, 1873, he was consecrated bishop of Savannah, and in 1884 became archbishop of Oregon, which dignity he still holds.

GROVER, CUIVER, born in Maine, July 24, 1829; graduated at West Point in 1850; served on the frontier with the artillery, and became captain of infantry. In April, 1862, he was commissioned brigadier-general of volunteers, joined the army of the Potomac, and fought at Williamsburg, Fair Oaks, and the second Bull Run. He commanded a division of the nineteenth corps from December, 1862, to July, 1864; was wounded at Cedar

Creek, and brevetted brigadier and major-general United States army in March, 1865. After the close of the war he returned to frontier duty, and finally became colonel of the 1st cavalry, which rank he held at his death, June 6, 1885.

GROW, GALUSHA AARON, born in Windham county, Conn., August 31, 1824; practiced law from 1847, and in 1850 was elected to congress, as a Democrat, from Susquehanna county, Penn., to which he had removed. He severed his connection with the Democratic party on the repeal of the Missouri Compromise, and was a strong advocate of the homestead law. In the thirty-seventh congress he served as speaker from July 4, 1861, to March 4, 1863. Afterward he was chairman of the Republican State central committee of Pennsylvania, became connected with a Texas railroad as president, and returned to Pennsylvania in time to take part in the presidential campaign of 1876. He declined the post of minister to Russia in 1879. He was elected congressman at large from Pennsylvania in 1894.

GRUNDY, FELIX, born in Berkeley county, Va.; September 11, 1777; died in Nashville, Tenn., December 19, 1840. In 1799 he was chosen a member of the Kentucky constitutional convention, and from that time until 1806 served as a member of the legislature. He was appointed judge of the supreme court of errors and appeals in 1806; in March, 1807, became chief justice. In 1808 he removed to Nashville, Tenn.; in 1811 was sent to congress as a Democrat, and reelected in 1813. In 1819 he was a member of the legislature of Tennessee; in 1820 a commissioner to fix the boundary line between Tennessee and Kentucky, and in 1829 became United States senator, to fill the unexpired term of John H. Eaton. Later he was elected to fill that place as a partisan of Andrew Jackson. In 1838 he served for a few months as United States attorney-general during the administration of Martin Van Buren; resigning this office he was immediately reelected to the United States Senate. In politics Grundy favored low tariff and the compromise bill of 1833.

GUESS, GEORGE, a Cherokee half breed, born in 1770, died in 1843, who invented a Cherokee alphabet, of eighty-five characters, representing single sounds, said to be the most perfect alphabet ever devised.

GUICCIOLI, TERESA GAMBA, COUNTESS, born in the Romagna, Italy, in 1801; married Count Guiccioli in 1817. A few years later she formed a *liaison* with Lord Byron, which lasted until his death, in 1824. In 1851 she contracted a second marriage with the Marquis de Boissy, who died in 1866. In 1869 she published her *Recollections of Lord Byron*. She died March 27, 1873.

GUILD, REUBEN A., born in Massachusetts, May 4, 1822; graduated at Brown University in 1847, and the following year took charge of the library there, which position he has since held. He has written articles on Free Masonry, a manual for librarians, histories of his university, and other works.

GUITEAU, CHARLES JULIUS, assassin of President Garfield, was born in Freeport, Ill., September 8, 1841. He was admitted to the bar, but achieved no success as a lawyer, and published some pamphlets setting forth his views on various moral questions, which were of the most erratic character. He married, but his wife obtained a divorce from him, and he obtained a precarious living by lecturing and writing. He had been a member of the Oneida community, but was expelled from that body. Guiteau became an office-seeker and persistently solicited an appointment as consul from President Garfield. Enraged at being refused, he lay in wait for the president, and shot him, July 2, 1881.



He was tried in Washington, D. C., found guilty of murder, and executed June 30, 1882.

GULL, SIR WILLIAM WITHEY, BART., M.D., F.R.S., was born December 31, 1816, being the youngest son of Mr. John Gull, of Thorpe-le-Soken, Essex. He was educated privately, and subsequently pursued his medical studies at Guy's Hospital. He graduated M.B. in 1841 and M.D. in 1846, at the London University. Doctor Gull was Fullerton professor of physiology at the Royal Institution of Great Britain in 1847-9; was elected a fellow of the Royal College of Physicians in 1848; and for twenty years acted as physician and lecturer to Guy's Hospital, retiring from that position about 1867, though he resumed his connection with the institution in 1871 by accepting the post of consulting physician. On January 20, 1872, he was created a baronet, in recognition of the services rendered by him during the severe illness of the prince of Wales, at the close of the previous year, and in the following month he was appointed one of her majesty's physicians extraordinary. In 1883 he resigned the position which for twelve years he had held in the general medical council as one of the crown members. Sir William Gull was president of the Clinical Society, a fellow of the Royal Medical Chirurgical Society, a member of the General Medical Council, an honorary doctor of the Civil Law of Oxford (1868), and a fellow of the Royal Society (1869). He was the author of *Gulstonian Lectures on Paralysis, of Treatises on Hypochondriasis*, and on *Abscess of the Brain*, *Reports on Epidemic Cholera*, drawn up at the desire of the cholera committee of the Royal College of Physicians (in conjunction with Dr. William Baly), 1854; *An Oration delivered before the Hunterian Society, February 13, 1861; Clinical Observation in Relation to Medicine in Modern Times*, an *Address delivered in the Divinity School, Oxford, on the occasion of the meeting of the British Association in that city in 1868*, and the *Harveian Oration*, delivered at the Royal College of Physicians, London, June 24, 1870. Sir W. Gull was also a frequent contributor to the reports of Guy's Hospital. His specialty was in clinical practice. He died in 1890, leaving the largest fortune ever amassed by a practicing physician.

GUNGL, JOSEF, a Hungarian musician, born December 1, 1810; died January 31, 1889. He was noted as an orchestral leader, and was the composer of more than 300 pieces of dance music.

GUNTHER, ALBERT CHARLES LEWIS GOTTHILF, M.A., Ph.D., M.D., F.R.S., born at Esslingen (Württemberg), October 3, 1830, and educated at the universities of Tübingen, Berlin, and Bonn; entered the service of the trustees of the British Museum in 1858, and was appointed keeper of the department of zoölogy in 1875. Since that time he has devoted himself exclusively to the administration of the extensive collections under his charge. Doctor Gunther is a member of several academies and learned societies at home and abroad. He has published *Die Fische des Neckars*, Stuttgart, 1853; *Medicinische Zoölogie*, Stuttgart, 1858; *Catalogue of Colubrine Snakes in the Collection of the British Museum*, London, 1858; *Catalogue of Batrachia Salientia, in the Collection of the British Museum*, 1859; *The Reptiles of British India*, 1864; *Catalogue of Fishes*, vols. 1-8, London, 1859-70; *The Fishes of the South Seas*, Hamburg, 1873-78; *The Gigantic Land Tortoises, Living and Extinct*, London, 1877; *An Introduction to the Study of Fishes*, Edinburgh, 1880; and numerous papers in the *Philosophical Transactions*, the *Proceedings of the Zoölogical and Linnean Societies* and other periodicals. He is the founder of the *Record of Zoölogical Literature*, of

which he has edited the first six volumes (1864-70), and co-editor of the *Annals and Magazine of Natural History*.

GUROWSKI, ADAM, born in Kalisz, Poland, September 10, 1805; died in Washington, D. C., May 4, 1866. His father was a Polish nobleman, who lost his estates in the insurrection against Russia in 1794. Young Gurowski studied at the gymnasium of Warsaw, from which he was expelled for political reasons, and finished his education in Germany. In 1825 he returned to Poland, and at the time of the revolution of 1830 was compelled to retire to France for safety. During several years he lived in Paris, where in 1835 he published *La vérité sur la Russie*, an argument in favor of uniting the Slavonic race under a single head. The appearance of this book gave him favorable consideration with the government of the Czar, and Gurowski was called home, to be employed in the Russian civil service. In 1844 he went to Heidelberg for study, and during two years lectured on political economy at the University of Berne, Switzerland; later he went to Italy. In 1849 Gurowski came to the United States, and in 1861-62 he became translator in the State department. His published volumes in the French, German, and English languages had little hold on the public. In this country he printed *Russia as It Is*, (New York, 1854); *The Turkish Question* (1854); *A Year of the War* (1855); *America and Europe* (1857); *Slavery in History* (1860); and *My Diary*, notes on the Civil war (3 vols., 1862-66).

GUTHRIE, SAMUEL, chemist, was born in Massachusetts in 1782, and died October 19, 1848. He was one of the original discoverers of chloroform, and was adjudged to have been the first to publish an account of its therapeutic effects.

GUYOT, ARNOLD, born in Bondevilliers, Switzerland, September 28, 1807; died in Princeton, N. J., February 8, 1884. He was educated at the college of Neuchâtel, and, in 1825, went to Germany for several years, to perfect his studies. In 1827 he returned to Neuchâtel, became a clergyman, and, two years later, began a course of lectures at the University of Berlin. With his theological study he combined philosophy and natural science. In 1835 he retired from the university with the degree of Ph.D. Afterward, for four years, he was private tutor in Paris, and, in 1838, examined the Swiss glaciers, and communicated the result of his investigations to the Geological Society of France. In 1839 Guyot returned to Neuchâtel, where he became coadjutor of Agassiz in the college, as professor of history and physical geography. In 1848 he came to the United States, settled at Cambridge, Mass., and made his first public appearance as a lecturer at the Lowell Institute, in a series of lectures entitled "Earth and Man," published in Boston in 1853. Later he became lecturer on geography and methods of tuition, and in 1854 was appointed to the chair of geology and physical geography at Princeton, N. J. He delivered lectures in the State Normal School at Trenton, at several theological seminaries, in Columbia College, and at the Smithsonian Institution. He also founded the Princeton museum. Professor Guyot was a member of several scientific societies, and in 1873 was made LL.D. by Union College. Between 1866 and 1875 he prepared a series of popular geographies and wall-maps that were favorably received, and wrote many articles on physical geography and kindred subjects for *Johnson's New Universal Cyclopædia*.

GUY, SEYMOUR JOSEPH, artist, born in England, January 16, 1824; removed to this country in 1854, and became an academician in 1865, and one of the original members of the American Society of Painters



in Water Colors. His subjects are chiefly of a popular character.

GUZMAN-BLANCO, ANTONIO, born in Caracas, Venezuela, in 1830; was engaged in various insurrectionary movements prior to 1863, when he became vice-president of the republic. He visited England to negotiate a loan, and on his return was elected president of congress. In 1869 he headed another revolution, in 1870 became president in a provisional government and was practically dictator of the country. He was succeeded by General Alcantara, who died in 1878, and after several revolutionary risings Guzman-Blanco again became president. In 1883 he was made ambassador to France, and in 1886 again assumed the presidency, which he held until June, 1888.

GWIN, WILLIAM, born in Columbus, Ind., December 5, 1832; entered the United States navy as a midshipman in 1847. He was engaged in the blockade of the

Atlantic ports, participated in the naval attacks on Fort Henry and Fort Donelson and in the expedition up the Yazoo river. He was killed while in command of the *Benton* during the attack on Haines Bluff, Miss., January 3, 1863.

GWINNETT, BUTTON, born in England about 1732; settled in South Carolina and removed to Georgia in 1765. He sat in the Continental Congress and signed the Declaration of Independence. Afterward he held various offices under the State government. On May 15, 1777, he fought a duel with General Lachlan McIntosh, and received injuries which caused his death.

GWYNNE, JOHN WELLINGTON, born in county Dublin, Ireland, March 30, 1814; came to Canada in 1832, and was admitted to the bar in 1837. In 1868 he became a judge of the common pleas in Ontario, and in 1879 was appointed a justice of the Supreme Court.

## H.

HAAG, CARL, R. W. S., a painter, born at Erlangen, Bavaria, in 1820; began his artistic education at the Academy of Nuremberg in 1837, afterward continuing it at Munich and Rome. In 1847 he settled in England, and his admiration for the perfection of English water color painting induced him to abandon oil, and adopt water color in preference. In 1850 he was elected a member of the Royal Society of Painters in Water Colors. He has been a constant contributor to the exhibitions of that society, the subjects of his earlier pictures being chiefly from the Tyrol, Dalmatia and Montenegro. Mr. Haag is an honorary member of the Societé Royale des Aquarellistes of Brussels. He received the Royal Bavarian Cross of Merit in 1872. In 1874 he became an officer of the Order of the Medjidié, and in 1878 a Knight of the Legion of Honor of France.

HABBERTON, JOHN, was born in Brooklyn in 1842. From 1859 until he entered the army in 1862 he was connected with the publishing house of Harper Brothers. He was literary editor of the *Christian Union* from 1873 to 1876, and since then has been an editorial writer on the *New York Herald*. His first literary work was a series of sketches of Western life. This was followed by a volume of *Selections from the Spectator*, 1876, and in the same year appeared *Helen's Babies*, of which nearly a quarter of a million copies have been sold in the United States. He has since written *The Barton Experiment*, 1876; *The Jericho Road*, 1877; *Other People's Children*, 1877; *The Scripture Club of Valley Rest*, 1877; *Some Folks*, 1877; *The Crew of the Sam Weller*, 1878; *Little Guzzys*, 1878; *The Worst Boy in Town*, 1879; *Just One Day*, 1880; *Who Was Paul Grayson?* 1880; *Bowsham Puzzle*, 1884; *George Washington*, 1884; and *Couldn't Say No*, 1890.

HACKETT, HORATIO BALCH, born in Salisbury, Mass., December 27, 1808; graduated at Amherst in 1830, and studied in Germany. He became a tutor at Amherst, professor of ancient languages at Brown University, and in 1839 professor of Biblical literature in Newton Theological Institute, which last position he held until 1869. In 1870 he became professor of Greek in Rochester Theological Seminary, and died November 2, 1875. He was one of the American revisers of the Bible, and was the author of many important works.

HACKETT, JAMES HENRY, actor; was born in New York city, March 15, 1800, and died in Jamaica, L. I., December 28, 1871. Early in life he had been connected with an amateur dramatic company, and in 1816 appeared on several occasions, under a fictitious name,

at a small play-house in Newark, N. J. He opened at the Park theater, New York, as "Justice Woodcock" in *Love in a Village*, which was followed by the part of "Sylvester Daggerwood," in which he gave a medley of dramatic imitations of noted players and Yankee sketches. Thereafter he appeared in different cities in the Union, in Yankee, Western, and French characters. In 1827, 1832, 1840, 1845, and 1851 he crossed the ocean and appeared in England with fair success. In 1829 the actor became co-lessee of the Bowery theater, and for a single term managed the Chatham. In 1837 he was lessee of the New York National theater, and became interested in the Astor Place opera house. His "Hamlet" was a pronounced failure; his "King Lear" was novel and interesting; his "Falstaff" received universal applause, and continued a lasting success. In 1854 he entered into a profitable arrangement to manage for a season an American tour of the noted singers, Grisi and Mario. In 1871 he was manager of the Howard Athenæum in Boston.

HACKLÄNDER, FREDRICH WILHELM VON, baron, born in Germany, November 1, 1816; died July 5, 1877. He was the author of many comedies, novels, and books of travel.

HADEN, SIR FRANCIS SEYMOUR, F.R.C.S., born September 16, 1818, in London, England, and educated at University College and at the Sorbonne, Paris. He became in 1842 a member, and in 1857 a fellow, of the Royal College of Surgeons of England. Mr. Haden is the author of certain art publications, which, undertaken for the purpose of restoring original engraving as it was practiced by the old masters, and as a relief from the cares of practice, have acquired for the author a European reputation. These publications, began in 1858, and still going on, have been partly artistic and partly literary. Mr. Seymour Haden is the possessor of one of the finest collections of the etched works of the old masters, particularly of Rembrandt, ever formed, and on which, during more than thirty years, he has expended a fortune. On the other hand, one of his own plates—that of the *Agamemnon*—has realized, chiefly for the benefit of the publishers, upward of \$20,000. Mr. Seymour Haden is president of the Society of Painter-Etchers, and a member of the Athenæum Club. He is also vice-president of the Obstetrical Society of London.

HADING, MADAME JANE, otherwise Hadingue, was born at Marseilles, France. At the age of three she played "Blanche de Cailus" in *Le Bossu*, her father at the same time playing the leading character



Some years later she was sent to the Marseilles Conservatoire, where she won considerable distinction. On leaving, she entered upon an engagement at the Algiers theater, and when but fourteen played "Zouella," in *Le Passant*, "Stefano," in *Chef d'œuvre in Connu*, the blind girl, in *Les Deux Orphelines*, and "Pedro," in *Giroflé-Girofla*. From Algiers she went to Cairo to perform at the Khedive's theater. She returned to Marseilles in 1876, and for a time devoted herself to drama and comedy; but the lyric stage again attracted her, and she went to Paris. At the Palais Royal she played "La Chaste Susanna," and at the Renaissance, in 1879, she was the original "Jolie Persan," and "Belle Lurette," and the heroine in *Hélène and Abelard*. At the Gymnasium, in 1883, she again appeared in comedy as "Paulette," in *Autour de Mariage*. The piece was a failure, but Mme. Hading made a great personal success. In December, 1883, she was the original "Claire de Beaulieu," in *La Maître de Forges*, and her impersonation of the part confirmed her success. In January, 1885, she appeared in this character in London at the Royalty theater, and in 1889 she made a successful tour of the United States, accompanied by M. Coquelin.

HADLEY, JAMES, born in Fairfield, N. Y., March 30, 1821; graduated at Yale in 1842, became tutor in mathematics at Middlebury College, and in September, 1845, tutor of classical history at Yale. In 1848 he was appointed assistant professor, and in 1851 succeeded President Theodore D. Woolsey as professor of Greek, which position he held until his death in November, 1872. He was a great student of philology and civil law, was one of the American committee for the revision of the New Testament, and a member of several learned societies.

HAECKEL, ERNST, a celebrated German naturalist and writer, was born at Potsdam, Prussia, February 16, 1834, and studied medicine and science at Würzburg, Berlin, and Vienna. In 1859 he went to Italy, and studied zoölogy at Naples and Messina, returning in 1861 to Jena, where he was appointed professor of zoölogy. Between 1866 and 1875 he traveled over the greater part of Europe, besides visiting Syria and Egypt. Later he visited India and Ceylon, and published a lively account of his travels. He is regarded in Germany as the foremost supporter of Darwin's theories. Among his works may be mentioned *Natural History of Creation* (7th ed., 1879); *The Origin of the Human Race* (3rd ed., 1873); *Life in the Deep Seas*, 1870; *The History of Man's Development*, 1877; *Padiolaria*, 1887, and *Siphonophora*, 1888.

HAENKE, THADDEUS, born in Bohemia, October 5, 1761; studied at Prague and Bohemia, and for the purpose of botanical study traveled through South America. He died in 1817, having taken poison by mistake, and bequeathed his botanical collection to his native country.

HAGARTY, HON. JOHN HAWKINS, D.C.L., chief justice of the Supreme Court of Ontario, was born at Dublin on December 17, 1816. He entered Trinity College, Dublin, in 1832, but two years afterward emigrated to Canada, where, in 1840, he was admitted to the bar of the upper province. He was made a queen's counsel in 1850, and elevated to the bench in 1856. In 1868 he was appointed chief justice of the common pleas, was subsequently transferred to the queen's bench, and in 1878 received the appointment of chief justice of Ontario, which he still holds.

HAGEN, HERMANN AUGUST, born in Prussia, May 13, 1817; graduated at Königsburg, and practiced medicine. In 1867 he came to Cambridge, Mass., as assistant to Prof. Louis Agassiz, and in 1870 became professor of entomology at Harvard. He has written

many articles on his favorite study, and was a fellow of the American Association for the Advancement of Science. He died in Cambridge, November 7, 1893.

HAGGARD, HENRY RIDER, was born in England, June 22, 1856. He accompanied Sir Henry Bulwer, as secretary to Natal in 1875, and formally hoisted the British flag over Transvaal territory on May 24, 1877. He was Master of the High Court of the Transvaal, and during the Zulu war, adjutant and lieutenant of the Pretoria Horse. He retired from the Colonial service in 1879. He published in 1882 *Ceterwayo and His White Neighbors*, and then turned his attention to novel writing, bringing out *Dawn*, *The Witch's Head*, and in 1886 *King Solomon's Mines*, which won him immense popularity, further increased by his wildly romantic story, *She*. He has since written *Allan Quartermain*, *Jess*, *Mr. Meeson's Will*, *Maiwa's Revenge*, *Colonel Quaritch*, *V. C.*, *Allan's Wife*, *Cleopatra*, *The World's Desire*, in collaboration with Andrew Lang, *Eric Bright-eyes*, *Nada the Lily* (1892), *Montezuma's Daughter* and *The People of the Mist* (1894).

HAGUE, ARNOLD, geologist, was born in Boston, Mass., December 3, 1840; graduated at the scientific school of Yale in 1863, and for several years studied in Germany at Göttingen, Heidelberg, and in the mining school at Freiberg. In 1867 he was appointed assistant on the United States geological exploration, under Clarence King. From 1867 to 1868 he was in California, and spent the winter in Nevada. He contributed a number of papers to the United States Government reports. In 1877 he became government geologist of Guatemala. In 1878 the Chinese Government employed him to examine the mines in northern China. In 1879 he returned to the United States and became one of the geologists of the government survey of that year. In 1883 he became geologist of the Yellowstone Park division. In 1885 he was chosen a member of the National Academy of Sciences.

HALDEMAN, SAMUEL STEHMAN, born in Pennsylvania, August 12, 1812; died September 10, 1880. He was educated at Harrisburg and Dickinson College. In 1836 he became assistant to the State geologist of New Jersey, and in the year following he acted in a similar capacity in his own State. This last engagement continued until 1842, during which time he prepared annual reports, and personally surveyed Lancaster and Dauphin counties. In 1842-43 he lectured on zoölogy at the Franklin Institute in Philadelphia, and in 1851 became professor of natural sciences in the University of Pennsylvania. He continued as such until 1855, when he accepted the same position at Delaware College. He had also given lectures on geology and chemistry in the State Agricultural College of Pennsylvania, and from 1869 to the time of his death occupied the chair of comparative philology in the University of Pennsylvania. He also wrote several handbooks on orthography, orthoepy, and etymology, and in 1851 gained a prize for his essay on *Analytical Orthography*. He was founder and president of the Philological Society, and from 1851 to 1852 edited the *Pennsylvania Farmers' Journal*.

HALDIMAND, SIR FREDERICK, was born in Switzerland in October, 1718; died June 5, 1791. He began his military career in Prussia, but in 1754 entered the service of Great Britain. There he rose to become lieutenant-colonel, and in 1757 came to America. He was engaged in the attack on Ticonderoga, July 8, 1758, and became distinguished for his able defense of Oswego against the French and Indian forces in 1759; and in 1762 was promoted colonel. In 1767 his regiment was ordered to Pensacola, Fla.; on May 25, 1772, he was made acting major-general in America, and in October



of the same year became colonel of the 60th infantry. Haldimand returned to England in August, 1775, and in 1777 was advanced to lieutenant-general in the British army. On June 27, 1778, he succeeded Sir Guy Carleton as governor of Canada, and continued as such until November 15, 1784. The remainder of his life was spent in Great Britain.

HALE, EDWARD EVERETT, D.D., was born in Boston, Mass., April 3, 1822. He graduated at Harvard College in 1839, studied theology, and was pastor of the (Unitarian) church of the Unity, Worcester, Mass., from 1846 to 1856. Since that time he has been pastor of the South Congregational Church, Boston. He has published a large number of books, among which are: *The Rosary*, 1848; *America*, 1856; *The Man Without a Country*, 1861; *His Level Best*, and other stories, 1872; *Ups and Downs*, 1873; *Working-Men's Homes*, 1874; *In His Name*, 1874; *Philip Nolan's Friends*, 1876; *Boys' Heroes*, 1885; *What is the American People*, 1885; and has edited a series of *Stories of the war*, sea adventure, etc., 1880-5; and (conjointly with Miss Hale) *A Family Flight Through France, Germany, etc.*, 1881, etc. Mr. Hale has been a frequent contributor to periodicals, was editor of the *Christian Examiner*, the founder and editor of *Old and New*, and is now the editor of *Lend a Hand*.

HALE, EUGENE, born in Maine, June 3, 1836, practiced law, was nine years county attorney of Hancock county, and from 1867 to 1880 a member of the State legislature. He was elected to congress in 1869, and served ten years. On March 4, 1881, he succeeded Hannibal Hamlin as United States Senator, and was reelected in 1887, 1893, and 1898.

HALE, JOHN PARKER, born in Rochester, N. H., March 31, 1806; died in Dover, N. H., November 19, 1873. He studied at Phillips' Exeter Academy, and in 1827 was graduated at Bowdoin. Later he studied law, and was admitted to the bar August 20, 1830. In March, 1832, he was sent to the New Hampshire legislature as a Democrat, in 1834 was appointed United States district attorney, and reappointed to the same office in 1838. In 1841 President Tyler removed him on party grounds. On March 8, 1842, he was chosen a representative in congress. Mr. Hale opposed the annexation of Texas, against the wishes of the legislature of New Hampshire. When the State Democratic convention repudiated him, he became an independent candidate. In 1846 he was again elected to the legislature of New Hampshire, was speaker of the house, and a little later was elected to represent New Hampshire in the United States Senate. When Van Buren and Adams were nominated for president and vice-president by the Free-soil party at the Buffalo convention, in 1848, Mr. Hale favored their election. In 1853 he practiced law in New York city. In 1855 he was again sent to the United States Senate, to fill an unexpired term, and in 1858 was elected to the same office for a full term. He supported the administration of Abraham Lincoln. From 1865 until 1869 he served as minister to Spain, when he was removed on complaint of the Spanish Government. Soon after his return from Europe he died of a stroke of paralysis.

HALE, NATHAN, born in Coventry, Conn., June 6, 1755; died in New York city, September 22, 1776. He graduated at Yale in 1773, and taught school in East Haddam and in New London. When the news of the battle of Lexington reached New London, young Hale became a volunteer, and soon was made lieutenant of his company. In September the regiment left for Cambridge, Mass., and participated in the siege of Boston. In January, 1776, he was appointed captain. In the summer of that year Hale went to New York,

signaling his advent by the capture of a British supply-vessel lying in the Hudson river. He was there made captain of a company of "Connecticut Rangers," and in response to a request from the commander-in-chief of the American army, volunteered to enter the British lines to procure important information. Disguised as a loyalist school teacher, he entered the British camps in New York city and on Long Island, where he jotted down memoranda and sketched plans of the fortifications. On his return with papers concealed in his shoes, Captain Hale was apprehended, taken before Sir William Howe, and ordered to be executed on the following morning. The execution took place in an orchard in New York city, at the present junction of East Broadway and Market streets. His last words were, "I only regret I have but one life to lose for my country." In 1846 a stone monument was erected to him at Coventry. A bronze statue of Captain Hale has also been placed in the capitol at Hartford.

HALE, SARAH JOSEPHA, an author, born in Newport, N. H., October 24, 1788; died in Philadelphia, April 30, 1879. In 1828 Mrs. Hale went to Boston as editor of the *Ladies' Magazine*, which she conducted until 1831, when it became merged in *Godey's Lady's Book*. In Boston she established the Seaman's Aid Society, and advocated higher education on behalf of her sex, especially in the interest of medical and mission work. In Philadelphia she became interested in the formation of the Ladies' Medical Missionary Society, and later officiated as president of the Woman's Union Missionary Society. She was active in raising \$50,000 among the women of New England to complete Bunker Hill monument.

HALÉVY, JOSEPH, born in Turkey, of Jewish parents, September 15, 1827; has written extensively on Arabian inscriptions and Babylonian antiquities.

HALÉVY, LEON, born at Paris in 1802; became a clerk in the ministry of public instruction; translated the *Odes of Horace*, and wrote a *History of the Jews* (Paris, 1828), and *Luther*, a drama. He died September 3, 1883.

HALÉVY, LUDOVIC, novelist and dramatic author, was born at Paris, in 1834, and received his education at the Lycée Louis le Grand. He entered the service of the government, and from 1852 to 1858 was employed in the secretary's office of the minister of state. He was chief of the department for Algiers and the colonies, and in 1861 was appointed to edit the proceedings of the corps législatif. This position he resigned to devote himself to the drama. He was the librettist of many of Offenbach's operettas. Under his own name, and with various collaborators, principally M. M. L. Battu, Hector Crémieux, and Henri Meilhac, he has produced *Ba-La-Clan*, 1855; *Rose et Rosette*, 1858; *Orphée aux Enfers*, 1861; *La Belle Hélène*, a burlesque of ancient Greek life, which had a great success, 1865; *La Barbe Bleue*, 1866; *La Grande Duchesse de Gérolstein*, 1867; *Frou-frou*, 1869; *L'Éd de la Saint Martin*, 1873; *La Boulangère, a des écus*, 1875; *Le Mariage de la Débutante*, 1879, etc. In 1872 he published *L'Invasion*; in 1873, *Madame et Monsieur Cardinal*, and in 1883 his idyllic story, *L'Abbe Constantine*. He is a member of the French academy.

HALL, ANNA MARIA, wife of Samuel Carter Hall, (q. v.) born in Dublin, Ireland, in 1804. Her maiden name was Fielding, and she married Mr. Hall in 1824. In 1829 she produced *Sketches of Irish Character*, and during the next forty years she wrote many works of the same style. She was also the author of two successful dramas, *The French Refugee*, and *The Groves of Blarney*. Mrs. Hall died January 31, 1881.

HALL, ASAPH, astronomer, born in Goshen, Conn.,



October 15, 1829. He studied mathematics at the Norfolk Academy, and removed to Wisconsin, where, for several years, he was employed as a school teacher. Later he entered the University of Michigan for a single term; taught a year at Shalersville, Ohio, and entered the observatory of Harvard University as a student of astronomy. From 1857 until 1862 he was assistant in the observatory, and in 1862 became connected with the United States naval observatory in Washington. In May, 1863, he was promoted professor of mathematics, since which time he has been connected with many astronomical expeditions sent out by the United States Government. He has visited the Polar regions, Sicily, Siberia, and Texas for the purpose of making observations. On August 11, 1877, he made the important discovery of the moons of Mars. In 1880 he made important observations on double stars, and determined the orbits of the rings of Saturn. In 1879 the Astronomical Society of London awarded him a gold medal. In 1878 he was made Ph.D. by Hamilton; in 1879 received the degree of LL.D. from Yale, and in 1886 received the same degree from Harvard. Professor Hall has contributed to several astronomical journals, and to the annual volumes of the United States naval observatory.

HALL, CHARLES B., born in Oxford, N. H., June 28, 1815; began his business life as a clerk at Haverhill, Mass., of which he became postmaster in 1847, and served eight years. He was elected treasurer of the commonwealth of Massachusetts. In June, 1853, he organized the National Bank of Boston under a State charter, served as its cashier for twenty-five years, and was then elected president. This office he held until his death, May 8, 1883, the bank having reorganized as the National Bank of Boston in 1863.

HALL, JAMES, LL.D., born at Hingham, Mass., September 12, 1811; studied at the Rensselaer Institute, Troy, N. Y., 1831-36, and in 1837 was appointed on the New York survey, his report on which was published in 1843. While thus engaged he directed his attention to the palæozoic formations of the western part of the State, and in the course of several years prepared four illustrated quarto volumes upon the *Paleontology of New York* (1847, '52, '59, '62). In 1855 he was appointed geologist of the State of Iowa, and published two volumes of *Geological Reports of Iowa* (1856-60). In 1879 he published *Descriptions of New Species of Fossils from the Niagara Formation at Waldron, Indiana*. In 1850 he was elected by the Geographical Society of London one of its fifty foreign members, and in 1858 he received the Wollaston medal from the same body. He is a member of several scientific societies in Europe and in the United States. Since 1866 he has been geologist and director of the State Museum at Albany, N. Y. Died Aug. 7, 1898.

HALL, JOHN, D.D., was born in the county of Armagh, Ireland, July 31, 1829. He was educated at Belfast College; received his license to preach in 1849, going as a missionary to the west of Ireland. He became pastor of a Presbyterian Church in Armagh in 1852, and in 1858 pastor of St. Mary's abbey, in Dublin. The Presbyterian Church of Ireland sent him as a delegate to the Presbyterian Churches of the United States, in 1867; and shortly after his return to Ireland he was called to the Fifth Avenue church, New York, over which he was installed in 1867. His success there has been very marked, and he is regarded as among the ablest preachers in America. In addition to his pastoral duties he has, since 1881, filled the position of chancellor of the University of New York. He has published *Family Prayers for Four Weeks* (1868), *Papers for Home Reading* (1871), *Questions of the*

*Day* (1873), *God's Word through Preaching* (1875), *Foundation Stones for Young Builders* (1879); and, in conjunction with G. H. Stuart, *American Evangelists* (1875). He died Sept. 17, 1898.

HALL, REV. NEWMAN, born at Maidstone, England, May 22, 1816; was educated at Totteridge and at Highbury College, and graduated B.A. at the London University. In 1855 he took the degree of LL.B., and won the law scholarship. He was appointed minister of the Albion Congregational Church, Hull, in 1842, and remained at that post till 1854, when he succeeded Rev. James Sherman as minister of Surrey chapel, known as Rowland Hill's chapel, in the Blackfriars road, London.

When the Civil war in the United States broke out, he advocated the Northern cause. He afterward made two extensive tours in the United States for the purpose of allaying the bitter feeling toward Great Britain, and of promoting international good-will. "Lincoln Tower," adjoining Newman Hall's new chapel, in Westminster Bridge road, was built in commemoration of Abraham Lincoln, from funds subscribed by Americans and English. Newman Hall is in frequent demand as a preacher on public occasions, and has occupied the pulpits of almost all denominations in most towns and villages of the United Kingdom. Died Feb. 18, 1902.

HALL, SAMUEL CARTER, F.S.A., born at Topsham, Devon, England, in 1801, barrister-at-law, began his professional labors as a gallery reporter for *New Times*. In 1825 he established and for many years edited the *Amulet*, a favorite annual, and is best known by an illustrated work on Ireland, written in conjunction with his wife. Mr. Hall succeeded the poet Campbell in 1830 as editor of the *New Monthly Magazine*, and labored with great zeal for the popularization of art in England. He established the *Art Journal* in 1839, and terminated his long connection with it in December, 1880. He also edited the *Book of Gems*, *Book of British Ballads*, *Baronial Halls* and other illustrated works. A list of the several works, original and edited, by Mr. and Mrs. Hall would occupy more space than can be spared in this work, as they amount to 340 volumes. *The Prospect of a Long Life* appeared in two volumes, 1883. Mr. Hall died in London, March 18, 1889.

HALLÉ, SIR CHARLES, pianist, born in Germany, 1819; early established himself at Paris, and acquired a great reputation for his elevated method in the interpretation of the classical compositions of the best masters. The revolution of February, 1848, proved calamitous to him, as it did to many other musicians in the French capital. Mr. Hallé repaired to England, and made his first appearance at a concert in Covent Garden theater, with Beethoven's E flat concerto. He also played at the matinees of Mr. John Ella, the director of the Musical Union. He soon afterward established himself at Manchester as director of the Musical Institution there. He instituted, in 1857, an annual series of twenty orchestral and choral concerts, which have taken place uninterruptedly since then, and have become one of the most important series in Europe. He published some compositions of a high order, and died in 1895. His son, Mr. C. E. Hallé, is a well-known painter, and Miss Hallé is a rising sculptor.

HALLIWELL-PHILLIPPS, JAMES ORCHARD, F.R.S., was born in England in 1820. He became known as a Shakespearean biographer, and was mainly instrumental in 1863 in the purchase of the poet's estate of New Place for the corporation of Stratford-on-Avon, and in the formation of the Shakespeare Museum of that town. His principal works are a *Life of Shakespeare*, 1848; and a sumptuous edition of the works of Shakespeare, with a revised biography, pub-



ished by subscription in sixteen folio volumes, 1853-65; a *Calendar of the Records of Stratford-on-Avon*, 1863; a *History of New Place*, 1864; and *Outlines of the Life of Shakespeare*, fifth edition, 1885. He died January 3, 1889.

**HALPINE, CHARLES GRAHAM** (Miles O'Reilly), was born in county Meath, Ireland, November 28, 1829, and died in New York city, August 3, 1868. He graduated at Trinity College, Dublin, in 1846; married young and engaged in journalism. In 1852 he came to New York and became connected with the press of that city and of Boston. At the beginning of the Civil war he enlisted in a New York regiment; was immediately promoted lieutenant, and afterward served on Hunter's staff with the rank of major. While acting in this capacity he wrote a number of articles purporting to be the production of one "Private O'Reilly." He served as assistant adjutant-general on General Halleck's staff, and with Hunter in the Shenandoah Valley, and received the brevet of brigadier-general of volunteers. After the war he resumed his journalistic work in New York city, and in 1867 was elected county register. He wrote some stirring war songs and published a volume of creditable poems.

**HALSBURY, LORD** (HARDINGE STANLEY GIFFORD), Lord Chancellor of England, born in London September 3, 1825. He was educated at Merton College, Oxford, where he took the degree of B. A. in 1852, and M. A. in 1855. He was called to the bar at the Inner Temple in 1850, and joined the South Wales and Chester circuit. He became queen's counsel in 1865, and a bencher of the Inner Temple. In Mr. Disraeli's administration in 1875 he was made solicitor-general. He twice contested Cardiff in the Conservative interest, but did not succeed in getting a seat until 1877, when he was returned from Launceston, and sat in the House of Commons for that borough until his elevation to the peerage in 1885, when he was created Baron Halsbury, and appointed lord high chancellor, which office he held until 1892. He was one of the leading counsel in the Tichborne case, and before his elevation he was engaged in most of the important cases of his time.

**HALSTEAD, MURAT**, born in Butler county, Ohio, September 2, 1829; became connected with the press of Cincinnati in 1853, and for many years edited the *Commercial* of that city. In 1883 the *Cincinnati Gazette* was incorporated with the *Commercial*, and Mr. Halstead became president of the publishing company. Early in 1890 he became editor of a New York newspaper. President Harrison nominated him as minister to Berlin, but the senate refused to confirm the nomination. He wrote *Lives of McKinley*, and of Roosevelt.

**HAMBLIN, THOMAS SOWERBY**, actor, born in London, England, May 14, 1800; died in New York, January 8, 1853. He appeared first in this country at the Park theater, in New York, in 1829. In 1830 Hamblin united with James H. Hackett in leasing the Bowery theater, and in a short time acquired the sole control of the establishment. On September 16, 1836, the theater was destroyed by fire, by which the lessee suffered considerable loss. Hamblin then visited London, where he acted "Hamlet," "Othello," "Coriolanus," "Rolla," and "Virginius," with only moderate success. He returned to this country, and leased the newly built second Bowery theater, in 1837. This he conducted until 1845, when it was again burned. In 1847 he managed the third Bowery theater; and in 1848 leased the New York Park theater, conducting both houses for several years.

**HAMERTON, PHILIP GILBERT**, was born in England September 10, 1834. He began to exercise his pen very early in life by contributing to the *Historical*

*Times* a series of articles entitled *Rome in 1849*, and in 1851 he published a work on heraldry. In 1855 appeared a volume of verse, *The Isles of Loch Awe, and other Poems*, with sixteen illustrations by the author. In the same year Mr. Hamerton went to Paris to study painting and French literature. On the establishment of the *Fine Arts Quarterly Review* he became a frequent contributor, and he also contributed to the *Fort nightly* when under the editorship of Mr. Lewis. In 1866 Mr. Hamerton became art critic to the *Saturday Review*. In 1868 he published *Etching and Etchers*. In 1868 appeared an essay on French art, entitled *Contemporary French Painters*, followed in the next year by another of the same kind, *Painting in France after the Decline of Classicism*. In 1869 he established the art periodical, the *Portfolio*. He also wrote *The Intellectual Life*, the most popular of his works; *Human Intercourse*, a collection of essays; *The Graphic Arts; Around My House*, pictures of rural life in France; *Imagination in Landscape Painting; Drawing and Engraving*, in 1892; two novels, *Wenderholme* and *Marmorne*, and many other works. He was an authority on French art and manners. He died Nov. 6, 1894.

**HAMILTON, ANDREW**, born in Scotland about 1676; died in Philadelphia, August 4, 1741. In 1697 he was in Accomac county, Va., acting, part of the time, as steward of a plantation, and teaching school. He studied and practiced law, removed to Philadelphia, and in 1717 became attorney-general of Pennsylvania. In 1721 he served as a member of the provincial council, resigned this office in 1724, and in 1727 became prothonotary of the Supreme Court, and recorder of Philadelphia. Later he became a member of the assembly, and in 1729 was chosen speaker, holding this office a number of years. In 1735 John Peter Zenger, the printer, was tried for libel. Hamilton undertook to defend him, and was successful in securing his acquittal. In 1737 he was appointed judge.

**HAMILTON, ANDREW**, governor of New Jersey, born in Scotland; died in New Jersey, April 2, 1703. He began as a merchant in Edinburgh, and was sent to East Jersey as an agent. In 1686, when Lord Campbell went to that province as deputy-governor, Hamilton was appointed a member of the council, and in March, 1667, he became acting governor. In 1688 the two Jerseys were annexed to New York and New England, and placed under control of Governor Andros. In 1689 Hamilton sailed for England to obtain instructions on behalf of the disturbed condition of colonial affairs, when he was captured at sea by the French, and did not reach England until May, 1690. In 1692 he returned as governor of East Jersey, and acting governor of West Jersey. In 1697 he was deposed from office by the home government, and in 1698 returned to England. Hardly had he reached there before he was re-appointed to his former office. In 1701 William Penn appointed Hamilton acting governor of Pennsylvania, during his absence, which appointment, after much difficulty and delay, received the royal sanction. Under Hamilton was organized the earliest postal service in the colonies. He died while on a visit to his family in New Jersey.

**HAMILTON, FRANK HASTINGS**, born in Vermont, September 10, 1813; practiced medicine for many years and contributed to the *Buffalo Medical Journal*. He filled the chair of surgery in many hospitals, and served in a professional capacity during the Civil war. In February, 1863, he became medical inspector United States army, with rank as lieutenant-colonel. He afterward was professor of surgery in Bellevue hospital medical college, and consulting surgeon to other medical institutions. Dr. Hamilton was called in consulta-

tion on President Garfield's case. He was a member and president of several medical societies, and wrote extensively on fractures, dislocations and wounds. He died in New York city, August 11, 1886.

HAMILTON, LORD GEORGE FRANCIS, M. P., the third son of the Duke of Abercorn. He was born at Brighton, England, in December, 1845, and received his education at Harrow. At the general election of December, 1868, he contested the county of Middlesex in the Conservative interest, and was returned at the head of the poll. At the general election of February, 1874, Lord George Hamilton was reelected. On the formation of Mr. Disraeli's administration in February, 1874, he was nominated to the post of parliamentary under-secretary of state for India; and was appointed vice-president of the committee of council on education, April 4, 1878, in succession to Viscount Sandon. On the latter occasion he was sworn of the privy council. He went out of office with his party in April, 1880. On the defeat of the Gladstone government he was made first lord to the admiralty from June, 1885, to February, 1886, under Lord Salisbury's administration, and filled the same post in the second Salisbury cabinet.

HAMILTON, JAMES, born in Ireland about 1820, removed to the United States while a boy, and became noted as a painter, especially of water scenes. Among his best known works are illustrations of Arctic scenery, *The Capture of the Seraphis*, and *Old Ironsides*. Hamilton died March 10, 1878.

HAMILTON, SIR ROBERT GEORGE CROOKSHANK, K. C. B., born in Scotland, 1836, was educated at the university of Aberdeen, and in 1855 entered the civil service as a temporary clerk in the war office. In that year he went to the Crimea in the commissariat department. On his return, in 1857, he was employed in the office of works, and subsequently in the educational department. From 1869 to 1872 he served as accountant to the Board of Trade. In 1872 he became assistant secretary, and in 1874, secretary to the Civil Service Inquiry Commission. In May, 1882, Lord Northbrook appointed him under-secretary to the admiralty; but he had scarcely entered upon that office before he was called to take the place of the murdered Mr. Burke as under-secretary of Ireland, which position he retained until November, 1886, when he was appointed governor of Tasmania. He died April 22, 1895.

HAMLIN, HANNIBAL, was born at Paris, Me., August 27, 1809. He prepared for college, but the death of his father compelled him to take charge of his farm. At the age of twenty-one he became a printer. He then studied law; was admitted to the bar in 1833, and practiced until 1848. From 1836 to 1840 he was a member of the Maine legislature, serving as speaker in 1837, 1839, and 1840. He was a member of Congress from 1843 to 1847, a State representative again in 1847, and United States Senator from 1848 to 1857. He was governor of Maine from January 7 to February 20, 1857, resigning the position on his reelection to the senate. He was elected vice-president of the United States on the ticket with Mr. Lincoln in 1860, and on the expiration of his term in 1865 was made collector of customs for the port of Boston. This position he retained until he was again chosen to the Senate in 1869, where he remained until 1881. He was for one year U. S. minister to Spain, and died July 4, 1891.

HAMMOND, WILLIAM ALEXANDER, physician, born in Annapolis Md., August 28, 1828; was graduated in the medical department of the University of the City of New York, and entered the United States army in 1849 as surgeon. In 1860 he was appointed professor of anatomy and physiology in the University of Maryland. At the beginning of the Civil war he

resigned his professorship, and entered the army as an assistant surgeon. When the medical bureau was organized, in April, 1862, he was appointed surgeon-general of the army, with the rank of brigadier-general, serving as such until 1864, when he was court-martialed, and dismissed from the army for alleged irregularities in letting liquor contracts, but in 1879 was vindicated and reinstated. Dr. Hammond went to New York to practice his profession, making a specialty of nervous diseases. From 1867 to 1873 he was professor in Bellevue Hospital medical college and in the University of the City of New York from 1873 to 1882, when he founded the New York post graduate medical school. He published numerous valuable works on nervous and other diseases and wrote several interesting novels. He died Jan. 5, 1900.

HAMPTON, WADE, born in Columbia, S. C., March 28, 1818. He was graduated at the University of South Carolina, and studied law. He served in the legislature of his state as a national Democrat, and, although a large slave-holder, he had little affiliation with secession sentiments. On the outbreak of the Civil war he entered the Confederate service, and organized a regiment of cavalry. He was made brigadier-general, served during the Peninsula campaign, and was wounded in 1863 at Gettysburg. In 1864 he became lieutenant-general, and commanded a body of cavalry in Virginia. In 1865 he was sent to South Carolina, where he commanded the rear-guard of the Confederate army, which was falling back before General Sherman. Much cotton had been stored at Columbia, which, on the approach of the Union forces, was piled up in an open square, ready to be burnt. It was fired, and caused a general conflagration, by which a large portion of the city was destroyed. According to the best evidence this disaster was not willfully planned, although at the time both General Hampton and General Sherman accused each other of having caused the disaster. In 1876 General Hampton was elected governor of South Carolina, and again in 1878, in which year he lost one of his legs by an accident. He served two terms in the United States Senate, 1879-91. Died April 11, 1902.

HANCOCK, WINFIELD SCOTT, was born in Montgomery county, Penn., February 14, 1824. He graduated at West Point in 1844, served with credit in Scott's campaign in Mexico, and on frontier duty until 1861, when he held the rank of captain. Having been appointed brigadier-general of volunteers in 1861, he served in the army of the Potomac throughout its existence. For distinguished service on the peninsula and at South Mountain and Antietam, he was given a division and the rank of major-general, and in 1863 he was placed in command of the second corps for his services at Fredericksburg and Chancellorsville. His crowning glory was won at Gettysburg. Reynolds fell on the first day, and Hancock was sent forward by Meade to arrange the line until the commander could arrive. On the second and third days Hancock commanded the left center, on Cemetery Ridge, where, just in the moment of victory, he was severely wounded. He received the thanks of congress, and returned to the command of his corps early in 1864, in time to take part in Grant's campaigns of that year. He distinguished himself again and again at the Wilderness, at Spottsylvania, and in the Cold Harbor and Petersburg operations. At the end of the war he commanded various departments, having been made a major-general in the regular army. From September, 1867, to March, 1868, he commanded the department of the Gulf, under the reconstruction acts; and certain orders issued by him, particularly those of November 29 and December 5, 1867, declaring that the military power was meant



only to uphold, not to control, the civil power, and declining to exercise arbitrary powers, were so satisfactory to the Democratic party that in 1880 it nominated him for the presidency. He was defeated by Garfield, but retained his position as senior major-general of the army, and the warm regard of the country. He died at Governor's Island, N. Y., February 9, 1886.

HANSBROUGH, HENRY C., was born at Prairie du Rocher, Ill., January 30, 1848; became a printer in California, published a daily paper at San Jose, 1869-70; worked on the *San Francisco Chronicle* until 1879; moved to the Territory of Dakota in 1882, starting a paper; advocated division and admission; was twice elected Mayor of Devil's Lake, was elected to the 51st Congress as a Republican, and to the United States Senate from North Dakota, January 23, 1891.

HARCOURT, SIR WILLIAM GEORGE GRANVILLE VENABLES VERNON, M.P., Q.C., second son of the Rev. William Vernon-Harcourt, born October 14, 1827; was educated at Trinity College, Cambridge, graduating in 1851; was returned to the House of Commons for Oxford as a Liberal in 1868; was elected professor of international law in the University of Cambridge, 1869, and was a member of the royal commissions for amending the neutrality laws and the naturalization laws. He was appointed solicitor-general in November, 1873, on which occasion he was knighted, and he held that office until the resignation of Mr. Gladstone's administration in the following February. When Mr. Gladstone returned to power in May, 1880, Sir W. Harcourt was nominated secretary of state for the home department. On his going down to Oxford for reelection on that occasion he was defeated, polling only 2,681 votes against 2,735 recorded in favor of his Conservative antagonist, but a seat was found for him at Derby, for which constituency he still sits. He was presented with the freedom of the city of Glasgow, October 25, 1881. He went out of office with his party in June, 1885; but on the return of the Liberals to power in January, 1886, was made chancellor of the exchequer. In the Gladstone and Rosebury ministries, 1892 and 1894, he was again chancellor of the exchequer. He was an original contributor to the *Saturday Review*, and wrote various political pamphlets and letters on international law in the *Times*. He married, first, in 1859, Thérèse, daughter of Lady Theresa Lewis; and secondly, in 1876, Mrs. Ives, daughter of the late John Lothrop Motley, the historian and United States minister to England.

HARDEE, WILLIAM J., born in Savannah, Ga., October 10, 1815; died at Wytheville, Va., November 6, 1873. He was graduated at the United States Military Academy in 1838; entered the second dragoons; served in Florida, and in 1844 was made captain. He visited the military school at St. Maur, in France, and while there became attached to the cavalry department of the French army. In 1846 he served under Gen. Zachary Taylor in the Mexican war; was taken prisoner at Curricitas, but exchanged in time to take part in the attack on Monterey. At the termination of the war he was brevetted lieutenant-colonel of cavalry. Soon afterward, by order of the United States Government, Colonel Hardee prepared a system of tactics for the use of infantry. In 1856 he was commandant of the cadets at the United States Military Academy, where he continued until 1861. At the outbreak of the Civil war Colonel Hardee joined the Confederates, with the rank of colonel, and was assigned to duty at Fort Morgan, Mobile. Afterward he commanded in Northern Arkansas and Kentucky, and fought at the battle of Shiloh, where he was promoted major-general. On October 9, 1862, he was made lieutenant-general, and fought at

Chickamauga, Chattanooga, and Mission Ridge. He commanded at Charleston and Savannah, and fought at Bentonville, N. C.

HARDY, ARTHUR SHERBURNE, born at Andover, Mass., 1847, served in the army in 1869, became professor of mathematics at Dartmouth College in 1878, has written several mathematical works and several novels, *But Yet a Woman* (1883), *The Wind of Destiny* (1886), and *Passé Rose* (1889), besides some poetry.

HARDY, THOMAS, novelist, was born June 2, 1840, in Dorsetshire, England. He was intended for the architectural profession and in his seventeenth year was articled to an architect. On taking up his residence in London, Mr. Hardy allied himself with the modern school of Gothic artists, meanwhile entering as a student of modern languages at King's College. His first literary performance was an essay on colored brick and terra-cotta architecture, which received the prize and medal of the Institute of British Architects in 1863. He also was awarded in the same year Sir W. Tite's prize for architectural design. He now formed the idea of becoming an art critic, and engaged in further studies for that purpose; but at length tried his hand on a work of fiction called *Desperate Remedies*, which was published in 1871, and was equally praised and condemned. There followed in 1872 *Under the Greenwood Tree*, and in 1873 *A Pair of Blue Eyes*, which were well received, and in 1874 one of his best known novels, *Far From the Madding Crowd*, which has been dramatized. He has also written *The Hand of Ethelberta* (1876); *The Return of the Native* (1878); *The Trumpet-Major* (1880); *A Laodicean* (1881); *Two on a Tower* (1882); *The Mayor of Casterbridge* (1886); *The Woodlanders* (1887); *Tess of the D'Urbervilles* (1892), a powerful work of sustained dramatic interest; *The Three Wayfarers* (1893), a successful drama; *Life's Little Ironies* (1894) and several other volumes of tales. Many of his novels have been published simultaneously in England, America, Australia and India.

HARGRAVES, EDMUND HAMMOND born at Gosport, England, 1815, went to Australia in 1833 and to California for gold in 1849. Struck by the similarity of geological formation he returned to Australia and discovered the rich gold fields there in 1851. Died, 1891.

HARLAN, JAMES, born in Clarke county, Ill., August 25, 1820; graduated at Indiana Asbury University in 1845; became superintendent of public instruction for Iowa in 1847, and United States Senator as a Whig and Republican from 1855 to 1873 except while serving as Secretary of the Interior, 1867-69. In 1853 and 1869 he had been president of Iowa University. He was presiding judge of the court of commissioners of Alabama claims 1882-85. Died Oct. 5, 1899.

HARLAN, JOHN MARSHALL, son of James Harlan (1800-1863); was born in Kentucky, June 1, 1833; graduated in law in 1853, and was a judge in Franklin county, Ky. He was in the volunteer service during the war; was attorney-general of his State (1863-67), and an unsuccessful candidate for governor in 1871 and 1875. On November 29, 1877, he became associate justice of the United States supreme court, in succession to David Davis.

HARNEY, WILLIAM SELBY born near Adysboro, Tenn., August 27, 1800; was appointed second lieutenant of infantry; became major in 1833, and lieutenant-colonel of dragoons in 1836; colonel in 1846, and brigadier-general June 14, 1848. He served in the Black Hawk war of 1833, and in Florida against the Seminoles. During the Mexican war he was brevetted brigadier-general for gallantry at Cerro Gordo. In 1858 he was placed in command of the department of Oregon, and on July 9, 1859, took possession of the island



of San Juan, near Vancouver. The last named action was premature, and General Harney was recalled. Later he commanded the department of the West. On his way from St. Louis to Washington he was arrested by the Confederates at Harper's Ferry and taken to Richmond, but promptly released. Later, General Harney was relieved of command and retired from service, August 1, 1863. In March, 1865, he received the brevet of major-general. He died May 9, 1889, in Florida.

HARPER, JAMES, publisher, was born in Newtown, L. I., April 13, 1795; died in New York city, March 27, 1869. His father was a farmer. He and his brother John were apprenticed to the printing business in New York city, and soon afterward began business by printing books for the publishers. The first book issued by the old firm, J. & J. Harper, was *Locke on the Human Understanding*. This was in 1818. Altogether the brothers published about 200 works. In 1833, when Wesley and Fletcher, the two younger brothers, joined the firm, its style was changed to Harper & Brothers. Besides their books, Harper & Brothers issue *Harper's Magazine*, a monthly, established in 1850; *Harper's Weekly*, established in 1857; *Harper's Bazar*, established in 1867; and *Harper's Young People*, first issued in 1881. In 1844 James Harper was elected mayor of New York city.

HARPER, WILLIAM RAINEY, was born in New Concord, Ohio, July 26, 1856, gained the degree of LL.D. at Yale at nineteen, was appointed professor of Hebrew language and literature at Morgan Park seminary in 1879, and at Yale in 1886, and professor of biblical literature at Yale in 1889. In 1890 he became president of the new University of Chicago, founded and richly endowed by John D. Rockefeller.

HARRIS, ISHAM GREEN, born in Tennessee, February 10, 1818; engaged in mercantile business, and afterward studied law, and was admitted to the bar in 1841. He served one term in the State legislature as a Democrat, and from 1848 to 1853 sat in congress. In 1857 he was elected governor; reelected in 1859, and again in 1861. During the Civil war he was on the staff of Gen. A. S. Johnston, until his (Johnston's) death; and afterward was with the army of the West. At the close of the war he escaped to Mexico, but returned to Tennessee in 1867, and practiced law there. Ten years later he was chosen United States senator; reelected in 1883, and again in 1889. Died July, 1897.

HARRIS, JOEL CHANDLER, born in Georgia in 1848, has been for a number of years connected, editorially, with the Atlanta (Ga.) *Constitution*. He is best known as the author of stories in negro dialect, and his *Uncle Remus* has placed him at the front as a delineator of the characteristics of the Southern negro.

HARRIS, SAMUEL, born in Maine, in June, 1814; graduated at Bowdoin in 1833, and at Andover Theological seminary in 1838. He held various pastorates (Congregational) in Massachusetts; held the chair of systematic theology, at Bangor, for twelve years, and in 1867 became president of Bowdoin. In 1871 he became professor of systematic theology at Yale. Williams College gave him the degree of D. D. in 1855.

HARRIS, SAMUEL SMITH, born in Alabama, September 14, 1841; graduated at the university of his native State, in 1859, and was admitted to the bar in 1860. In 1869 he took orders in the Protestant Episcopal Church; held pastorates in Georgia, Louisiana, and Illinois, and in September, 1879, was consecrated Bishop of Michigan. He died August 21, 1888.

HARRISON, BENJAMIN, president of the United States, born in North Bend, Ohio, August 20, 1833.

He is a grandson of Gen. William H. Harrison, and was born in his grandfather's house. Benjamin was trained on his father's farm, and in 1852 was graduated at Miami University. He studied law in Cincinnati, two years, and, in 1854, located in Indianapolis, which ever since has been his home. In 1860 he entered the political arena, on the side of the Republicans, in 1862 became second lieutenant of an Indiana regiment, soon received the appointment of colonel, and was sent to join the army under command of Gen. D. C. Buell, at Bowling Green, Ky. Later his regiment was attached to the army corps under Gen. Joseph Hooker, and served in the campaign from Chattanooga to Atlanta. At Resaca, May 14, 1864, he led his command, took part in the capture of Cassville, and in the actions at New Hope church and Kenesaw Mountain. In 1864, when General Sherman began his march through the Southern States, Colonel Harrison was ordered to Indiana to obtain recruits. He was transferred to Nashville, Tenn., and spent the winter of 1864-65 with Gen. Geo. H. Thomas. In the spring he resumed the command of his brigade in the twentieth army corps, and was mustered out of service on June 8, 1865. On January 23, 1865, he received the brevet of brigadier-general. Returning to Indianapolis, he resumed his former office as reporter of the supreme court. In 1868 and 1872 he made public speeches on behalf of the Republican candidates for the presidency. In 1876 he ran for governor of his State, but was defeated by a small majority. He was chairman of the Indiana delegation at the national convention, held in Chicago in 1880, when General Garfield was nominated for the presidency. In 1880 Gen. Harrison was chosen for United States senator, which office he held until March 3, 1887. At the national Republican convention, held at Chicago in 1888, he was nominated by his party for president, and subsequently elected, but was defeated for reelection in 1892. Died Mar. 13, 1901.

HARRISON, BENJAMIN, signer of the Declaration of Independence, born in Berkeley, Va., about 1740; died at City Point, Va., in April, 1791. He studied at William and Mary college, and was elected to the Virginia legislature in 1764. In 1774 he was chosen a delegate to the Continental congress, which distinction was renewed on several occasions. He resigned in 1777. He then became speaker of the Virginia house of delegates, retaining this position until 1782. Thereafter he became governor of Virginia, and continued as such until 1785.

HARRISON, CARTER H., born in Kentucky, February 15, 1825; graduated at Yale in 1845, became a lawyer, and then a real estate dealer in Chicago, and in 1872 was elected a member of the board of supervisors and afterward a county commissioner as a Democrat. He was elected to congress in 1874 and 1876, and was four times elected mayor of Chicago 1878-86, besides being the Democratic candidate for Governor in 1884. He made a tour round the world and wrote *A Race with the Sun*. In 1891 he was again a candidate for the Democratic nomination for mayor, was defeated, secured over 40,000 votes as an independent, bought the *Times* to secure an organ, was elected "World's Fair" mayor in 1892, and assassinated October 28, 1893, by Eugene Prendergast, a disappointed office-seeker, who was hanged July 13, 1894.

HARRISON, FREDERIC, M. A., born in London, Oct. 8, 1831, was educated at King's College School London, and Wadham College, Oxford, was called to the bar in 1858, was a member of the royal commissions upon trades unions, 1867-9; and for the digest of the law, 1860-70, and in 1877 was appointed by the council of legal education professor of jurisprudence and international



law. He has given much attention to the questions and institutions relating to workmen. He was one of the founders of the Positivist School in 1870, and also of Newton Hall in 1881. He is the author of some articles in the *Westminster Review* between 1860 and 1863; of numerous essays in the *Fortnightly Review* from 1865, and in the *Nineteenth Century and Contemporary Review* from 1875. He has published *The Meaning of History* (1862); *Order and Progress* (1875); an English translation of *Social Statics, or the Abstract Theory of Human Order*, being vol. ii. of Comte's *Positive Polity* (1875); *The Choice of Books* (1886); *Oliver Cromwell* (1888); and *The Meaning of History* (1894). Mr. Harrison is a follower of Auguste Comte, whose philosophical, social, and religious doctrines he has presented in various writings and lectures. At the dissolution of 1886, Mr. Harrison (who had formerly declined to stand for Leicester) allowed himself to be brought forward as a home rule candidate for London University, in opposition to Sir John Lubbock. He polled, however, only 516 votes, against his opponent's 1,314.

HART, ERNEST, born in June, 1836, in England; entered the school of medicine attached to St. George's Hospital, where he attained the position of first prize-man in every class. He then obtained the post of ophthalmic surgeon and lecturer on ophthalmology at St. Mary's Hospital Medical School, practicing for some years as a surgeon, and he was the author of a method of treatment of aneurism. For several years Mr. Hart was co-editor of the *Lancet*, and in 1866 was selected as editor of the *British Medical Journal* by the council of the British Medical Association. Mr. Hart has devoted himself to public work in connection with questions of social and sanitary progress. He is editor of the *Sanitary Record* and of the *London Medical Record*. As honorary secretary of the Workhouse Infirmary Association in 1866-7, he rendered great public services in exposing, in concert with others, the defective arrangements for the sick poor in workhouses.

HART, JAMES McDONALD, landscape painter, was born in Kilmarnock, Scotland, in 1828. When a child he removed with his family to America, and lived at Albany, N. Y. In 1851 he went to Düsseldorf and studied painting for a year. He returned to Albany in 1852, and in 1856 removed to New York city, where he has since resided. He was made an academician in 1859. His pictures are admired for their harmony of color and quiet peacefulness of tone. The best known among them are: *Woods in Autumn*, *Moonrise in the Adirondacks*, *Peaceful Homes*, *Coming out of the Shade*, *On the March*, *Among Friends*, *Threatening Weather*, *Indian Summer*, and *A Misty Morning*. Died, 1901.

HART, JOEL T., sculptor, born in Clark county, Ky., 1810; died in Florence, Italy, March 1, 1877. In 1847 Hart went to Italy for study, and while there modeled a statue of Henry Clay, which is at the present time in Richmond, Va. This was followed by a large bronze statue of the same, now in New Orleans, and by a marble statue of the statesman. During his thirty years' residence in Florence, Hart completed many busts and statues of persons of distinction. Of original compositions, his *Charity*, *Woman Triumphant*, and *Penserosa* are among the best.

HART, WILLIAM, landscape painter, elder brother of James McD. Hart (*q.v.*) was born at Paisley, Scotland, in 1823. He removed, with his family, to Albany, N. Y., in 1831, and, like his brother, was a coach-painter. Evincing a talent and taste for art, he took up landscape painting, and made his first public exhibition at the Academy of Design in New York in 1848. He has been a frequent exhibitor at the Academy of Design, and was made an academician in 1858. For

several years he was president of the Brooklyn Academy of Design, and was one of the founders of the Water-color Society, of which, for three years, he was president. His pictures are remarkable for their luminous brilliancy of coloring. Died June 17, 1894.

HARTE, FRANCIS BRET, was born at Albany, N. Y., August 25, 1839. He went to California in 1854, and was successively a miner, school teacher, express messenger, printer, and finally editor of a newspaper. In 1864 he was appointed secretary of the United States branch mint at San Francisco, holding the office until 1870. He contributed many poems and sketches to periodicals, and in 1868, upon the establishment of the *Overland Monthly*, he became its editor, and contributed to it several notable tales and sketches. In 1869 appeared in it his humorous poem, *The Heathen Chinese*, which made him famous. In 1871 he took up his residence first in New York, and subsequently in Boston. He was appointed United States consul at Crefeld, Germany, in 1878, from which he was transferred to Glasgow in March, 1880, remaining there until July, 1885. His works, most of which originally appeared in periodicals, include *Condensed Novels* (1867); *Poems* (1870); *Luck of Roaring Camp, and other Sketches* (1870); *East and West Poems* (1871); *Poetical Works*, illustrated (1871); *Mrs. Skagg's Husbands* (1872); *Echoes of the Foot Hills* (1874); *Tales of the Argonauts* (1875); *Gabriel Conroy* (1876); *Two Men of Sandy Bar* (1876); *Thankful Blossom* (1877); *Drift from Two Shores* (1878); *In the Carquinez Woods* (1883); *By Shore and Sedge* (1885); *Cressy* (1889); *A Waif of the Plains and A Ward of the Golden Gate* (1890); *A Sappho of Green Springs* and *Sally Dows* (1892); *Susy* (1893); and *A Protege of Jack Hamlin's* (1894). Died May 5, 1902.

HARTINGTON, MARQUIS OF (SPENCER COMPTON CAVENDISH, eighth duke of Devonshire since December, 1891), was born July 23, 1833, and educated at Trinity College, Cambridge, where he graduated B.A. in 1854, and was made LL.D. in 1862. He was attached to Earl Granville's special mission to Russia in 1856. In March, 1857, he was returned to the House of Commons, as one of the members for North Lancashire, in the Liberal interest. At the opening of the new parliament in 1859, he moved a vote of "no confidence" in Lord Derby's government, which was carried by 323 votes against 310. In March, 1863, he was appointed a lord of the admiralty, and, in April of the same year, under-secretary for war. On the reconstruction of Lord Russell's second administration, in February, 1866, the marquis of Hartington became secretary of war, and retired with his colleagues in July of that year. At the general election of December, 1868, he lost his seat for North Lancashire, but was immediately afterward returned for the Radnor boroughs, having first received the office of postmaster-general in Mr. Gladstone's cabinet. He held that office till January, 1871, when he succeeded Mr. Chichester Fortescue as chief secretary for Ireland. He went out of office with his party in February, 1874. When Mr. Gladstone, shortly before the assembling of parliament in 1875, announced his intention of abandoning the post of leader of the Liberal party, a meeting of the members of the opposition was held at the Reform Club (February 3d), under the presidency of Mr. John Bright. On the motion of Mr. Villiers, it was decided that the marquis of Hartington should undertake the leadership of the Liberal party in the House of Commons. He received the freedom of the city of Glasgow, November 5, 1877; and was installed as lord rector of the University of Edinburgh, January 31, 1879. At the general election of April, 1880, he was elected member of parliament



for northeast Lancashire. On the resignation of the Conservative government, the marquis of Hartington was sent for by the queen to form an administration; but this task, having been declined by him and Earl Granville, eventually devolved on the former leader of the Liberal party, Mr. Gladstone, who constructed a cabinet, in which the marquis of Hartington occupied a seat, as secretary of State for India, from May, 1880, till December 16, 1882, when he was transferred to the war office in succession to Mr. Childers, who had become chancellor of the exchequer. He resigned with the government in June, 1885, and was elected for the Rossendale division of Lancashire, December, 1885. In 1886, on the formation of Mr. Gladstone's home rule cabinet, Lord Hartington declined to join it; but, on the contrary, accepted the position of leader of the Unionist Liberals. He moved the first resolution of the great opera house meeting; and, also, in the House of Commons, the rejection of the home rule bill on the second reading. He was reelected for Rossendale in 1886, but declined either to form a Conservative-Unionist cabinet or to take office under Lord Salisbury, preferring to serve the Unionist cause out of office. He was appointed chairman of the royal commission on labor in 1891, and chancellor of Cambridge University in 1892, after his succession to his father in the dukedom.

**HARTRANFT, JOHN FREDERICK**, born in Montgomery county, Penn., December 16, 1830; was admitted to the bar in 1859. At the beginning of the Civil war he enlisted in a volunteer regiment, took part in the early campaigns and distinguished himself at Vicksburg. He commanded a brigade in the battles of the Wilderness and was brevetted major-general in the spring of 1865. In the autumn of the same year he was elected auditor-general of Pennsylvania, reelected in 1868, and from 1872 to 1878 was governor of that State. He died October 17, 1889.

**HART, CHARLES FREDERICK**, born in New Brunswick, August 23, 1840; died in Brazil, March, 1878. By the invitation of Louis Agassiz he entered the Museum of Comparative Anatomy at Cambridge, Mass. Later he became professor of natural history at Vassar College, and then professor of geology and physical geography in Cornell. He made several exploring trips in the valley of the Amazon, where he died.

**HARVARD, JOHN**, was born in England in 1607, educated at Cambridge College, and ordained a dissenting minister in 1637, and came that year to Charlestown, Mass., where he preached to the infant colony. He died September 24, 1638, leaving about \$4,000, one-half of his estate, and his library for the founding of the college which bears his name.

**HÄSSLER, FERDINAND RUDOLPH**, born in Switzerland in 1770; came to the United States, and in 1807-10 was professor of mathematics at West Point. Afterward he was given charge of the coast survey. He died at Philadelphia in November, 1843.

**HATTON, JOSEPH**, born at Andover, England, in 1839; began to write at an early age. He edited several provincial and London newspapers, and in 1865 wrote his first novel, *Bitter Sweets*. In 1868 he was appointed editor of the *Gentleman's Magazine*, which post he resigned in 1874. He has published numerous novels, including *Princess Mazaroff* and *Under the Great Seal* (1893), and has adapted plays and stories for the stage. In 1876 he made a lecturing tour through the United States and Canada, and has since been London correspondent of *The Times* of New York.

**HATZFELDT, COUNT VON**, born in 1831, went to Paris with Prince Bismarck in 1862, as one of his secretaries, and when the foreign office was mobilized on the

outbreak of the Franco-German war was on the chancellor's diplomatic suite. In 1874 he was appointed imperial minister at Madrid, and later at Constantinople. He was recalled to Berlin to succeed Herr von Bülow as foreign secretary, and in 1885 replaced Count Münster as German ambassador in London. Died Nov. 24, 1901.

**HAUCK, MINNIE**, was born in New York city in November, 1852, of German parentage. She first appeared in public at a concert in that city in 1865, and three years afterward made her operatic debut as "Amina" in *La Somnambula*. She sang at Covent Garden theater, London, 1868, afterward in Vienna, Moscow, Berlin, Paris, and Brussels, and made several successful tours through the United States.

**HAUPT, HERMAN**, American engineer, built the Hoosac tunnel, 1856-64, was chief of the bureau of United States military railways in the war, has been chief engineer of the tide water pipe line company since 1875, and has written several works on bridge building and *Street Railway Motors* (1893).

**HAUSSMANN, BARON GEORGE EUGÈNE**, was born in Paris, March 27, 1809; was educated at the Conservatoire de Musique, studied with a notary, and became an advocate. After the revolution of 1830 he was successively sous-préfet of Nerac, Saint Girons, and Blaye, and under the presidency of Louis Napoleon was prefect of Var, the Yonne, and Gironde. The president, appreciating his administrative talents, appointed him préfet of the Seine, in succession to M. Berger, June 23, 1853. Under his active direction and enterprising spirit, works were executed in Paris of such a nature as to almost render it a new city. The financial administration of M. Haussmann gave rise to the most animated discussion in the corps législatif and in the columns of the press, it being alleged that the prefect had raised, by means of bonds, hundreds of millions of francs over and above the large amount he was legally authorized to expend in the construction of public works. Eventually M. Haussmann requested the emperor to place the budget of the city under the control of the corps législatif, and accordingly the examination of his accounts became the principal business of the session of 1869, the result being that authority was given for a new loan of 260,000,000 francs, which was eagerly subscribed by the public. On the formation of a parliamentary cabinet by M. Émile Ollivier, he was asked to tender his resignation of the office of préfet of the Seine, and on his refusal to do so he was "relieved of his duties" by an imperial decree, dated January 5, 1870. M. Haussmann was promoted to the rank of grand officer of the Legion of Honor, June 17, 1856, and Grand Cross, September 8, 1862. In August, 1857, he was created a senator, and, in 1867, elected a member of the Academy of Fine Arts. After the fall of the empire Baron Haussmann prudently quitted France for a time. On his return he was appointed (September 3, 1871) director of the crédit mobilier. At the election of October, 1877, he was returned to the chamber of deputies by the arrondissement of Ajaccio, in Corsica, where he polled 8,066 votes, against 4,421 given for his opponent, Prince Napoleon. In the Chamber he occasionally took part in the discussion of financial projects and questions relating to public works, and defended his own administration. He wrote his *Memoirs* in 1889 and died January 12, 1891.

**HAVEN, ERASTUS OTIS**, born in Massachusetts, November 1, 1820; died in August, 1881. He graduated in theology in 1842; entered the Methodist ministry, and became a professor in Michigan University. For several years he edited in Boston the *Zion's Herald*. In 1863 he became president of the University of Michigan; which position he occupied for



several years: He was president of the Northwestern University at Evanston, Ill., 1869-72 and became chancellor of Syracuse University in 1874. In May, 1880, he was ordained bishop. Union College made him D.D., and Ohio University gave him the degree of LL.D.

HAVEN, GILBERT, born in Massachusetts, September 9, 1821; died January 30, 1880. He graduated in 1846 at the Wesleyan University; preached and taught for many years, and at the beginning of the Civil war was appointed chaplain of a volunteer regiment. In 1867 he was appointed editor of the *Zion's Herald*, and in May, 1872, he was elected bishop of the Methodist Episcopal Church. In the discharge of his duties he visited Mexico, Liberia, and other places, and took a lively interest in Christian work among the freedmen of the South.

HAWES, HUGH REGINALD, English clergyman and author, was born at Egham, Surrey, 1838, educated at Trinity College, Cambridge, and was appointed perpetual curate of St. James Church, Marylebone, in 1866. He became editor of *Cassell's Family Magazine* in 1868, visited the United States in 1885 and has written numerous works including *Music and Morals*, *American Humourist*, *Poets in the Pulpit*, and *Christ and Christianity* (1887). Died Jan. 29, 1901.

HAWKS, FRANCIS LISTER, born in North Carolina in June, 1798; died in New York city, September 26, 1866. He practiced law in North Carolina but decided to enter the ministry, and was ordained deacon in the Episcopal Church in 1827. He was rector of a New York church, was the first president of the University of Louisiana, and held charges in New Orleans, Baltimore and New York where he became a popular pulpit orator. He declined several bishoprics and wrote several important ecclesiastical works.

HAWLEY, JOSEPH ROSWELL, was born in North Carolina, October 31, 1826. He studied law and began to practice in Hartford (1850), but abandoned law in 1857 for journalism, connecting himself with the *Evening Press*, a newly established Republican paper. When the Civil war broke out he was the first citizen in his state to volunteer, and was appointed lieutenant and afterward captain of a volunteer regiment, serving with his company in the battle of Bull Run. In September, 1861, he was made lieutenant-colonel. He received his commission as brigadier-general in 1864, and was placed in command of the second brigade of General Terry's division of the tenth corps, becoming afterward the chief of staff of General Terry in Virginia; and was brevetted major-general in September, 1865. He was elected governor of Connecticut in 1866-67; was president of the Republican national convention at Chicago in 1868, when General Grant was nominated for the presidency; was member of congress in 1873-77, and in 1879-81; president of the centennial commission in 1876; and since 1881 has been United States senator from Connecticut.

HAWTHORNE, JULIAN, son of the eminent novelist, Nathaniel Hawthorne, was born at Boston, Mass., June 22, 1846. He entered Harvard in 1863, where he remained until his father's death in May, 1864. He subsequently returned to Cambridge, and remained there until his class graduated in 1867, but he took no degree. He then entered the scientific school to study civil engineering, but left it to go to Germany, in October, 1868. During 1871 he contributed a number of short stories and pieces to the magazines. He sailed for Europe in 1872, and after a short stay in England, proceeded to Dresden, where he remained two years, during which time he published in England and America his first two novels, *Bressant* (1873), and *Idolatry* (1874). From 1875 until October, 1881, he remained

in or near London, with the exception of a visit of a few months to France, publishing several volumes of short stories and *Archibald Malmaison*. He returned to the United States in 1882, and has since been a prolific writer, publishing *Nathaniel Hawthorne and His Wife* (1884), detective stories and numerous novels, among the best of them being *Garth*, *Beatrix Randolph*, *Fortune's Fool*, *Noble Blood*, *The Professor's Sister and Sinfire* (1888). He also wrote *Confessions and Criticisms* (1886) and *Humors of the Fair* (1893) besides many magazine articles. He also edited a posthumous romance of his father's, *Dr. Grimshawe's Secret*.

HAY, JOHN, born at Salem, Ind., October 8, 1839; graduated at Brown University in 1858. He was admitted to the bar in Springfield, Ill., in 1861, but almost immediately went to Washington as assistant secretary to President Lincoln, and subsequently was his adjutant and aide-de-camp. During the Civil war he served for a time under Generals Hunter and Gillmore, attaining the rank of colonel and assistant adjutant-general. From 1865 to 1867 he was secretary of legation at Paris, and from that time to 1868 was *chargé d'affaires* at Vienna. He was appointed secretary of legation at Madrid, in 1869, where he remained until 1870, when he returned to the United States, and accepted a position upon the editorial staff of the *New York Tribune*. This he resigned in 1876, upon his removal to Cleveland, Ohio, but has continued to occasionally contribute to its columns to the present time. During the absence of the editor, Mr. White-law Reid, in Europe, from April to November, 1881, Colonel Hay returned to New York to take entire editorial charge of the *Tribune*. From 1879 to 1881 he was assistant secretary of state. He obtained considerable celebrity by his dialect poems of *Jim Bludsoe*, *Little Breeches*, etc., which were afterward published in book-form under the title of *Pike County Ballads*, 1871. In the same year he also issued *Castilian Days*, a series of sketches of Spanish life and character. He represented the United States in England in 1897, and became United States Secretary of State in 1898. He represented the U. S. at the coronation of Edward VII. of England. He has published (in collaboration with John G. Nicolay) a *Life of Abraham Lincoln* (1887.)

HAYDEN, FERDINAND V., born in Massachusetts, September 7, 1829; died December 22, 1887. He graduated at Oberlin in 1850, and three years afterward in medicine at Albany Medical College. He devoted his attention to geological research, and spent much of his time in the western States and Territories. His collection of geological specimens attracted the attention of the authorities of the Smithsonian Institution, and he was appointed naturalist of the expedition to explore the Yellowstone and Missouri rivers in 1859. During the war he acted as surgeon in the volunteer service, and in May, 1865, received the brevet of lieutenant-colonel. In the same year he became professor of mineralogy and geology in the University of Pennsylvania, which position he held for seven years. Between 1869 and 1872 Doctor Hayden conducted a series of geological explorations in Dakota and other territories, and his report caused congress to set apart the Yellowstone district as a national park. Doctor Hayden became geologist in charge of the Montana division of the United States survey, but resigned this office in December, 1886, owing to failing health. He was a member of scientific societies both at home and abroad, and an LL.D. of the University of Pennsylvania, and wrote numerous scientific works.

HAYES, ISAAC ISRAEL, Arctic explorer, born in Chester county, Penn., March 5, 1832; died in New York city, December 17, 1881. He graduated in the medical



school of the University of Pennsylvania in 1853, and sailed as surgeon in the polar expedition under command of Elisha K. Kane in that year. To his medical acquirements he added the knowledge of a naturalist and the perseverance of an explorer. In the summer of 1854 the entire party of explorers safely reached Upernivik. On July 7, 1860, Doctor Hayes sailed on a second expedition, in command of the *United States*. In May, 1861, he again landed on Grinnell Land. Doctor Hayes made a third voyage in 1869. He received the founder's medal of the Royal Geographical Society in 1867, and the gold medal of the Paris Society in 1869. When he returned from his second expedition and found that the Civil war had begun, he sought service as surgeon of volunteers, and was brevetted lieutenant-colonel March 13, 1865. Later Doctor Hayes removed to New York city, where he was chosen a member of the State legislature for the term of five years. His publications include *The Open Polar Sea* (Boston, 1867); *Cast Away in the Cold* (1868), and *The Land of Desolation* (1871).

HAYES, RUTHERFORD BIRCHARD, nineteenth president of the United States, was born at Delaware, Ohio, October 14, 1822, and graduated at Kenyon College in 1842. He was admitted to the bar at Marietta, Ohio, in 1845, and entered upon practice first at Fremont, and subsequently at Cincinnati. The Civil war having broken out, he was in June, 1861, made major of a regiment of Ohio volunteers. His regiment was ordered to service in western Virginia, was subsequently joined to the army of the Potomac under General McClellan, and took part in the operations pertaining to the Confederate invasion of Maryland, in September, 1862. At the engagement of South Mountain, just before the battle of Antietam, Major Hayes was severely wounded. Having recovered from his wound, he was in November, 1862, made colonel of his regiment, which was subsequently on duty in Ohio and elsewhere. He was later made brigadier-general, and afterward major-general of volunteers. In June, 1865, he resigned his commission, having been elected a representative in congress from Ohio, taking his seat in December, 1865. He was reelected for the following term, but resigned in 1867, having been elected governor of Ohio, to which office he was reelected in 1869, and again in 1875. His repeated success in Ohio induced the Republican National Convention in 1876 to nominate him for the presidency as a compromise candidate between Mr. Blaine on the one hand and Mr. Conkling on the other. When the election took place, it seemed certain that, of the 369 electoral votes, 184 had been cast for Mr. Tilden, the Democratic candidate, being one short of a majority; 172 were equally sure for Mr. Hayes; but there were thirteen electors, in respect to whose election there were grave questions in dispute. Of these, eight were from Louisiana, four from Florida, and one from Oregon, from which States there were two sets of electors, each claiming to have been duly chosen. If only one of these votes should be counted for Mr. Tilden he would have a majority, and would consequently become president. In order to secure the election of Mr. Hayes, all these thirteen votes must be counted for him. Singularly enough, neither the constitution nor any existing law provided for such an emergency, and as the Republicans had a majority in the Senate, and the Democrats in the House, it was certain that the two branches of congress would not agree upon any bill which would give the counting of the disputed votes to their opponents. In this emergency a bill was passed creating a special electoral commission of fifteen for counting the votes. It was to consist of five senators, five representatives, and five justices of the Supreme Court. This com-

mission, by a majority of one, decided that the disputed votes should all be counted for Mr. Hayes, giving him a majority of one vote, and he was declared duly elected. Mr. Hayes' administration was a conservative one, and was noted more for its exceptional purity than for any especial policy. By the withdrawal of all national troops from the Southern States he restored to them the right of local self-government, and thus removed the "Southern question" from general politics. He endeavored to prevent the remonetization of silver, but his veto was overridden by the constitutional two-thirds majority in both houses of congress. The Republican Senators, led by Mr. Conkling, vigorously opposed his efforts to reform the civil service, so that he was able to secure but little legislation upon the subject, the bill prohibiting political assessments on office-holders being the only measure in that direction passed. He was able, however, to set an example in favor of the reform by checking removals except for cause, and by instituting in the Interior Department, and in the postoffice and custom house of New York, competitive examinations for appointment. The house of representatives, which was Democratic throughout his term, attempted to secure his assent to the repeal of certain measures by attaching them to appropriation bills, but he was firm in his refusal to sign them, and the House was finally obliged to give way, public sentiment showing itself largely on the side of the president. On March 4, 1881, Mr. Hayes was succeeded in the presidency by Mr. Garfield, retiring to his home in Fremont, Ohio. He died January 17, 1893.

HAYNE, PAUL H., born in South Carolina, January 1, 1830; died in Georgia, July 6, 1886. He studied law and was admitted to the bar, afterward edited the *Charleston Literary Gazette*, and wrote some war songs and other poetry.

HAYNE, ROBERT YOUNG, was born in South Carolina November 10, 1791, and died September 24, 1839. He practiced law in Charleston, and from 1814 to 1818 served in the State legislature. From 1818 to 1822 he was attorney general of his State, and in 1822 he was elected United States senator. He opposed the tariff measures proposed in 1828, and his oratorical efforts in opposition to Henry Clay are of historical record. The great debate between Daniel Webster and Mr. Hayne upon the principles of the constitution, the authority of the general government, and the rights of the individual States is also of historical value. In 1832 Mr. Hayne was elected governor of South Carolina. President Jackson on December 10th issued his proclamation against the nullification ordinances which had been passed by the State legislature. Governor Hayne replied with a proclamation of defiance. (See NULLIFICATION.) Nothing came of the proposed resistance of South Carolina to the exercise of the unquestionable authority of the national government, and the nullification proposition died a natural death. In 1834 Governor Hayne retired, and two years later he served a term as mayor of Charleston, S. C.

HAZEN, WILLIAM BABCOCK, born in Vermont, September 27, 1830; died January 16, 1887. He graduated at West Point in 1855, served on the frontier, and in 1861 became instructor in infantry tactics at the United States Military Academy. In the fall of 1861 he entered the volunteer service, won distinction at Stone River, Chickamauga, and Missionary Ridge, and was with Sherman in his march to the sea. In 1866 General Hazen, who had already received the brevet of major-general, was appointed colonel of an infantry regiment. On December 8, 1880, he became chief of the United States signal service, which position he held until his death.



**HEADLEY, JOEL TYLER**, born in Walton, N. Y., December 30, 1813, and died January 16, 1897. He studied theology at Auburn Theological Seminary. He became pastor of a church at Stockbridge, Mass., but was soon obliged to relinquish his work by ill health. He wrote a series of articles for *Harper's Magazine*, and in 1846 succeeded Henry J. Raymond as associate editor of the *New York Tribune*. In 1854 Mr. Headley was elected to the New York State Legislature, and in 1855 he became secretary of the State of New York.

**HEALY, GEORGE P. A.**, was born in Boston in 1813. He studied in Paris and exhibited for several years at the salon, his specialty being portraiture. Among the chief of his works were the portraits of Henry W. Longfellow, Henry Clay, John C. Calhoun, Daniel Webster, Cardinal McCloskey, Thiers, and General W. T. Sherman. He completed in 1851, his *Webster's Reply to Hayne*, containing 130 portraits, which hangs in Faneuil Hall, Boston, and in 1855 exhibited in Paris his large picture representing Franklin urging the claims of the American colonies before Louis XVI, both widely known through engravings. A number of his best works he gave to the Newberry Library in Chicago in 1892. He painted over 600 portraits. He died in Chicago June 24, 1894.

**HEALY, TIMOTHY M.**, an able and ardent Irish naturalist leader, was born May 17, 1855, at Bantry, county Cork. He took an active part in the Land League agitation of 1880 and was tried, but acquitted, for a speech at Bantry. He was elected unopposed for Wexford borough. During the passing of the Land act in 1881, he secured the exclusion of tenants' improvements from rent. In 1880 and again in 1881 he visited the United States, attending the Land League convention at Chicago, which voted \$250,000 to assist the Irish movement, and speaking for the league in all leading cities. In 1882, for another campaign speech he was sentenced to six months' imprisonment, but was released at the end of four months. In June, 1883, he resigned his seat for Wexford, and was elected for Monaghan. In November, 1884, he was called to the Irish bar. In 1885 he was elected for Monaghan and South Londonderry, and sat for the latter. In 1886 he was defeated for South Londonderry, and in February, 1887, he was returned without opposition for North Longford. In 1891 he was Parnell's most enthusiastic champion in the struggle against his leadership and after his death became the leader of the Parnellite wing of the Irish nationalists. Since 1892 he has sat for Louth. He was called to the Irish bar in 1884.

**HEATH, WILLIAM**, born in Roxbury, Mass., March 7, 1737; died there January 24, 1814. Before the Revolution he was captain of the Suffolk regiment and later rose to be its colonel. In 1770 he commanded the artillery company of Boston and in 1774 became a delegate to the provincial congress. On December 8, 1774, he was appointed brigadier-general, and later was promoted successively to the grades of brigadier-general and major-general in the provincial army. After the battle of White Plains he commanded the posts of the Hudson river highlands, and in 1777 the eastern department, and had charge of the prisoners of Burgoyne's army at Cambridge. When the war was finished he returned to his farm and was a State senator, 1791-92. In 1806 he was elected lieutenant-governor. He was the last surviving major-general of the Revolution.

**HECKER, FRIEDRICH KARL FRANZ**, born in Baden, Germany, 1811; died in St. Louis, 1881. He took part in the Baden revolution in 1848, and when that came to an untimely end, fled to Switzerland and afterward to the United States. He settled in New York,

became an ardent anti-slavery man, joined the Republican party and served under Fremont in the Union army.

**HECKER, ISAAC THOMAS**, was born in New York city in December, 1819, of German parentage. He participated in the Brook Farm experiment; in 1841 went over to Roman Catholicism, and in 1849 was ordained a priest of the Roman Catholic Church. He entered the order of the Redemptorists, in which capacity he labored for many years. He died December 22, 1888.

**HECKEWELDER, JOHN GOTTLIEB ERNESTUS**, missionary, was born in Bedford, England, March 12, 1743; died in Bethlehem, Penn., January 21, 1823. At the age of eleven years he came to Pennsylvania with his father. In 1792 he accompanied Gen. Rufus Putnam to Post Vincennes, to treat with the tribes. Between 1797 and 1800 he was a postmaster, justice of the peace, and associate justice of the court of common pleas. In 1797 he was superintendent of the Christian Indians on the Muskingum river, and in 1801 settled in Gradenhütten, devoted to the duties of his agency. In 1810 he resigned the Indian mission, retired finally to Bethlehem, among the Moravian brethren, and engaged in literary pursuits. He studied the language, manners, and customs of several tribes with which he had come in contact.

**HEIN, PIET**, born in Holland in 1570; entered the service of the East India Company, and fought in Brazil and other countries against the Spaniards. He died in 1621.

**HEINTZELMAN, SAMUEL PETER**, born in Pennsylvania, September 30, 1805; died May 1, 1880. He graduated at West Point in 1826, entered the infantry service and was in the Seminole and Mexican wars. At the beginning of the Civil war he received a commission as colonel in the seventeenth regular infantry. He commanded a division at Bull Run, where he was wounded, and in March, 1862, he had command of the third army corps at Williamsburg. For his distinguished services upon this day he was made major-general of volunteers, and after the battle of Fair Oaks was brevetted brigadier-general in the regular service. He took part in the seven days' fight at Richmond, was with Pope in his Virginia campaign, and participated in the second battle of Bull Run. Later on he had full command of the defenses at Washington and of the twenty-second army corps, at the head of which he distinguished himself at Chancellorsville and Gettysburg. He was relieved in October, 1863, afterward commanded the northern department, and in March, 1865, received the brevet of major-general in the regular service. In 1869 he was retired with the rank of colonel.

**HEISS, MICHAEL**, born in Bavaria on April 12, 1818; removed to the United States in 1842, and acted as a missionary priest in Wisconsin for several years. In 1868 he became bishop of La Crosse, Wis. In 1880 he was made coadjutor-bishop of Milwaukee, with right of succession, and in 1881 succeeded to the see. He was one of the most distinguished members of the Vatican Council of 1870. He died March 26, 1890.

**HELLMUTH, ISAAC, D.D., D.C.L.**, was born in Poland, of Jewish extraction. Having been converted to Christianity and ordained in the Anglican Church, he settled in Canada about 1856. By his energy Huron College was established for the education of the future clergy of the diocese. A few months afterward the London Collegiate School, since named Hellmuth College, was erected. Meanwhile Doctor Hellmuth had been appointed successively archdeacon and dean of Huron. Finding that the boys' college (Hellmuth College) was a perfect success he proceeded to establish a similar college for ladies, which was opened in 1869. On August 24, 1870, he was consecrated coadjutor-bishop of Hu-



ron, with the title of bishop of Norfolk, in the Cathedral of St. Paul, London, Canada West. In 1871 Doctor Hellmuth succeeded to the see of Huron. He resigned that see and removed to England in 1883, on being appointed assistant bishop in the diocese of Ripon.

HELMHOLTZ, HERMANN LUDWIG, a distinguished German physiologist and natural philosopher, was born August 31, 1821, at Potsdam, Prussia. After studying medicine in the Military Institute at Berlin, and being attached for a time to the staff of one of the public hospitals there, he returned to his native town as an army surgeon. In 1848 he was appointed professor of anatomy in the Academy of Fine Arts at Berlin; in 1855 professor of physiology at Königsberg, whence he removed, in 1858, to Heidelberg, where he also filled the chair of physiology. He was afterward appointed professor of physiology at Berlin. The works of Prof. Helmholtz, which are well known throughout Europe, have reference principally to the physiological conditions of the impressions on the senses. Among those most deserving of notice are: *On the Preservation of Force*, 1847; *Manual of Physiological Optics*, 1856; and *Theory of the Impressions of Sound*, 1862. His *Popular Lectures on Scientific Subjects*, translated into English by Dr. E. Atkinson, were published in London in 1873; 2d ser., 1881; and his work on *Sensations of Tone, as a Physiological Basis for the Theory of Music*, translated from the third German edition by Mr. Alexander J. Ellis, appeared in 1875. Professor Helmholtz also contributed to scientific journals accounts of many of his experiments in acoustics, optics, and electricity. On December 1, 1873, the Copley medal of the Royal Society of London was awarded to him for his eminent services to science. He died Sept. 8, 1894.

HELPER, HINTON ROWAN, born in North Carolina, December 27, 1829; became consul for the United States to the Argentine Republic in 1861, which office he held for six years. His chief title to fame is as the author of a book called the *Impending Crisis of the South*, which, on its publication in 1857, attracted great attention. The book was used by the Republican party as a campaign document.

ENDERSON, DAVID B., born in Scotland in 1840; came to this country while a boy and settled in Iowa, where he studied law. He entered the volunteer service in 1861 as a private, and was discharged in 1863, owing to the loss of a leg in battle. Later he reentered the service as a colonel of an Iowa regiment and served until the close of the war. From 1865 until 1869 he was collector of internal revenue for the third Iowa district; became assistant United States district attorney (1869-71), and in 1883 was elected to congress as a Republican. He was reelected to each congress until his retirement in 1895. In 1890, he became Speaker of Congress.

HENDERSON, RICHARD, born in Virginia in 1734; died in 1785. He was one of the original settlers of Kentucky and organized the new country of Transylvania, with Daniel Boone and others. Later he practiced law in Tennessee, and engaged in planting in North Carolina.

HENDERSON, THOMAS J., born in Tennessee, November 29, 1824; removed to Illinois, and held various clerical offices in Starr county. From 1855 to 1860 he served in the legislature of the State; and at the beginning of the war entered the volunteer service as colonel. He received the brevet of brigadier-general of volunteers for his services; in 1871 was appointed collector of internal revenue; in 1874 was elected to congress as a Republican, and was successively reelected up to 1892, serving until March 4, 1895.

HENDRICK, a chief of the Mohawk tribe of Indians, was born before the close of the seventeenth century,

and had much to do on the British side in the early wars between England and France in Canada. He became a chief of the Six Nations, and in 1755 joined the army of Sir William Johnson, and was slain in battle.

HENDRICKS, THOMAS ANDREWS, vice-president of the United States in 1885, was born in Muskingum county, Ohio, September 7, 1819. He removed with his father to Shelby county, Ind., in 1822, graduated at Hanover College in 1841, and was admitted to the bar in 1843. He was a member of the State legislature in 1848-49, a Democratic member of the House of Representatives, 1851-55, and commissioner of the land office, 1855-59. He served as United States senator, 1863-69, and as governor of Indiana, 1873-77. In 1876 he was nominated for the office of vice-president by the Democrats, but was defeated. In 1876, 1880, and 1884 he was a prominent candidate for the nomination for the presidency; and in 1884, when Cleveland was nominated, he consented to take the nomination for the vice-presidency, and was elected. He died at Indianapolis, Ind., November 25, 1885.

HENNEPIN, LOUIS, born in Belgium about 1640; served in the army as chaplain, and in 1676 came to Canada as a missionary priest. When La Salle undertook his exploration of the Mississippi Valley, Father Hennepin was assigned to his command. They discovered Niagara Falls, traveling west as far as Mackinac, and thence to Peoria, on the Illinois river. Here La Salle and Father Hennepin, and two men in a canoe, went down the Illinois river to its mouth, and thence north up the Mississippi, a journey of some six weeks, when they fell into the hands of a party of Sioux Indians. They discovered and named the falls of St. Anthony, near Minneapolis. Father Hennepin spent nearly a year among the Indians, and was finally rescued by Du Luth, after whom Duluth was named. Father Hennepin, upon his return to Europe, published a history of his travels, which is of the greatest value in dealing with the early explorations of the Mississippi Valley. The charge has been made that Father Hennepin did not confine himself to the truth, but in his published works he shows incontestably that he had sailed up and down the Mississippi in the time that he alleged. He died in Holland about 1701.

HENNI, JOHN MARTIN, born in Switzerland, June 13, 1805; died in Wisconsin in 1881. He came to this country in 1829, and became pastor of a German-Catholic church in Cincinnati. On March 19, 1844, he was consecrated bishop of Milwaukee, and in 1875 he was named archbishop. This office he retained until his death.

HENRY, CALLEB SPRAGUE, born in Massachusetts, August 2, 1804; died March 9, 1885. He became a Congregational minister in 1829, and was professor of philosophy and history in the New York University, of which for several years he was chancellor. He also edited the *Churchman*.

HENRY, JOHN, born in Ireland in 1738, was one of the first European actors to appear in the United States. In December, 1767, he became joint manager of a theater in New York. He died at sea in 1795.

HENSLER, ELIZA, born in Boston, 1835, of German parentage; first appeared on the concert stage in New York at the age of fifteen years. She received a dramatic training in Europe, appeared in Paris with some success and thence went to Portugal, where she became a great favorite. In June, 1869, she married the ex-regent of Portugal, Ferdinand Augustus, duke of Saxe-Coburg-Gotha.

HERBERT, HILARY A., of Montgomery, Alabama, was born at Lawrenceville, South Carolina; was admitted to the bar in Alabama, served in the Confederate



Army, served in congress, 1876-92, part of the time as chairman of the Committee on Naval Affairs and was appointed Secretary of the Navy by President Cleveland in 1893. He retired in 1897.

HERING, CONSTANTIN, was born in Saxony in 1800; studied medicine at Leipsic and Dresden, became a convert to the homeopathic views enunciated by Hahnemann, and in 1833 came to this country. Here he founded the first homeopathic school in the United States, and from 1845 to 1870 he filled the chair of medicine in the Philadelphia School of Homeopathy. Doctor Hering edited books on homeopathic medicine, and founded several newspapers to advocate the principles of homeopathy. He died in 1880.

HERKIMER, NICHOLAS, born about 1720 in Germany; died in Danube, N. Y., August 16, 1777. His father was a farmer who settled in what is now Herkimer county, N. Y. On January 5, 1758, the son was appointed a lieutenant of militia, and commanded Fort Herkimer at the time the French and Indians attacked German Flats. Later, Herkimer lived in the Canajoharie district, where in 1775 he was made colonel of militia and chairman of the Tryon county committee of safety. In 1776 he attained the rank of brigadier-general. In that year, when Colonel St. Leger, sent out by General Burgoyne, was besieging Fort Schuyler, Herkimer, with 800 militia, marched to its relief, and led an expedition against Sir John Johnson's force of Tories and Indians. In this movement he fell into an ambuscade at Oriskany on August 6, 1777; Herkimer's horse was killed, and himself severely wounded. Of the militia one-third was killed, and another third wounded or carried into captivity. The wound in Herkimer's leg rendered amputation necessary, but it was too long delayed and unskillfully performed, and he died from the operation.

HERKOMER, HUBERT, A.R.A., was born in 1849 at Waal, in Bavaria. His father, Lorenzo Herkomer, who was a skillful wood-carver, emigrated with his family in 1851 to the United States, but in 1857 sought to improve his fortunes in England, and settled in Southampton. As a boy, Hubert was hindered much in his education by ill health and poverty, but at thirteen he entered the Art School at Southampton, and won a bronze medal there. In 1865 he went to Munich with his father. In 1866 he entered the schools at South Kensington, but after five months was obliged to return to Southampton, where he sold his first picture. In 1867 he went again to South Kensington for a few months, and in the following year he established himself in the village of Hythe, and there painted two pictures, which he exhibited at the Dudley gallery (1868). He then removed to London, and occupied himself successfully with water-color painting and designing for the wood engraver. In 1871 Mr. Herkomer was invited to join the Institute of Painters in Water Colors, and to the gallery of this society, and subsequently to the Grosvenor and the Academy exhibitions, he has contributed many drawings. His best work has been done in oil, notably *The Last Muster*, a picture of Chelsea pensioners in chapel, which was exhibited at the Columbian Fair in Chicago in 1893, together with *Miss Katherine Grant*, a portrait, and *Entranced*. Among his other works are: *At Death's Door*, 1876; *Der Bittgang*, 1877; *Eventide*; *A Welshwoman*, and *Souvenir of Rembrandt*, 1878. Mr. Herkomer was elected an associate of the Royal Academy, an honorary member of the Imperial Academy of Vienna in 1879 and an officer of the Legion of Honor in 1880.

HERNDON, WILLIAM LEWIS, naval officer, was born in Fredericksburg, Va., October 25, 1813. He

entered the navy as midshipman in 1828, and was promoted lieutenant in 1841. He served on various cruises and in the Mexican war, and for three years was engaged in the naval observatory at Washington, D. C. In 1851 he was sent to explore the Amazon river; reached its head waters by crossing the Andes from Lima, accompanied part of the way by Lieut. Lardner Gibbon, and sailed down the river in a canoe, returning to the United States in 1852. In 1855 he was made commander. He took service in a line of steamers plying between New York, Havana, and Central America. On February 8, 1857, he left Havana in command of the steamer *Central America*, with 474 passengers, 105 seamen, and several million dollars in gold. During a storm the vessel sprang a leak; a small brig was signaled to stand by, and all the women and children were transferred to her; in the evening of the same day the steamer sank. A few of her people were picked up by passing vessels, but the captain, with 426 others, were lost.

HERVÉ, AIME MARIE EDOUARD, a French journalist, born May 28, 1835, in the island of Réunion. In 1854 he entered the normal school, but he sent in his resignation shortly afterward, in order that he might devote his entire attention to journalism in Paris. He was connected with the *Revue de l'Instruction Republique*, and the *Revue Contemporaine*, to which he contributed (1860) the political summary; and he then became editor of the *Courrier de Dimanche* (1863), of the *Temps* (1864), and of the *Epoque* (1865). After the publication of the imperial letter of January 19, 1867, inaugurating a new system for the press, M. Hervé established, in conjunction with M. Jean Jacques Weiss, the *Journal de Paris* (1867), which became noted for its persistent attacks on the imperial régime. At the general election of May, 1869, M. Hervé came forward, in the circonscription of Arras, as the candidate of the Liberal opposition, under the patronage of M. Thiers, but he was defeated at the poll by the official candidate, M. Sens. M. Weiss having retired from the strife of political journalism, on being nominated general secretary of the Ministry of Fine Arts, M. Hervé remained sole editor of the *Journal de Paris*, and on February 5, 1873, he started the *Soleil*, a large political half-penny newspaper, which, at the outset, was merely an offshoot of the *Journal de Paris*, and conducted by the same literary staff. After the visit of the Comte de Paris to Frohsdorff, which preceded the attempt to reestablish the ancient monarchy, M. Hervé proclaimed loudly "the reconciliation of the House of France," and engaged, with reference to this subject, in an animated controversy with M. Edmond About, the editor of the *Dix-Neuvième Siècle*. This dispute ended in a duel, in which M. About was slightly wounded. After the proclamation of the Septennate, M. Hervé supported the policy of the Broglie, Cussy, and Buffet cabinets. On April 28, 1876, M. Hervé announced to the readers of the *Journal de Paris* the discontinuance of that journal, after nine years of a stormy existence; and since then he has remained editor of the *Soleil*. He has published in book form, under the title of *Une Page d'Histoire Contemporaine* (1869), a series of articles on the elections in England, and the leading statesmen of that country. Died Jan. 4, 1899.

HEWITT, ABRAM STEVENS, born in New York State, July 31, 1822; graduated at Columbia in 1842; and was admitted to the bar, 1845. He became associated with Peter Cooper in the manufacture of iron and steel. Mr. Hewitt was elected to congress as a Democrat in 1874, and served continuously, with the exception of one term, until 1886. In the latter year he was elected mayor of New York.



**HICKS, THOMAS**, born in Newtown, Penn., October 18, 1823. He received a good education in his native place, and early showed a predilection for the art of design. He entered the Pennsylvania Academy of Fine Arts in Philadelphia, and in 1838 studied at the National Academy in New York city. In 1841 he contributed *The Death of Abel* to its exhibition. Thereafter he repaired to Europe for study, and spent nearly five years in Paris, London, and Italy, returning, in 1849, to New York city, where he settled as a portrait-painter. In 1851 he was chosen a national academician, and from 1874 until 1885 was president of the Artists' Fund Society of New York. Among his noted portraits are those of H. W. Beecher, Edwin Booth, O. W. Holmes, D. K. Kane, and Abraham Lincoln. He died October 8, 1890.

**HIDALGO, F. COSTILLA**, was born in Mexico, May 8, 1753, and died in Chihuahua, July 30, 1811. He studied at Valladolid, and in 1779 went to the city of Mexico, where he became a priest. In December, 1809, a conspiracy was formed at Valladolid against the Spanish government of Mexico; of this Hidalgo was a member. After some preliminary disturbances, Hidalgo issued a declaration of independence to the people of Suevetavo. With about 1,000 men he marched on San Miguel; his numbers were greatly increased by armed people gathered from the country districts. Arriving at Celaya, Hidalgo was elected general-in-chief. With an irregular body of about 50,000 followers, promiscuously armed, his force invaded Guanajuato, stormed the place, and, in accordance with the fashion of Spanish warfare, massacred all the inhabitants. After establishing a cannon-foundry and mint, he marched against Valladolid, and occupied it without much resistance. Many of his plundering followers deserted, and on December 2d Hidalgo began his retreat. On the 7th his body of troops and pillagers were attacked near Acula by General Callega, and the greater part dispersed. Hidalgo then took refuge in Valladolid. Here he organized a government, and prepared to resist the Spanish forces. On January 17, 1811, 6,000 Spanish troops attacked the mob of 100,000 armed natives, and won a complete victory. On July 29th Hidalgo, who, before this, had been excommunicated by the Roman church, was degraded from his sacerdotal character, and executed on the following day.

**HIGGINSON, THOMAS WENTWORTH**, was born in Cambridge, Mass., December 22, 1823. He was graduated at Harvard in 1841, and at the divinity school in 1847. In the last named year he became pastor of the First Congregational church in Newburyport, Mass. He resigned his pastorate in 1850, and became an unsuccessful Free-soil candidate for congress. Afterward he became pastor of a free church in Worcester, Mass., serving from 1852 until 1858. Subsequently he left the ministry to devote himself to literature, and became conspicuous as an anti-slavery agitator. In 1856 he aided in organizing parties of free-state emigrants to Kansas, and served as brigadier-general on Gov. J. H. Lane's staff in the free-state forces. In 1862 he served as captain in the 51st Massachusetts regiment, and on November 16th of that year was made colonel of the 31st South Carolina volunteers, the first regiment of freed slaves mustered into the national service. He took Jacksonville, Fla., was wounded at Wiltown Bluff, S. C., in August, 1863, and resigned from the army in 1864. From that year until 1878 Colonel Higginson dwelt in Newport, R. I., and later removed to Cambridge, Mass., where he has since resided, engaged in literary occupation. In 1880 and 1881 he was a member of the Massachusetts legislature, from 1881 until 1883 he was also a member of the State Board of Education. Colonel Higginson has written for the *Atlantic*

*Monthly* and other magazines on his favorite topics. His first publication was a compilation of poetry, *Thalatto*, made with the assistance of the Rev. Samuel Longfellow (Boston, 1853).

**HILDRETH, RICHARD**, was born in Deerfield, Mass., June 22, 1807. He was admitted to the bar in 1830, and became connected with the Boston *Atlas* and other newspapers. For a number of years he was engaged on newspapers in Demerara, and in 1861 he became United States consul at Trieste, Austria. Among his most notable works was the *White Slave*, an anti-slavery novel, and a history of the United States in six volumes. He died at Trieste, in 1865.

**HILDRETH, SAMUEL PRESCOTT**, born in Massachusetts, September 30, 1783; graduated in medicine at Andover, and removed to Ohio in 1806. He was for many years a contributor to leading scientific magazines, his special subjects being meteorology and geology. Doctor Hildreth died at Marietta, Ohio, July 24, 1863.

**HIGINBOTHAM, HARLOW N.**, was born in Joliet, Ill., October 10, 1838, entered the war in 1862, being assigned to the quarter master's department, became bookkeeper, in 1865, and in 1878 a partner in the dry goods firm of Marshall Field & Co., Chicago. He was prominent in the preliminary work of the Columbian World's Fair, being one of the first directors, and was President of the local board in 1893 and 1894.

**HILL, AMBROSE POWELL**, born in Culpeper county, Va., November 9, 1825; graduated at West Point, 1847; served in the Mexican war, was promoted captain, resigned to enter the Confederate service, was appointed colonel of the 13th Virginia volunteers, fought at the first battle of Bull Run under General Johnston, was promoted to brigadier-general, and after the battle of Williamsburg, was made major-general. On June 25, 1862, he was one of the council of war held in Richmond, Va., and in the seven days' battle around that city, opened a series of engagements that drove General McClellan's forces to retreat. He next became attached to the force of General Jackson, in northern Virginia, and fought at Cedar Mountain, second Bull Run, and Chantilly. On September 17, 1862, he received the surrender of the national troops at Harper's Ferry, and by a forced march arrived at Antietam, to the relief of General Lee. At the battle of Fredricksburg, December 13, 1862, he held the right of General Jackson's army, and repulsed the attack of the Union forces under General Meade; at the battle of Chancellorsville he participated in the flank movement that crushed the right of General Hooker's army. In this action General Hill was wounded, and retired from the field. On May 20, 1863, he was promoted to lieutenant-general, and given command of one of the three corps into which the Confederate army was divided. In July he fought at Gettysburg, and in October, 1863, at Bristow Station, while in command of two brigades, was repulsed with severe loss. In March, 1865, he commanded the city of Petersburg during its siege, and on April 2nd, while reconnoitering, was shot dead from his horse by stragglers from the national army.

**HILL, BENJAMIN HARVEY**, was born in Georgia, September 14, 1823. In 1844 he was admitted to the bar, and in 1851 was elected to the State legislature as a Whig. In 1859 he served in the State Senate, and the next year was one of the Bell and Everett presidential electors. He opposed the secession of Georgia at first, but afterward became a member of the Confederate congress (1861), and of the Senate (1862-65). In 1875 he was elected to congress as a Democrat, was reelected in 1876; and in 1879 was sent to the United States Senate, where he sat until his death, August 19, 1882.



**HILL, DANIEL HARVEY**, born in South Carolina, July 12, 1821. He was graduated at the West Point military academy in 1842, and in 1847 was made first lieutenant of infantry. He served throughout the Mexican war, and attained the brevet of major. After the war he was elected professor of mathematics in Washington College, Lexington, Va. Six years later he filled the same chair in Davidson College, North Carolina, and afterward became superintendent of the North Carolina military institute at Charlotte. At the beginning of the Civil war he was made colonel of the 1st North Carolina regiment. On June 10, 1861, he fought the battle of Big Bethel, was soon promoted brigadier-general, and sent to Leesburg, Va., to serve under Gen. Joseph E. Johnston. On March 26, 1862, he was advanced to major-general, and commanded a division during the seven days' fight around Richmond. He took part in the battles of South Mountain, Antietam and Fredericksburg, and in 1863 was sent to command in the Carolinas. On July 11, 1863, General Hill was commissioned lieutenant-general and placed at the head of a corps in General Bragg's army. In September of that year he took part in the battle of Chickamauga. After the war General Hill retired to Charlotte, N. C., where he published *Field and Farm*, a monthly magazine, and subsequently *The Land we Love* (1867-69). In 1877 he was elected president of the University of Arkansas, and afterward president of the military and agricultural college of Georgia, at Milledgeville. He died September 25, 1889.

**HILL, DAVID BENNETT**, was born in Havana, N. Y., August 29, 1843. He was admitted to the bar in 1864, and in 1870-71 served in the State legislature. In 1882 he was elected mayor of Elmira; in November of the same year, lieutenant-governor of New York state, succeeding Cleveland as governor in 1884, and being elected governor in 1885 and 1888. He was elected United States Senator in 1891, for six years, during which he was beaten for governor in 1894.

**HILL, GEORGE HANDEL**, born in Boston, Mass., October 9, 1809, died in Saratoga, N. Y., September 27, 1849. Hill became a stock actor at the Arch street theater, in Philadelphia, in 1828. Shortly afterward he appeared at the New York Park theater with great success, and secured the position of a star performer. He was equally well received in other cities. In 1836 "Yankee Hill" performed at Drury Lane and the Olympic theaters in London, at Edinburgh, Glasgow, and other large cities, and returned home in the following year with ample rewards. In 1838 he again appeared in London, at the Adelphi theater, and in other cities, with his former success; he also gave entertainments in Paris. In 1839 he returned to the United States.

**HILLIARD, HENRY W.**, born in North Carolina, August 4, 1808; graduated at South Carolina College in 1826, and was admitted to the bar two years later. He became in succession a Methodist preacher, member of the State legislature and newspaper writer. In 1842 he was appointed *chargé d'affaires* at Brussels, and from 1845 to 1851 he was a member of congress from Alabama. When the Civil war broke out he cast in his lot with the Confederacy, and became a brigadier-general. From 1877 to 1881 he served as United States minister to Brazil. He wrote several works of fiction and died December 17, 1892.

**HINCKS, SIR FRANCIS**, Canadian statesman, born in Cork, Ireland, December 14, 1807; died in Montreal, Canada, August 18, 1885. He was educated at the Royal Belfast Institution. In 1832 he settled at Toronto, Canada, where he became secretary of an insurance company and cashier of a bank. In 1839 he

founded and for several years edited the *Toronto Examiner*; in 1844 he established the *Montreal Pilot*, and was its political editor for many years. From 1841 to 1844 he served as a Liberal in the Canada assembly. He was again returned in 1851; later he was chosen for South Oxford and Renfrew, and served until 1855. In October, 1869, he was elected for North Renfrew to the Commons, and later returned for Vancouver, which last he represented for a number of years. In 1842 and 1843 he served as a member of the executive council and inspector-general of Canada. He held the last-named office from 1848 until 1854, and was premier in the Hicks-Morin administration. In 1852 he was sent as a delegate to Great Britain, and made arrangements for the construction of the Grand Trunk railway of Canada. From 1855 until 1862 he was governor of Barbadoes and the Windward Islands, and from 1862 until 1869 governor of British Guiana. In 1862 he was created a companion of the order of the Bath, and in 1860 a knight-commander of the order of St. Michael and St. George. He was pensioned by the British government, and on returning to Canada, in 1869, entered Sir John A. Macdonald's cabinet as minister of finance. This office he resigned in 1873. In 1874 he became president of the City Bank of Montreal, and for some years before his death he was editor-in-chief of the *Montreal Journal of Commerce*. He wrote *Reminiscences of my Public Life* (1884).

**HIND, JOHN RUSSELL, F.R.S.**, astronomer, was born in Nottingham, England, May 12, 1823. From the age of six his mind was intent on the study of astronomy. In 1839-40 he contributed a number of astronomical notes to the *Nottingham Journal and Dearden's Miscellany*. As an assistant to a civil engineer, he was sent, in 1840, to London, but he sought an appointment more in accordance with his tastes. By the proposition of Professor Wheatstone to Mr. Airy, the astronomer-royal, he received a post as assistant to the magnetical and meteorological department of the Royal Observatory. For a period of three months, in 1843, Mr. Hind was engaged in the government expedition sent to ascertain chronographically the longitude of Valencia, in Ireland. He received the appointment of observer in the private observatory of Mr. G. Bishop, of Regent's Park, in June, 1844. In this year he was admitted a fellow of the Astronomical Society. He published his first work—*Solar System*—in 1846. In 1847 he accepted the foreign secretaryship of the Royal Astronomical Society. During the following year he was elected a corresponding member of the Société Philomatique of Paris. For his discovery of a planet in February, 1847, he received a gold medal from the king of Denmark. He published his *Expected Return of the Great Comet of 1264 and 1556*, in 1848. On September 13, 1850, he discovered "Victoria." In May of the same year he was chosen a corresponding member of the National Institute of France, to succeed the late Professor Schumacher. "Irene" he discovered May 19, 1851; "Melpomene," June 24, 1852; "Fortuna," August 22, 1852; "Calliope," November 16, 1852; and "Thalia," December 15, 1852. His *Astronomical Vocabulary* appeared in 1852. During the same year he was awarded the gold medal of the Royal Astronomical Society; was granted a pension of \$1,000 per annum; published his *Replies to Questions on the Comet of 1566*, and received for the third time the Lalande medal, from the Academy of Sciences, Paris, and a prize for the discovery of four new planets in the short period of a year. His *Illustrated London Astronomy* appeared in 1853. In the same year he discovered, on November 8th, "Euterpe," and "Urania" on July 22d of the following year. The *Elements of Algebra*



was published in 1855, and his *Descriptive Treatise on Comets* in 1857. He has contributed his observations to the Transactions of the Royal Astronomical Society, the publications of the Paris Academy, the *Athenæum*, and other periodicals. He was president of the Royal Astronomical Society in 1880. Died Dec. 23, 1895.

HINOJOSA, PEDRO DE, born in Trujillo at the end of the fifteenth century; died in Bolivia, May 6, 1553. He went to Peru in 1534, fought under Hernando Pizarro, was made governor of Chuquisaca, and in 1545 admiral of Gonzalo Pizarro's fleet, when he rebelled against the viceroy and captured Panama for him. In 1846 he joined the royal cause for which he was rewarded with a valuable silver mine, and command of the province of Chavcas, in 1551.

HIRSCH, BARON MAURICE DE, a Jewish banker and railroad magnate of prodigious wealth and vast charities, was born in Bavaria and has come prominently before the public in late years as the great friend of poor and oppressed Jews. Chiefly through his influence the Russian Government in 1892 agreed to a scheme for the emigration of the Russian Jews to Canada and to the Argentine Republic, Baron Hirsch financing the scheme. In 1891 he spent \$9,000,000 in charity. In all the European capitals Hirsch committees are established for the relief of suffering, and he has established a Hirsch fund of \$2,400,000 in New York. All this good is done quietly and systematically. A unique part of the system consists of running race horses for charitable ends.

HISCOCK, FRANK, born in New York, September 6, 1834; became a lawyer in 1855, and was elected to congress as a Republican in 1878. He served until 1886, when he became United States senator in succession to Warner Miller, retiring in 1893.

HITCHCOCK, ROSWELL DWIGHT, D.D., LL.D., born in Maine, August 15, 1817; graduated at Amherst College in 1836. After graduation he was principal of an academy at Jaffrey, New Hampshire, 1836-7; he entered Andover Theological Seminary in 1838; was a tutor at Amherst 1839-42; taught in several seminaries, and in 1845 became pastor of a Congregational church at Exeter, New Hampshire. In 1852, having passed a year in study at Halle and Berlin, he resigned his pastorate, and became professor of natural and revealed religion in Bowdoin College. In 1855 he was appointed professor of church history in Union Theological Seminary, New York, a position which he still holds. In 1866 he traveled in Italy and Greece; in 1869 in Egypt and Palestine; and in 1871 was chosen president of the American Palestine Exploration Society. On the death of Doctor Adams in 1880 he became president of the Union Theological Seminary, still retaining his professorship. The degree of D.D. was conferred upon him by the University of Edinburgh in 1884. In 1885 he traveled in Spain and Norway. From 1863 to 1870 he was one of the editors of the *American Theological Review*, to which he furnished many papers, mostly upon ecclesiastical history. He was a member of the New York Historical Society, and of the American Geographical Society. He died June 16, 1887.

HITT, ROBERT R., born at Urbana, Ohio, January 16, 1834; removed to Illinois, and in 1874, became secretary of legation at Paris, and afterward *chargé d'affaires* for several years. In 1881 he became assistant secretary of State, and in November, 1882, was elected to congress, of which he is still a member. He is a Republican in politics.

HOAR, EBENEZER ROCKWOOD, born at Concord, Mass., February 24, 1816; graduated at Harvard 1835. He was admitted to the bar in 1840, and practiced in Middlesex and the neighboring counties. He was ap-

pointed a judge of the Court of Common Pleas in 1849, but resigned in 1855, and returned to the practice of his profession in Boston. In 1859 he was appointed a justice of the Supreme Court of Massachusetts, and held that office for ten years, when he resigned to become United States attorney-general. In 1870 he was nominated by the president as one of the justices of the Supreme Court of the United States, but his nomination was not confirmed. He was a member of the High Commission which negotiated the treaty of Washington in 1871. In 1872 he was elected a representative in congress, and in 1874 was an unsuccessful candidate for the United States senate. He died January 31, 1895.

HOAR, GEORGE FRISBIE, brother of Ebenezer Rockwood Hoar, was born at Concord, Mass., August 29, 1826. He was admitted to the bar in 1849, and began practice at Worcester, where he still resides. He was a member of the State house of representatives in 1852, and of the State senate in 1857. In 1868 he was elected a member of congress, and was reelected three times, declining the nomination for a fifth term. From 1874 to 1880 he was an overseer of Harvard; was a delegate to the Republican national conventions of 1876, 1880 and 1884, presiding over that of 1880. He was elected a United States senator of Massachusetts in 1877, reelected in 1883, and again in 1889 and 1895.

HOBART, AUGUSTUS CHARLES, better known as Hobart Pasha, was born in England in 1822. He entered the British navy, and commanded a man-of-war during the attack on Bomarsund, in 1855. He retired on half-pay, and when the American Civil war broke out took command of a blockade-runner. He was very successful in evading the Federal cruisers and was never captured. In 1867 he took command of the Turkish fleet, and ten years later was made admiral of the fleet in the Black Sea. In 1881 he became marshal of the empire. He died in June, 1886.

HOBART, JOHN HENRY, born in Philadelphia, September 14, 1775; died in Auburn, N. Y., September 12, 1830. He graduated at Princeton in 1793, spent a year in a counting house, and in 1795 reentered his alma mater as a tutor. He continued in the last-named capacity until June, 1798, when he was admitted to holy orders. He was ordained priest in 1801, became an assistant minister of Trinity Church in New York city, assistant rector in 1812 and rector in 1816. He was chosen assistant-bishop in February, 1811, and bishop in 1816. Bishop Hobart was one of the founders of the General Theological Seminary in New York city, and in 1821 became professor of pastoral theology of that institution. In 1823 and 1824 he traveled in Europe, and while there published two volumes of sermons.

HODGE, ARCHIBALD A., born in Princeton, N. J., July 18, 1823; died there in 1886. He graduated at Princeton in 1841, spent three years as a missionary in India, 1847-50, and was afterward in charge of parishes in Maryland, Virginia, and Pennsylvania. He became editor of the *Princeton Review*, and a member of the board of trustees of Princeton College.

HODGKINSON, JOHN, born in England in 1766; died near Bladensburg, Md., September 12, 1805. He came to the United States in 1792, and made his debut as "Belcour" in the *West Indian* at the Southwest theater in Philadelphia. He visited in succession Boston, New York, and other cities, and became a general favorite. Hodgkinson wrote several plays.

HOE, RICHARD MARCH, born in the city of New York, September 12, 1812; was the son of an English printer, who came to this country in 1803, and invented the printing press known by his name. The son improved upon the invention of the father, and to his efforts are due very many of the notable improvements



of the power press. Mr. Hoe died in Italy, June 7, 1886.

HOFFMAN, CHARLES FENNO, was born in New York city in 1806. First a lawyer he forsook law to edit the New York *American*, and in 1833 established the *Knickerbocker Magazine*. He owned the *American Monthly Magazine*, and later edited the New York *Mirror* and *The Literary World*. He was insane for 35 years, dying in the Harrisburg, Pa., insane asylum June 7, 1884.

HOHENLOHE, PRINCE CLODWIG KARL VICTOR, was born in Bavaria in 1819, was prime minister of that kingdom in 1866, took an important part in the Franco-Prussian war, became a member of the first imperial parliament, was ambassador from Germany to Paris, 1874-85, became governor of Alsace-Lorraine in 1885 and left that post in 1894 at the command of Emperor William II. to become chancellor of the German empire and prime-minister of Prussia, succeeding General Caprivi and Count Eulenbergh. Died July, 1901.

HOHENZOLLERN, LEOPOLD, PRINCE OF, was born September 22, 1835, and studied in the universities of Bonn and Berlin. He was well known in connection with his candidacy for the throne of Spain, which gave ostensible occasion for the Franco-Prussian war. On September 12, 1861, the Prince married the Princess Antonia, of Portugal.

HOLBROOK, JOHN EDWARDS, born in South Carolina, December 30, 1794; died September 8, 1871. He graduated at Brown University in 1815, studied medicine in England and France, and in 1822 began practice in Charleston, S. C. For more than thirty years he held the chair of anatomy in the Medical College of South Carolina. He wrote several important works on reptiles and fishes, and was a member of the American Philosophical Society and the National Academy of Sciences.

FOLDEN, EDWARD SINGLETON, astronomer, was born in St. Louis, Mo., November 5, 1846, and was graduated at the scientific school in Washington University in 1866. He studied at West Point and was appointed second lieutenant of artillery. For a year he was at Fort Johnson, N. C., was assistant professor of philosophy at West Point, and in 1872 became instructor of the engineer corps. In March, 1873, he became professor of mathematics in the United States navy, and was ordered to the naval observatory at Washington, D. C. In 1881 he became professor of astronomy in the University of Wisconsin and director of the new Washburn observatory, where he remained with brief intermissions until 1886, and published four volumes of observations. In 1883 he visited the Caroline Islands to observe a total eclipse of the sun. At the end of his engagement in Wisconsin he was chosen president of the University of California, and director of the Lick observatory on Mt. Hamilton, San José. He received a degree of LL.D. from the University of Wisconsin (1886), and from Columbia (1887).

HOLL, FRANK, R.A., son of Francis Holl, A.R.A., the eminent engraver (1815-84), was born in England, July 4, 1845, and educated at University College, London. Soon after he had passed the fifteenth year of his age, his desire to be a painter led him to enter himself as a probationer of the Royal Academy, and a few months later he was admitted a student. At the distribution of prizes in 1862, Mr. Holl received a silver medal for "the best drawing from the antique." In the competition of the students in the following year (1863), Mr. Holl was yet more successful, obtaining the gold medal. In 1864 he made his first appearance as an exhibitor at the Royal Academy with two pictures, one being *A Portrait*, the other bearing the title of *Turned*

*out of Church*. A *Fern-gatherer* was exhibited in 1865, and in the next year *The Ordeal*, a picture of a young artist exhibiting one of his works to a patron. In 1867 he produced two pictures which went a long way toward the realization of the success foreshadowed in *The Ordeal*. Among his works exhibited in subsequent years are:—*Better is a dinner of herbs where love is, than a stalled ox, and hatred therewith* (1870); *Winter, No tidings from the Sea* (painted for the Queen, 1871); *I am the Resurrection and the Life* (a village funeral, 1872); *Leaving Home* (a scene in a railway station, 1873); *Deserted* (1874); *Her First-born* (1876); *Going Home* (1877); and *Newgate; Committed for Trial* (1878). He also exhibited at the rooms of Mr. Wallis and of Mr. Tooth a picture entitled, *Want—her poverty but not her will consents* (a woman pawning her wedding ring); *Doubtful Hope*; and *Gone—The Emigrant's Departure*. Mr. Holl was elected an associate of the Royal Academy June 19, 1878. He afterward exhibited *The Gifts of the Fairies, The Daughter of the House, and Absconded* (1879); *Ordered to the Front* (1880); *Home Again*, (1881); and *Millicent* (1883). Mr. Holl was elected a royal academician March 29, 1883. He died July 31, 1888.

HOLLAND, JOSIAH GILBERT, born in Belchertown, Mass., July 24, 1819; died in New York city, October 12, 1881. He graduated at the Berkshire Medical College in Pittsfield, Mass., and settled in Springfield. He was engaged as superintendent of public schools in Vicksburg, Miss. In May, 1849, Doctor Holland became associate editor of the *Springfield Republican*. In 1870 *Scribner's Monthly* was projected; of this magazine he was editor, and owner of one-third of its stock. Later Doctor Holland became president of the board of education of New York city, and chairman of the board of trustees of the College of the City of New York. He gave many lectures on various topics, that drew large audiences. He published a *History of Western Massachusetts* (2 vols., Springfield, 1855); *The Bay Path* (New York, 1857); *Timothy Titcomb's Letters* (1858); *Bitter Sweet*, (a poem, 1858); *Gold Foil* (1859); *Miss Gilbert's Career* (1860); *Lessons in Life* (1861); *Letters to the Joneses* (1863); *Plain Talks on Familiar Subjects* (1865); *Life of Abraham Lincoln* (Springfield, 1865); *Kathrina*, a poem (1867); *The Marble Prophecy and other Poems* (1872); *Arthur Bonnicastle* (1873); *Garnered Sheaves* (1873); *The Mistress of the Manse*, (a poem, 1874); *The Story of Seven Oaks* (1875); *Every Day Topics* (1876); *Nicholas, Minturn* (1876).

HOLLAND, SIR HENRY THURSTAN, BART., M.P., G.C.M.G., eldest son of Sir Henry Holland, the famous physician, and president of the Royal Institution of Great Britain, was born on August 3, 1825, and educated at Harrow and Trinity College, Cambridge, taking his university degree in 1847. After the usual preliminaries he was called to the bar in 1849 by the Honorable Society of the Inner Temple, and joined the northern circuit. In 1851, although only twenty-six years of age, he was appointed by the then lord chancellor to the duty of drawing up the bill, which, in 1852 became law under the title of the Common Law Procedure Act, 1852. The Common Law Procedure Act of 1854, which followed the measure just mentioned, was the next work upon which Sir Henry Holland was engaged as draughtsman. Sir Henry continued to practice at the bar until the year 1867, when Lord Carnarvon selected him to fill the office of legal adviser to the colonial office. In 1870 he was promoted to an assistant under secretaryship, and remained in that office until August, 1874, when he resigned in order to stand for the borough of Midhurst. He was elected without a contest, and took his seat in the



House of Commons in the following session. In 1855, after the borough of Midhurst was disfranchised, Sir H. T. Holland stood for the new borough of Hampstead, and beat his opponent, the Marquis of Lorne, by a large majority. In June, 1885, when Lord Salisbury took office, Sir H. T. Holland accepted the post of financial secretary to the treasury, and held that post till the September following, when he was appointed vice-president of the committee of council on education, and became a privy councillor. He was again returned from Hampstead, and again appointed vice-president of the council on education. He died in 1888.

HOLMAN, JOSEPH GEORGE, born in England in 1764; died in Rockaway, L. I., May 24, 1817. He was educated at Queen's College, and prepared for the ministry. While at college he joined an amateur dramatic society and became fascinated with the drama. At first he played in several obscure theaters, and on October 26, 1784, he appeared at Covent Garden theater, London. In 1798 he married Miss Hamilton, who died in 1810. Playing some years in the provinces he came to America in 1812 with his daughter, playing in New York, Philadelphia and Boston. Two days before his death he married Agnes Lattimer, an actress, who died in 1859.

HOLMAN, WILLIAM S., born in Indiana, September 6, 1822; died April 22, 1897; held several judicial offices in his native State. In 1856 he was elected to congress, and, with two or three exceptions, as in 1876 and 1878, retained that position until defeated in 1894.

HOLMES, GEORGE FREDERICK, born in Demerara, in 1820, was educated in England, and came to the United States in 1838. He became a lawyer in South Carolina and was afterward president of the University of Mississippi, professor of history in William and Mary College, and in 1857 professor of history and literature in the University of Virginia. He was the author of some text-books for use in the public schools of the South. Died Nov. 4, 1897.

HOLMES, OLIVER WENDELL, M. D., was born at Cambridge, Massachusetts, August 29, 1809, and died October 7, 1894. He graduated at Harvard College in 1829, and began the study of medicine. Having attended the hospitals of Paris and other European cities, he began practice in Boston in 1836; in 1838 was elected professor of anatomy and physiology in Dartmouth College, and in 1847 was appointed to a similar professorship in the Massachusetts Medical School, from which he retired in 1882. As early as 1836 his contributions in verse appeared in various periodicals, and his reputation as a poet was established by the delivery of a metrical essay, entitled *Poetry*, which was followed by others in rapid succession. As a writer of songs, lyrics, and poems for festive occasions, he occupied the first place. He was for many years a popular lecturer. In 1857 he began, in the *Atlantic Monthly*, a series of articles under the title of *The Autocrat of the Breakfast Table*, which were followed in 1860 by *The Professor at the Breakfast Table*, in 1872 by *The Poet at the Breakfast Table*, and in 1885 by *The New Portfolio*. In addition he has published *Astræa* (1850); *Currents and Counter-Currents in Medical Science* (1861); *Elsie Venner, a Romance of Destiny* (1861); *Borderlands in Some Provinces of Medical Science* (1862); *Songs in Many Keys* (1864); *Soundings from the Atlantic* (1864); *Humorous Poems* (1865); *The Guardian Angel* (1868); *Mechanism in Thought and Morals* (1870); *Songs of Many Seasons* (1874); *John L. Motley, a Memoir* (1878); *The Iron Gate and Other Poems* (1880); *Medical Essays* (1883); *Pages from an Old Volume of Life* (1883); *Ralph Waldo Emerson* (1884); *A Moral Antipathy* (1885), and numerous

poems recited at various reunions and dinners. In 1890 he published a new series of delightful essays, *Over the Teacups*, which also first appeared in the *Atlantic Monthly*. In 1886 he visited England, where he was received with great cordiality. Editions of his collected poems have appeared from time to time, the first in 1836, the last in 1881. He was distinguished for his researches in microscopy and auscultation, and contributed largely to current medical literature, as well as to the literary journals and reviews.

HOLST, HERMANN EDUARD VON, historian, was born in Fellin, Livonia, in 1841, and emigrated to the United States in 1869 but was recalled to Germany to become professor of history in Strasburg University, in 1872 and at Freiburg in 1874. He delivered courses of lectures at Johns Hopkins University in Baltimore subsequently, and in 1894 became professor of history at the University of Chicago. His more important works are: *Louis XIV.* (1869); *The Constitutional and Political History of the United States, 1750-1833* (1873); *The Constitutional Law of the United States of America* (1887); and *The French Revolution, Tested by Mirabeau's Career* (1894).

HOLT, JOSEPH, born in Kentucky, in January, 1807; practiced law, became postmaster-general in 1859 and secretary of war in 1860, and advocated the Union cause. He became judge advocate general, prosecuting Lincoln's assassins, and in 1875 was retired from office under the rule. He died August 1, 1895.

HOLYOAKE, GEORGE JACOB, born in Birmingham, England, April 13, 1817, was acting secretary of the British Legion sent out to Garibaldi, and founded "Secularism," a system which "bases duty on considerations purely human, relies on material means of improvement, justifying its beliefs to the conscience, irrespective of Atheism, Theism, or Revelation."

Mr. Holyoake was the last person imprisoned in England for alleged atheism. The cause was an answer given in debate after a lecture upon Home Colonies (1841). Mr. Justice Erskine admitted that Mr. Holyoake did not introduce theology into his address, and merely gave an honest answer to a public question, but sentenced him to six months' imprisonment to encourage him in candor. Mr. Holyoake was also the last person against whom an indictment was issued by the Court of Exchequer for publishing unstamped papers in support of the society for repealing the taxes upon knowledge. Mr. Holyoake having incurred upward of \$3,000,000 of fines, Mr. Gladstone said to a deputation upon the subject that "he recognized that Mr. Holyoake's object was not to break the law but to try the law." The repeal of the Newspaper Stamp Act, however, caused the prosecution to be abandoned. He was chiefly instrumental in causing the passage of the Evidence Amendment Bill, which legalized purely secular affirmations. In 1882 he a second time visited Canada and the United States to propose to the governments of both countries to issue a *Settlers' Guide-book*, to be prepared and published on their authority, Mr. Gladstone making Mr. Holyoake two grants from the Public Service Fund in aid of this object. Mr. Holyoake edited the first three volumes of *The Present Day*, a journal discussing "Agitated Questions without Agitation." His recent works are: *Among the Americans*, and *Hostile and Generous Toleration*. He has been a member of the Central Coöperative Board since its first establishment in 1869.

HOME, DANIEL DUNGLAS, born near Edinburgh, Scotland, March 20, 1833; died June 21, 1886. He came to the United States in 1840. In his youth he claimed to have had spiritualistic visions, and at seventeen years of age published himself as a medium. In



1853 Home went to New York to study medicine. He finished his course, but did not practice. Later he removed to London, where he remained for several years giving spiritualistic *seances*, and exhibited his art in Russia, Germany, Italy, and France. In 1858 he married a Russian lady of wealth and station. In 1863 Home went to Italy to study art, and in 1866 a Mrs. Lyons made over to him \$165,000, with the proviso that he should add "Lyons" to his name. Some years afterward the donor demanded the return of her gift; Home refused compliance, the case came to trial, and was decided in favor of the plaintiff. In 1871 he married another Russian lady, but the union proved unhappy. Thereafter Home gradually retired from public view, and died insane.

HOMER, WINSLOW, was born in Boston, Mass., February 24, 1836. In 1860 and 1861 he studied in the National Academy of Design, and took private lessons in landscape painting. In 1863 he exhibited at the Academy *Home, Sweet Home*, and *The Last Goose of Yuletown*. In 1865 he was made a national academician. He exhibited at the Philadelphia exposition and at the Paris salon, and fifteen pictures of his were hung at the World's Columbian Exposition in Chicago in 1893, among them *A Great Sale, Camp Fire, March Wind, Coast in Winter and Herring Fishing*.

HOOD, JOHN BELL, was born at Owingsville, Ky., June 29, 1831. He graduated at West Point in 1853, and served in the United States army until 1861, when he entered the Confederate service. Rising rapidly from a first-lieutenancy to the command of the Texas brigade, he distinguished himself on the Peninsula, in the seven days' battles at Antietam, and at Gettysburg, where he lost an arm. He became a major-general, and was sent to command a division in Bragg's army. He took a leading part in the battle of Chickamauga, where he lost a leg, but returned to duty within six months. He commanded a corps during Johnston's retreat before Sherman, in the early months of 1864; and, when Davis had decided on removing Johnston, Hood was appointed to the command of the army. He accepted reluctantly, and his position was not a pleasant one. He succeeded a general in whom the army had confidence; he was to reverse that general's policy, and he was to carry out a plan of campaign which had been prepared for him by the Confederate president. His obedience was painfully accurate. He assumed the offensive as soon as he took command, fought several severe battles, and soon found himself under the necessity of evacuating Atlanta (September 2, 1864). Sherman had outflanked him; and the Confederate administration came to the desperate resolution of ordering him to move west and then north into Tennessee. He was checked at Franklin, where he lost many of his best officers; and in the final battle of Nashville (December 15th) his army was completely beaten, and almost lost its organization. The command of its remnants was transferred to Gen. Richard Taylor, and Hood retired from active service. He died of yellow fever at New Orleans, August 30, 1879.

HOOD, SAMUEL, VISCOUNT, born in England, December 12, 1724; died January 27, 1816. He entered the British navy at the age of sixteen, and became post-captain in 1756. In 1759 his vessel, the *Vestal*, attached to the expedition against Quebec, captured the French frigate *Bellona*. On his return to England he was promoted to the command of the *Africa*, of sixty-four guns. In 1768 and 1769 he was at Boston, Mass., as naval commander. In 1778 he was made a baronet, and in 1780 became rear-admiral of the blue. In the same year he joined Admiral Rodney in the West Indies. On September 5, 1781, Hood and De Grasse

came to battle near Chesapeake Bay without decisive results. On April 12, 1782, when the French admiral was captured, Hood's coöperation decided the result, and on the return of Admiral Rodney to England Hood commanded the British fleet until 1783. In 1782 he was made an Irish peer, served in parliament in 1784, was made lord of the admiralty in 1788, and again re-elected to parliament in 1790. In 1793 he took part in the war with France, and in 1796 became governor of Greenwich hospital. He was raised to the English peerage, with the title of Viscount Hood of Whitley.

HOOKER, JOSEPH, born in Hadley, Mass., November 13, 1814; died Garden City, L. I., October 31, 1879. He graduated at West Point in 1837, served in the war against the Seminoles in Florida, and in November, 1838, became first lieutenant. On July 1, 1842, he was appointed adjutant of the military academy. He served in the Mexican war, and was promoted to a captaincy. He accompanied the army from Vera Cruz to Mexico city, and was brevetted major, having done good service at Contreras, Churubusco, Molina del Rey, Chapultepec, and during the capture of the capital. At Chapultepec he was brevetted lieutenant-colonel. In 1849 he was assistant adjutant-general to the division of the Pacific, and served as such until November 24, 1851. On February 21, 1853, he resigned from the army to become a farmer in California. In 1858 he became superintendent of military roads in Oregon, did other government surveying, and from 1859 until 1861 served as colonel of California militia. On May 17, 1861, he was appointed brigadier-general of volunteers. In August, 1861, General Hooker was employed in the defenses of Washington, thereafter on the lower Potomac, and in April, 1862, was appointed to a division of the army of the Potomac under General Heintzelman. He was engaged at the siege of Yorktown, and on the day after its evacuation was appointed a major-general of volunteers. He fought with distinction at the battles of Williamsburg, Fair Oaks, Frasier's Farm, Glendale, and Malvern. Later he became division commander in the army of General Pope in northern Virginia, and had several successful encounters with the Confederates. On the failure of General Pope to advance against the enemy, the army of the Potomac was again led by General McClellan, and General Hooker took command of the first corps. He took his share of the fighting at South Mountain and Antietam. On the last occasion he was shot through the foot, and soon afterward was appointed brigadier-general in the regular army. When General McClellan was again relieved from command, to be replaced by General Burnside, and the army advanced on Fredericksburg, it was formed in three divisions; General Hooker commanded the center, with 40,000 men. On the failure of General Burnside's movement, that commander, at his own request, was relieved, and General Hooker appointed to take his place. General Hooker was thereafter relieved from command, which was conferred on Gen. George G. Meade. On September 24th General Hooker was assigned to the command of the eleventh and twelfth army corps at Chattanooga, serving under General Rosecrans, and later under General Grant, and took part in the attack on Missionary Ridge. Later General Hooker served under Gen. W. T. Sherman, and took part in the attack on Atlanta. Some difficulty thereafter arose between him and General Sherman, and by his own request he was relieved of his command. On March 13th he was brevetted major-general in the regular army. In 1865 General Hooker had charge of the department of the East, with his headquarters in New York city, and in 1866 was transferred to the department of the Lakes, with headquarters at Detroit. He was mustered



out of service September 1, 1866, and placed on the retired list October 15, 1868, with the full rank of major-general.

HOOKE, SIR JOSEPH DALTON, was born at Halesworth, England, June 30, 1817, and was educated at the High School and University of Glasgow, where he took the degree of M.D. in 1839. At the age of twenty-one he accompanied, officially as assistant surgeon, but in reality as naturalist, the famous expedition of Sir James Clark Ross, fitted out by the government for the purpose of investigating the phenomena of terrestrial magnetism in the south circumpolar seas. The result of his researches during this voyage was a series of superb volumes on the botany of the southern regions, embracing the flora of the Auckland Islands, New Zealand, and Tasmania. In 1846 he accepted the appointment of botanist to the geological survey of Great Britain under Sir H. de la Beche, and he contributed a valuable paper to the second volume of the *Records* of that institution on the vegetation of the carboniferous period as compared with that of the present day, and another on the structure of coal-fossils. In 1847 Doctor Hooker undertook a journey to India for the purpose of investigating the plants of tropical countries, and the flora of a hitherto unexplored region of the Himalayas. He returned in 1851, and published two very interesting volumes of *Himalayan Journals*, and a number of scientific works on the botany of India. He was appointed, in 1855, assistant director of Kew gardens, and on his father's death, in 1865, succeeded to the directorship, which he resigned in 1885. Doctor Hooker presided over the meeting of the British Association held at Norwich in 1868. The main subject of his address, which gave rise to much controversy, was the consideration of the views put forward from time to time by Mr. Darwin on the doctrine of the continuous evolution of life, and, in connection with this, on what is termed "natural selection," together with his theory of the "origin of species." To Darwin's notions, expressed in their fullest extent, Dr. Hooker gave in his entire adhesion. In 1873 Doctor Hooker was elected president of the Royal Society, and resigned in 1878, when the late Mr. W. Spottiswoode was chosen as his successor. In 1877 he was created knight commander of the Star of India, for his services to the government of India. In that year he paid a visit of three months' duration to the United States, where he was most cordially received by the leading scientific men. On his return he presented to Kew a large collection of seeds and museum specimens, and a herbarium of about a thousand species, together with notes on the distribution of North American trees in particular. He was awarded medals by the Royal Society (1854), the Society of Arts (1883) and the Royal Geographical Society (1884).

HOPKINS, JOHNS, philanthropist, was born in Anne Arundel county, Maryland, in 1795, of Quaker parentage, acquired a great fortune in business in Baltimore, and devoted \$4,500,000 in life to founding a free hospital in Baltimore, and on his death, December 24, 1873, bequeathed \$3,500,000 to found Johns Hopkins University, whose educational standard is one of the highest in the country.

HOPKINS, MARK, born in Stockbridge, Mass., February 4, 1802; died in Williamstown, Mass., June 17, 1887. He was graduated at Williams College in 1824; during 1825-27 was tutor in that college; studied medicine, and was graduated at the Berkshire Medical School in 1829. He began practice as a physician in New York city, but in 1830 returned to Williams, to fill the chair of rhetoric and moral philosophy. In 1832 he was licensed to preach, and in 1836 became president

of the college, which office he held until 1872. In the last named year he resigned the office of president, but retained the professorships of moral and intellectual philosophy and of Christian theology. He also retained the pastorate of the college church until 1883. He became president of the American board of commissioners for foreign missions in 1857, and received the degree of D.D. from Dartmouth and Harvard, and that of LL.D. from the university of the State of New York and from Harvard. He wrote *Lectures on Moral Science*, *An Outline Study of Man*, and other works.

HOPKINS, STEPHEN, born in Scituate, R. I., March, 7, 1707; died July 13, 1785. He was elected to the provincial assembly in 1732 and made speaker. In 1742 he became a merchant and ship-builder in Providence, R. I. In 1751 he was appointed chief justice of the superior court, and in 1754 became a delegate to the convention that met at Albany, N. Y., serving on the committee to prepare a plan of union for the colonies, and arranging an alliance with the Indians for defensive purposes against France. In 1756 Mr. Hopkins became governor of Rhode Island, and so continued until 1764, with the exception of two years. He was again chosen governor in 1767, but shortly afterward resigned. In 1765 he wrote a pamphlet entitled *The Grievances of the American Colonies Candidly Examined*, which was re-issued in London. In 1773 he emancipated his slaves; in 1774 brought forward a bill in the assembly, which prohibited the importation of negroes into the colony, and in the same year was sent to the continental congress. In the beginning of the revolution he was one of the committee of safety of the town of Providence, and later was elected to the second and third congress. His signature to the declaration of independence was written with a paralyzed hand. In 1750 he founded the town-library of Providence, which was burned ten years later, but reestablished under his care. His *History of the Planting and Growth of Providence* may be found in the *Collection of the Massachusetts Historical Society*.

HOPPER, ISAAC TATEM, born in New Jersey, December 3, 1771; died in New York city, May 7, 1852. To protect the rights of the Africans, an abolition society had been formed, of which Hopper became a prominent member; he also united with a number of other benevolent societies, of all of which he was an active member. In 1829 he removed to New York city to establish a book-store in the interest of his denomination. In 1830 Mr. Hopper visited Ireland and England. On his return to New York city he became devoted to the work of the Prison Association, and in 1841 became book-agent and treasurer for the Anti-Slavery Society. In 1845 he relinquished these offices to devote the remainder of his life to the work of the Prison Association, assisted by his daughter, Mrs. Abby H. Gibbons. Through her exertions an asylum was founded for women unfortunates, entitled, *The Isaac T. Hopper Home*. The philanthropist's *Life* was written by Lydia Maria Child (Boston, 1853).

HOPPIN, AUGUSTUS, born in Providence, R. I., July 13, 1828, and died April 1, 1896. He studied law, but abandoned that pursuit to become an artist. He illustrated the *Autocrat of the Breakfast Table*, the *Potiphar Papers*, and other works, and published some illustrated sketch-books and romances.

HOPPIN, JAMES MASON, cousin of the foregoing, born in Rhode Island in January, 1820; graduated at Yale in 1840, and in law at Harvard two years later. From 1850 to 1859 he was pastor of a Congregational church in Massachusetts. In 1861 he became pastor of the College church of Yale, and was afterward professor of homiletics in Union Theological Seminary, New York.



HOPPIN, THOMAS FREDERICK, artist, was born in Rhode Island, August 15, 1816, and studied in Paris under Delaroché. He is the author of numerous works in bronze, marble, and plaster, and is also well known by his etchings and engravings.

HOPPIN, WILLIAM JONES, born in Rhode Island in April, 1813; graduated at Yale, and in law at Harvard. From 1876 to 1886 he was secretary of legation in London.

HOPWOOD, CHARLES HENRY, Q.C., was born in England in July, 1829. He became barrister, Middle Temple, in 1853; practiced on the Northern Circuit, and in London, and was made queen's counsel in 1874. He was elected member of parliament for Stockport, 1874, and was returned again in 1880, but rejected in 1885. He was elected bencher of the Middle Temple in 1874, and reader, 1885; was appointed recorder of Liverpool, February, 1886. He advocated the cause of trades unions, defending their members at the bar against prosecution, and insisting upon protection to their funds against the prejudice of the time. In the House of Commons he assisted in amending the laws as to employers and workmen, and pressed forward reforms in the summary jurisdiction of justices to reduce the frequency and length of imprisonments. He worked for the repeal of the Contagious Diseases Acts as to women, as well as of the vaccination laws. Always advanced in political opinions, he supported every extension of the suffrage to woman.

HORAN, EDWARD JOHN, born in Quebec, Canada, in 1817; died in 1875. In 1842 he was ordained priest, and in 1858 became Roman Catholic bishop of Kingston.

HORN, CHARLES EDWARD, born in London, England, in 1776; died in Boston, Mass., in 1848. He was the author of the words and music of many popular songs, of which *The Deep, Deep Sea* and *Cherry-Ripe* are the best known.

HORN, EDWARD TRAILL, born in Easton, Penn., June 10, 1850; became a Lutheran clergyman and has written extensively on theological subjects. He became D.D. in 1887.

HORNADAY, WILLIAM TEMPLE, born at Plainfield, Ind., December 1, 1854; became in 1882 chief taxidermist to the United States National Museum in Washington, D. C. He founded the National Society of Taxidermy in 1880, and has published several works on natural history and travel.

HORNBY, GEOFFREY THOMAS PHIPPS, was born in 1825; entered the English naval service on board the *Princess Charlotte* in 1837, and was present as a midshipman at the bombardment of Acre by Sir Robert Stopford and Sir Charles Napier. He afterward served under Admiral Percy at the Cape of Good Hope; under his father, Sir Phipps Hornby, in the Pacific, and on various other stations. When a young captain he got leave for a year and studied steam in the dockyard at Portsmouth. It was he who commanded the first flying squadron as captain, with the rank of commodore, taking the squadron round the world. He was flag captain to Sir Sidney Dacres, when that officer commanded the channel fleet, and subsequently, as rear-admiral, he himself held that post, succeeding Admiral Wellesley. He attained flag-rank in 1869, and became vice-admiral in 1875. He was appointed commander-in-chief of her majesty's naval forces in the Mediterranean, and held that responsible position during the trying times in 1878, when war was apprehended between England and Russia, and when the English fleet was ordered to the Dardanelles. He was created a knight commander of the Order of the Bath, August 12, 1878. Subsequently he was appointed to

the presidency of the Royal Naval College, Greenwich. He died March 3, 1895.

HORNBY, JAMES JOHN, D.D., was born in England in 1826, and educated at Eton, and at Balliol College, Oxford, where, in 1849, he took a first class in classics. In 1849 he became a fellow of Brasenose College, and in 1854 tutor and principal of Bishop Cosen's Hall in the University of Durham. Returning to Oxford in 1864, he became classical lecturer at Brasenose, and in 1866 was senior proctor of the university. At the close of the latter year he was elected second master of Winchester School, which post he retained till his appointment as head master of Eton in January, 1868. Doctor Hornby was appointed one of her majesty's honorary chaplains in February, 1882, and made D.C.L. of Durham University the same year. He was appointed to the provostship of Eton, July, 1884.

HORSFORD, EBEN NORTON, born in Livingston county, N. Y., July 27, 1818; studied engineering and was engaged on the geological survey of the State of New York. In 1840 he was appointed professor of mathematics in the female academy at Albany, where he remained for four years. He afterward studied in Germany, under Liebig, and on his return to the United States in 1847, was elected Rumford professor of science at Harvard. After sixteen years' service there he resigned to engage in business as a manufacturing chemist, and became wealthy. He wrote extensively on scientific subjects. He died January 1, 1893.

HORSLEY, JOHN CALCOTT, R.A., son of the late William Horsley, the well known musician, was born in London, January 29, 1817. His first exhibited picture, painted while he was a youth—*Rent Day at Haddon Hall in the Sixteenth Century*—was spoken of in high terms by Wilkie. *The Chess Players*, *The Rival Musicians*, *Waiting for an Answer*, were first seen in the British Institution, and he exhibited, for the first time at the Academy, the *Pride of the Village* (in the Vernon Gallery). This was followed by *The Contrast: Youth and Age*, in 1840; *Leaving the Ball*, another *Contrast*—gay pleasure-seekers on the one hand, the homeless outcast on the other; and *The Pedlar*, both in 1841; *Winning Gloves*, in 1842; and *The Father's Grave* in 1843. In the latter year Mr. Horsley's cartoon of *St. Augustine Preaching* gained, at Westminster Hall, one of the three prizes in the second rank. He was among the six painters commissioned to execute frescoes for the palace at Westminster. That of 1845, for *Religion*, was approved, and the subject executed at large in the House of Lords. In 1847 his colossal oil painting, *Henry V., believing the King dead, assumes the Crown*, secured a premium. In 1882 Mr. Horsley was elected treasurer of the Royal Academy. His *Hide and Seek* and *Finishing Touches* were exhibited at the World's Columbian Exposition in Chicago in 1893.

HORT, FENTON JOHN ANTHONY, D.D., born at Dublin, April 23, 1828, and died November 30, 1892. He was a junior optime in the mathematical tripos, and was bracketed third classic. Mr. Hort won the second place in the first class of the Natural Sciences Tripos, being distinguished in physiology and botany. In 1852 he was elected to a fellowship at Trinity College, which he held until 1857. In that year he was presented to the college living of St. Ippolyts, with Great Wymondley, Hertfordshire, a preferment he held until 1872, when he returned to Cambridge on being elected a fellow of Emmanuel College. Since 1872 he has been a constant resident in the university and has delivered lectures on theology. In 1871 he was elected Hulsean lecturer, and in 1875



was appointed Lady Margaret's preacher. On December 18, 1878, he was elected to the Hulsean professorship of divinity. Doctor Hort has contributed numerous articles to Smith and Wace's *Dictionary of Christian Biography*, and the *Journal of Philology*. Conjointly with Doctor Westcott he edited, in 1881, a critically revised Greek text of the New Testament, with an introduction and critical appendix in an accompanying volume. He was a member of the committee for the revision of the New Testament.

HOSACK, DAVID, born in New York, August, 1769; died there in December, 1835. He graduated at Princeton, and in medicine at the College of Philadelphia, and in 1795 became professor of natural history in Columbia College. In 1807 he became professor of surgery in the College of Physicians and Surgeons, and in 1826 organized the medical department of Rutgers College, New Jersey. He edited the *American Medical and Philosophical Monthly Magazine* for several years, and was connected with several scientific societies.

HOSMER, HARRIET G., born at Watertown, Mass., October 9, 1830; was educated at Lenox, Mass., and early displayed a taste for art. She received a few lessons in modeling in Boston, and then entered a medical college in St. Louis to study anatomy and dissection. Her first work in marble was a reduced copy of Canova's bust of Napoleon, which was soon followed by an ideal work, *Hesper, or the Evening Star*. In 1852 she went to Rome, and became a pupil of Gibson. After two years of study and modeling from the antique, she produced the busts of *Daphne* and *Medusa*. Her first full-length figure in marble was *Enone*, completed in 1855, and this was followed, two years later, by *Beatrice Cenci Sleeping in Her Cell*. In the summer of 1865 she modeled *Puck*, of which many copies have been made. This was followed by *Will-o'-the-Wisp*. A colossal statue of *Zenobia, Queen of Palmyra*, in *Chains*, was her next important work, followed by a statue of *Thomas H. Benton*, the *Sleeping* and the *Waking Faun*, and a design of a memorial monument to Abraham Lincoln. She has resided for many years in Rome, but occasionally visits the United States.

HOTCHKISS, BENJAMIN BERKELY, born in Watertown, Conn., October 1, 1826; became a machinist, and in 1856 designed a field-gun on a new pattern. In 1860 he submitted to the United States Government an improved system of rifled projectiles, which was largely used during the Civil war. In 1867 he introduced his revolving cannon to the European governments, and afterwards devised a magazine-rifle and a quick-firing gun. He died February 14, 1885.

HOUGH, BENJAMIN F., was born in Martinsburg, N. Y., July 20, 1820, and died June 6, 1885. He practiced medicine for many years, and in 1862 entered the United States service as an army surgeon. Doctor Hough was connected with the State census of New York in 1865, and was afterward chief of the forestry division of the United States Agricultural Department.

HOUGH, GEORGE WASHINGTON, born in Montgomery county, N. Y., October 24, 1836; graduated at Union College, 1856, and turned his attention to astronomy. In 1860 he became astronomer at Albany, N. Y., and in 1879 was made director of Dearborn Observatory, Chicago. His principal scientific work was the cataloguing of double stars, more than 300 different stars having been discovered by him and catalogued. He was a member of several scientific societies and has published annual reports of observations taken at Dearborn Observatory.

HOUGH, JOHN STOCKTON, born in Pennsylvania in 1845; graduated at the University of Pennsylvania in

1868, and has since practiced medicine in Philadelphia and other cities. He is well known as an inventor of improvements in surgical instruments, and as a writer on medical subjects.

HOUGHTON, LORD (RICHARD MONCKTON MILNES), born in England June 19, 1809; became a member of parliament in 1857, and supported the Liberal administration. He was also known as a writer both of prose and verse, but his works are not calculated to bring enduring fame. He died August 11, 1885.

HOUSE, EDWARD HOWARD, born in Boston, Mass., in 1836; was for many years connected with the press of that city and of New York, and also acted as foreign correspondent in Japan for the *New York Herald*.

HOUSSAYE, ARSÈNE, born in Laon, France, in 1815. From 1849 to 1856 he was director of the *Theatre Française*, and subsequently became inspector-general of the works of art in the French academy. He has written a *History of Painting* and several successful novels. Died Feb. 26, 1896.

HOUSTON, DAVID CRAWFORD, was born in New York city December 5, 1835, and graduated at West Point in 1856. He served in Oregon until the Civil war began, and was brevetted colonel in 1865 for gallant conduct during the rebellion. He became connected with the construction of river and harbor improvements on the Atlantic coast and the upper lakes, and is a member of the board of engineers for fortifications.

HOW, WILLIAM WALSHAM, D.D., was born in England, December 13, 1823, educated at Shrewsbury and Wadham College, Oxford, held curacies at Kidderminster and Shrewsbury; became rector of Whittington, 1851; honorary canon in St. Asaph's cathedral in 1860; proctor in convocation for the diocese, 1869, and prebend in St. Paul's cathedral, and suffragan bishop of Bedford, 1879. He is a voluminous writer on theological and practical subjects. Died Aug. 10, 1897.

HOWARD, BLANCHE WILLIS (now MRS. TEUFFEL), one of the brightest of American women novelists, was born in 1847 at Bangor, Me., and now resides permanently at Stuttgart, Germany. She has written *One Summer* (1875), which went through many editions; *Aunt Serena* (1881); *Guenn, a Wave on the Breton Coast* (1883); *Aulnay Tower* (1885); *Tony, the Maid* (1887); *The Open Door* (1889); and, with W. Sharp, *A Fellowe and his Wife* (1893).

HOWARD, BRONSON, born in Detroit, October 7, 1842, the author of numerous popular dramas of modern life, including *The Banker's Daughter*, *Young Mrs. Winthrop*, *Shenandoah*, a remarkably successful war drama and *The Henrietta*, a dramatic portrayal of Wall street life, which has had a great stage success.

HOWARD, EDWARD, was born at Nottingham, England, February 13, 1829; served in the Life Guards, but when twenty-six years old became a priest at Rome, and attached himself to the service of Pius IX. He was consecrated archbishop of Meocæsaria, *in partibus infidelium*, in 1872, when he was made coadjutor bishop of Frascati, an office which he held for only a few weeks. He was created a cardinal priest by Pope Pius IX., March 12, 1877, the titular church assigned to him being that of SS. John and Paul, on the Cælian Hill. His eminence took possession, as protector, of the English College at Rome, March 24, 1878. In December, 1881, he was nominated archpriest of the basilica of St. Peters, and March 12, 1884, was raised to the rank of cardinal bishop and appointed to the suburban see of Frascati. He was a famous linguist, speaking all European languages. He died September 18, 1894.

HOWARD, JOHN E., born in Maryland, June 4, 1752; died in October, 1827. He served during the Rev-



olutionary war under Gen. Horatio Gates and Gen. Nathanael Green, and received a medal from congress for his services. From 1789 to 1792 he was governor of Maryland, and from 1796 to 1803 represented that State in the United States Senate.

HOWARD, OLIVER OTIS, born at Leeds, Me., November 8, 1830; graduated at Bowdoin College in 1850, and in 1854 at the Military Academy at West Point, where, in 1857, he was made assistant professor of mathematics. Upon the breaking out of the Civil war he was made colonel of a regiment of volunteers; commanded a brigade at the battle of Bull Run, and was made brigadier-general of volunteers. He lost his right arm at the battle of Fair Oaks, May 31, 1862. He was made major-general of volunteers November 29, 1862, and had the command of a division at Burnside's defeat at Fredericksburg December 13, 1862. Soon after he was placed in command of the eleventh army corps, which was surprised by the Confederate General Jackson, and put to flight at Chancellorsville July 1, 1863. In the following autumn he was sent with his corps to the West, took part in the campaign which followed down to the capture of Atlanta, and commanded the right wing of the army during Sherman's "march to the sea." He was, in December, 1864, promoted to brigadier-general, and in the following March to brevet major-general in the regular army. In May, 1865, he was placed at the head of the Freedman's Bureau, his duties lasting until 1872. From 1869 to 1873 he was president of Howard University. In 1872 he was sent as special commissioner to the Indians in New Mexico and Arizona, and from 1873 to 1881 he served on the Indian frontier. In 1881 he took charge of the United States Military Academy at West Point, but was subsequently transferred to the command of the department of the Platte. In 1886 he received his full rank of major-general, and command of the Division of the Atlantic. He was retired in 1894.

HOWE, ELIAS, born in Massachusetts, July 9, 1819, died at Long Island, October 3, 1867. In 1846 he obtained his first patent for a sewing machine, which, after much difficulty, he succeeded in introducing upon the market. About 1854 his machine attracted much attention and sold largely, and Mr. Howe made a very large fortune from it.

HOWE, GEORGE AUGUSTUS, born in England in 1724; entered the British army when very young, and was sent to America in 1757, in command of the English forces. On July 8, 1758, he attacked Fort Ticonderoga, then held by the French, and was killed while leading his men.

HOWE, JOHN IRELAND, born in Connecticut in 1793; died in 1876. He was educated for the medical profession, and practiced for many years, but devoted himself specially to experimental chemistry. He was the first to utilize india-rubber for overcoats, and he made machinery for the manufacture of pins which realized a fortune for him.

HOWE, JOSEPH, born in Halifax, Nova Scotia, December 13, 1804; died there in 1873. He became a journalist when scarcely of age, entered the local parliament in 1836, and for many years held different administrative offices under the Dominion Government. He was lieutenant-governor of Nova Scotia at the time of his death.

HOWE, JULIA WARD, was born in New York city, May 27, 1819, and married Dr. Samuel G. Howe, in connection with whom she conducted an anti-slavery paper, published in Boston. She took up the cause of woman's suffrage, and became the president of the New England Woman's Club. She has also distinguished herself upon the lecture platform, and has published

volumes of both prose and verse, including the *Life of Margaret Fuller*. Her best known production is the *Battle Hymn of the Republic*.

HOWE, ROBERT, soldier, born in Brunswick county, N. C., in 1732; died there, November 12, 1785. His parents were English; he was left an orphan and received only an imperfect education. He married when young, and took his wife with him to England, where he remained for two years among his well-to-do relatives. In 1766 he was appointed by Governor Tryon to the command of Fort Johnson, N. C. In 1772-73 he was a member of the provincial assembly, and in 1774 delegate to the colonial congress that met at New Berne. On August 21, 1775, Howe was appointed by congress colonel of a North Carolina regiment, and at the end of that year led his soldiers into Virginia. In connection with Gen. William Woodford, at Norfolk, he drove Governor Lord Dunmore out of Virginia, and for this service was promoted brigadier-general. He had become particularly obnoxious to the loyalists, so that Sir Henry Clinton's proffer of royal clemency excepted General Howe from its benefit. Somewhat later he commanded the North Carolina troops at the defense of Charleston, S. C., and became commander-in-chief of the southern department. In October, 1777, he was made major-general, and in 1778 ventured on a disastrous expedition to Florida. He then retreated to Savannah to defend that city against the British forces under General Provost, but was surprised by night and compelled to evacuate the place. General Howe was tried by court-martial and acquitted; but he was superseded in his southern command and ordered to join Washington's forces on the Hudson river. He commanded at West Point in 1780. In 1785 he returned to his own State, where he was elected to the legislature.

HOWE, WILLIAM, born in England, August 10, 1729; died in Plymouth, England, July 12, 1814. In 1759 he commanded the light infantry at Quebec, under General Wolfe, and in 1775 succeeded Sir Thomas Gage as commander-in-chief of the British forces in North America. He was in command at the battle of Bunker Hill, and in August, 1776, defeated the American army on Long Island. He occupied New York city, defeated Washington at White Plains, and captured Fort Washington with 2,000 prisoners. On September 11th he defeated Washington at Brandywine, and on the 26th entered Philadelphia. He defeated Washington's attack at Germantown, but neglected destroying the distressed American camp at Valley Forge for the pleasures of a winter in Philadelphia. In May, 1778, he was superseded by Sir Henry Clinton. In 1786 he was made full general, was governor of Berwick in 1795, and on the death of his brother, Admiral Richard, succeeded to the Irish estate with its title. Later he became privy councillor and governor of Plymouth. By illegitimate descent he was connected with the royal family. General Howe was accounted a skillful commander, but destitute of enterprise and activity. His great military mistake was the neglect of Valley Forge.

HOWELLS, WILLIAM DEAN, was born at Martinsville, Ohio, March 1, 1837. In 1840 he removed to Hamilton, Ohio, with his father, who was a printer and journalist. He learned the printer's trade of his father, and was afterward editorially connected with the *Cincinnati Gazette*, and the *Ohio State Journal*. From 1861 to 1865 he was United States consul at Venice. Returning to America, he engaged in literary labor, and in 1871 became editor of the *Atlantic Monthly*, a position which he retained until 1880, when he relinquished it to devote himself exclusively to writing. Besides his papers in that magazine and other periodicals, he has published *Poems of Two Friends*, himself



and J. J. Piatt (1860); *Venetian Life* (1866); *Italian Journeys* (1867); *No Love Lost* (1868); *Suburban Sketches* (1870); *Their Wedding Journey* (1872); *A Chance Acquaintance*, Poems (1873); *A Foregone Conclusion* (1874); *Counterfeit Presentment*, a comedy; *A Day's Pleasure* (1876); *The Parlor Car*, *Out of the Question*, *Life of Rutherford B. Hayes* (1877); *The Lady of the Arcootook* (1879); *The Undiscovered Country* (1880); *A Fearful Responsibility*, and other Stories, *Dr. Ewen's Practice* (1881); *A Modern Instance* (1882); *A Woman's Reason* (1883); *The Rise of Silas Lapham*, *Tuscan Cities* (1885); *Indian Summer* (1886); *A Hazard of New Fortunes* (1889); *A Boy's Town*, *The Shadow of a Dream* (1890); *The Quality of Mercy* (1892); *The Coast of Bohemia*, *An Imperative Duty*, *My Year in a Log Cabin*, *The World of Chance* (1893); *A Traveler from Altruria* (1894), besides other novels and numerous farces. Mr. Howells has always been a consistent apostle of truth to the verities of life in fiction, in opposition to the romantic school, and, although some have questioned his theory, none gainsay the high literary quality of his art. His works have a wide circulation in England.

HOWITT, MARY (1804-1888), born in England, wife of WILLIAM HOWITT (q. v.), the author, with whom she published numerous works. ANNA MARY, their daughter (1830-1884), wrote a series of works on art.

HOWLAND, SIR WILLIAM PEARCE, C.B., K.C.M.G., was born in New York State on May 29, 1811, and settled in Canada in 1830. In Toronto and the neighborhood he has been engaged in extensive business enterprises for over fifty years. He was returned for West York in 1857, and sat in the legislature of Canada until 1868, when he was appointed Lieutenant-governor of Ontario. From 1862 until 1864 he held the offices of minister of finance and receiver-general. In the latter year he became postmaster-general, and a member of the executive council. In 1866 he succeeded the Hon. A. T. Galt as finance minister, and on the formation of the first Dominion Government, in the following year, he accepted the portfolio of minister of inland revenue, and was sworn a member of the privy council. Since 1878 he has been president of the Ontario bank. He was created a K.C.M.G. in 1879.

HOWORTH, HENRY HOYLE, M.P., was born at Lisbon, July 1, 1842, educated at Rossall school, and called to the bar at the Inner Temple, June 11, 1867. Has devoted himself chiefly to literature and politics. He is the author of a large work on the *History of the Mongols*, of which several volumes are published, and of a *History of Genghiz Khan and His Ancestors*, and has edited a work on the *History of the Vicars of Rockdale* for the Chetham society. In addition he has written more than fifty scientific memoirs, chiefly on geological, ethnographical and historical subjects. Mr. Howorth was elected as Conservative member for South Salford at the general election of 1886.

HOXIE, VINNIE REAM, born in Madison, Wis., September, 1846. She studied art, and devoted herself exclusively to sculpture. She made successful busts of General Grant, Reverdy Johnson, Senator Sherman, and a marble statue of Lincoln, now in the Capitol at Washington. She married in 1878, Captain Hoxie, of the United States army.

HUAYNA, CAPAC, Peruvian Inca, born in Cuzco, Peru; died in Tumipampa, Ecuador, in 1523. He succeeded his father as emperor in 1483; undertook wars of conquest that subjected the kingdoms of Quito and Chilé; and constructed many important inca-roads that led to Cuzco, the capital. The palaces of Quito, Callu and Tumipampa were erected, together with the tem-

ple of Curicancha. He had 600 wives. After the landing of the Spaniards, under Andagoya, he feared the verification of an old tradition that Peru should be successfully invaded by strangers. Soon afterward he died, leaving his vast empire divided among two successors, who eventually fell a prey to Spanish barbarity.

HUBBARD, JOHN GELLIBRAND, (Baron Addington), born in England in 1805; early entered commercial pursuits, and was the head of the firm of Hubbard & Company, Russian merchants, in London. Mr. Hubbard was a magistrate and deputy-lieutenant for Buckinghamshire, a director of the Bank of England, and chairman of the public works exchequer loan commission. He was elected in May, 1859, for the borough of Buckingham, which he represented in the Conservative interest until the Reform Act of 1868 deprived Buckingham of one of its members. At the general election of February, 1874, he was elected one of the members for the city of London, which he represented until raised to the peerage as Baron Addington in 1887. Mr. Hubbard carried in the House of Commons, in 1881, a motion against the government for a committee to inquire into the working of the income tax, and strenuously advocated a modification of its most obnoxious features. He died August 28, 1889.

HUBBARD, LUCIUS FREDERICK, born in Troy, N. Y., January, 1836; removed to Minnesota in 1857, and enlisted as a private in the volunteer service at the outbreak of the Civil war. He commanded a brigade in 1862-63 and took part in the siege of Vicksburg. He was severely wounded at Nashville in 1864, and received the brevet of brigadier-general. After the war he engaged in business in Minnesota, and served as a Republican member of the State Senate, and in 1881 was elected governor of the State. He was reelected in 1883, and served until January, 1887.

HUBBARD, OLIVER P., born in Connecticut, March, 1809; graduated at Yale, and acted as assistant of Professor Silliman. In 1836 he became a professor at Dartmouth, and remained attached to that college for over thirty years. In 1863-64 he served in the New Hampshire legislature, and was for many years corresponding secretary of the New York Academy of Sciences.

HÜBNER, BARON JOSEPH ALEXANDER, diplomatist, was born in Vienna, November 26, 1811. After completing his studies at Vienna he traveled for some time in Italy, and on his return in 1833 received from the late Prince Metternich a post in the state chancellerie. In 1837 he accompanied Count Apponyi's embassy to Paris. In 1840 he was made secretary to the Austrian embassy sent to the late Queen Maria da Gloria, the relations between Austria and Portugal having been for a long time suspended. He was appointed *chargé d'affaires* at Leipsic in 1844, and was shortly afterward consul-general of Austria. He joined the emperor of Austria at Olmütz; was sent in 1849 on a special mission to Paris, and shortly afterward became Austrian ambassador at that capital. In 1856 he signed the treaty of Paris, having, during the Crimean war, been instrumental in preventing his sovereign from taking part with Russia, and in insuring his neutrality. It was to Baron Hübnér that the emperor of the French made the memorable declaration, January 1, 1859, that his government was dissatisfied with that of Austria. Baron Hübnér was recalled from Paris in 1859, and after being employed in several diplomatic missions, especially at Naples and Rome, he was recalled from the latter city to enter as minister of police the new cabinet which had just been formed at Vienna. The latter post, however, he only held a few months, and he then lived in retirement for several years. In January,



1866, he was again placed at the head of the Austrian embassy in Rome, and in October, 1867, he was intrusted with the conduct of the negotiations with the holy see in reference to the repudiation of the concordat. He was soon afterward recalled. Baron Hübner is grand officer of the Legion of Honor. His *Life and Times of Sixtus the Fifth* appeared in London (2 vols., 1872). His latest book, *Through the British Empire*, appeared in French in 1885, and has been translated. He died July 30, 1892.

HUDDE, ANDREAS, born in Holland, 1600; died in Delaware, 1663. He was one of the earliest Dutch governors of Delaware.

HUDDLESTON, SIR JOHN WALTER, was born in 1815 in Dublin. He studied for a time at the University of Dublin, but did not graduate. In 1839 he was called to the bar at Gray's Inn, where he quickly rose to a prominent position. Mr. Huddleston's success in his profession led to his appointment, in 1857, as one of her majesty's counsel. During his professional career he was counsel in almost every case of importance on the Oxford circuit, of which, in course of time, he became the acknowledged leader. He was Sir Alexander Cockburn's junior in the prosecution of Palmer, the Rugeley murderer. In his attempts to enter the house of commons in the conservative interest, Mr. Huddleston was unsuccessful at Worcester in 1852, at Shrewsbury in 1857, and at Kidderminster in 1859 and 1861. In 1865, however, he was elected for Canterbury, and he represented that city for three years, being defeated at the general election of 1868. At the election for Norwich, in July, 1870, Mr. Huddleston was the unsuccessful candidate, but at the general election of February, 1874, he was elected for that city by a majority of forty-seven votes over his former antagonist, Mr. Tillet. Mr. Huddleston continued to represent that city until February 22, 1875, when, on the resignation of Mr. Justice Honeyman, he was appointed to a puisne judgeship of the court of common pleas. He sat in the common pleas but a short time, and in May, 1875, was nominated one of the barons of the court of exchequer. He died in 1890.

HUEFFER, FRANCIS, Ph.D., was born in 1845, and devoted himself to the study of modern philology and music in London, Paris, Berlin, and Leipsic. His first publication (1869) was a critical edition of the works of Guillem de Cabestanh, a troubadour of the twelfth century, for which the University of Göttingen conferred upon him the degree of Ph.D. A more extensive work on the same subject, entitled *The Troubadours—a History of Provençal Life and Literature of the Middle Ages*, was published in 1878; and in the same year Mr. Hueffer was appointed musical critic of the *London Times*. As a writer on music and a musical critic, Mr. Hueffer was the first in England to advocate the claims of Richard Wagner. His first work on the subject, *Richard Wagner, and the Music of the Future*, was published in 1874; a more comprehensive biography of the master from his pen appeared as the first volume of a series of lives of *The Great Musicians*, 1881. A collection of *Musical Studies*, reprinted from the *Times*, the *Fortnightly Review*, and other periodicals, appeared in 1880. In his critical writings Mr. Hueffer warmly espoused the cause of a national English opera, and he wrote the libretto of a musical drama, *Colomba* (music by Mr. A. C. Mackenzie), for the English opera season of Drury Lane, in 1883. His volume of essays, entitled *Italian and Other Studies*, also appeared in 1883. In 1886 he produced a second opera in conjunction with Mr. Mackenzie. It is entitled *The Troubadour*, and Guillem de Cabestanh, the Provençal poet previously mentioned, is the hero. He died in 1890.

HUELEN, Araucanian soldier, born in Angol about

1540; died near Osorno in 1603. He was a cacique, acquired a knowledge of cavalry tactics and the Spanish mode of warfare, and in 1599 was intrusted with the chief command of the Araucanian tribes. In July, 1599, he came to battle with General Quinones of the Spanish forces, in the valley of Tumbel, where, although compelled to retreat, he inflicted severe punishment on the enemy. Two days later he stole a march on the Spaniards, and defeated them. On November 14, 1599, he stormed the city of Valdivia, slew the defenders and many inhabitants, in the manner of Spanish warfare, carried off the women, and burnt the city. In 1601 he routed the Spanish forces in a battle near Concepcion, and, after capturing the city, treated its inhabitants in a similar manner. In 1603 Huefen attacked the city of Osorno, where he was repulsed and killed.

HUGGINS, SIR WILLIAM, F.R.S., was born in London, February 7, 1824. Much of his time was given to experiments in natural philosophy, and he collected apparatus by the use of which he gained considerable practical knowledge of the elements of chemistry, electricity, magnetism, and other branches of physical science. In 1852 he was elected a member of the Microscopic Society, and for some years he applied himself with much assiduity to the study, with the aid of the microscope, of animal and vegetable physiology. In 1855 Mr. Huggins erected an observatory at his residence at Upper Tulse Hill, and occupied himself for some time with observation of double stars, and with careful drawings of the planets Mars, Jupiter, and Saturn. For his important researches Mr. Huggins received, in November, 1866, one of the Royal Medals placed at the disposal of the Royal Society, of which he had previously, on June 1, 1865, been elected a fellow. In 1867 the gold medal of the Royal Astronomical Society was awarded to Mr. Huggins and Doctor Miller for their joint researches. Mr. Huggins has since continued his prismatic researches by a re-examination of the nebulae with a more powerful spectroscope, by which his former results have been confirmed. He has also examined the spectra of four comets, and has found that the greater part of the light of these objects is different from solar light. Mr. Huggins has made observations of the spectra of the solar prominences, and devised the method by which the forms of these objects may be seen. He has also succeeded in detecting the heat received at the earth from some of the fixed stars. From 1875 Mr. Huggins has been engaged in obtaining photographs of the ultra-violet portions (invisible to eye observation) of the spectra of the stars. This difficult research has led to important results, and has opened up quite a new field of work to the astronomer; it furnishes the only data we at present have as to the probable relative ages of the stars and of the sun.

HUGHES, BALL, sculptor, born in London, England, January 19, 1806; died in Boston, Mass., March 5, 1868. He studied for seven years with a modeler and sculptor, and exhibited specimens of his work at the London Society of Arts, for which he received several silver medals. Among these achievements was an original composition, *Pandora brought to Earth by Mercury*, which gained him a gold medal. He afterward made a number of ideal statuettes and many busts. In 1829 he came to New York city, and began work by making a statue of Alexander Hamilton, which was placed in the rotunda of the merchants' exchange. He also made a monumental relief of Bishop Hobart, now in the vestry of Trinity church. Later, Mr. Hughes went to Dorchester, Mass., where he modeled *Little Nell* and *Uncle Toby and Widow Wadman*, which are preserved in plaster at the Boston Athenæum. He also modeled an equestrian statue of Washington, a *Crucifixion*, a bronze statue of



Nathaniel Bowditch—now in Mount Auburn cemetery—a statuette of Gen. Joseph Warren, a bust of Washington Irving, and a *Mary Magdalen*.

HUGHES, JOHN, archbishop, born in Ireland, June 24, 1797; died in New York city, January 3, 1864. In 1816 his father came to the United States, and settled in Chambersburg, Penn.; a year later the son joined him. Before he came to this country he had determined to qualify himself for the Roman Catholic priesthood. For this purpose he entered Mount St. Mary's College, near Emmetsburg, Md. Here he rapidly advanced in learning, was ordained priest in 1826, and began his ministry in Philadelphia. In January, 1838, he was consecrated coadjutor to Bishop Dubois, of New York city. On the death of the latter in 1842, he succeeded to the full bishopric. The territory over which he then presided was the State of New York and about half of New Jersey, with a population of about 200,000 Roman Catholics, divided into 20 congregations. Bishop Hughes founded St. John's College in Fordham, and in all directions sternly enforced the rules of his church. In 1852 it is said that the United States Government made a formal request to the pope for his elevation to the rank of cardinal, which was repeated during the administration of President Lincoln, probably at the instigation of the then secretary of State, William H. Seward. In 1850 he was made archbishop. At the beginning of the Civil war he was unfriendly to the Abolitionists. In November, 1861, the archbishop went to Europe. His death was caused by general debility. He was active in founding the American College in Rome; established the theological seminary in Troy, and began the new St. Patrick's cathedral.

HUGHES, JOSHUA, D. D., bishop of St. Asaph, born at Newport, Pembrokeshire, in 1807, was educated at Cardigan and Ystrameurig schools, and subsequently at St. David's College, Lampeter, under Doctor Olivant, the late bishop of Llandaff. Having taken orders, he began his career in the church as curate to the late Archdeacon Hughes, of Aberystwith. Subsequently he was promoted to the incumbency of St. David's, Carmarthen, and soon afterward to that of Abergwil (1837). In March, 1870, he was nominated by Mr. Gladstone to the see of St. Asaph. Bishop Hughes was an effective preacher both in English and Welsh. He died January 21, 1889.

HUGHES, THOMAS, Q. C., was born on October 20, 1823, at Uffington, in Berkshire, England. In 1830 he was sent to a school at Twyford, near Winchester, and at the end of the year 1833 he was removed to Rugby, where he studied under Doctor Arnold. Thence he proceeded to Oriel College, Oxford, where he took his B. A. degree in 1845. Previous to this he had turned his attention to political problems, and when he left Oxford he was an advanced Liberal. He was called to the bar at Lincoln's Inn in January, 1848. He was one of the members for Lambeth from 1865 to 1868, when he was returned for the borough of Frome, which he continued to represent till January, 1874. Mr. Hughes was appointed a queen's counsel in 1869, and in the following year he made a tour in the United States. In July, 1882, he was appointed judge of the county circuit court, No. 9, vacant by the resignation of Mr. Yates. He is the author of *Tom Brown's School Days*, by an *Old Boy*, in 1857, which passed through several editions; *The Scouring of the White Horse*, 1858, though dated 1859; *Tom Brown at Oxford*, three volumes, 1861; *Religio Laici*, 1861, being the first of a series of *Tracts for Priests and People*, and afterward reprinted as *A Layman's Faith*, 1868; *The Cause of Freedom: which is its Champion in America, the North or the South?* 1863; *Alfred the*

*Great in the Sunday Library for Household Reading* (1869); a Prefatory Memoir to Charles Kingley's *Alton Locke* (1876); and *A Memoir of Daniel Macmillan* (1882). He also contributed a preface to *Whitmore's Poems*, and edited J. R. Lowell's *Biglow Papers* (1859); the Comte de Paris' work on *The Trade Unions of England* (1869), and other works. In 1880 he assisted in founding a settlement in the United States, of which he wrote in *Rugby, Tennessee* (1881). Died Mar., 1896.

HUGO, VICTOR MARIE, born at Besançon, France, February 26, 1802. He was the son of Leopold Hugo (1774-1828). His father was a soldier under Joseph Bonaparte in Italy and Spain, and his wife and children followed him during his many journeys. The downfall of the Bonapartists in Spain caused the retirement of General Hugo, and the family returned to Paris. Young Victor attended a private school and heard lectures at the college of Louis-le-Grand. At the age of fourteen he wrote two dramas of little value, and in 1817 competed for an academy prize with a poem of 320 verses. This was approved by Chateaubriand, and two years later Hugo took two other prizes for poetry. In 1820 Victor Hugo joined his brother in editing a daily journal, which was not a success. In October, 1822, he married and afterward was pensioned by Louis XVIII., who was strangely enough inclined to think that the young man's views might be influenced to Bourbonism. About 1827 Hugo had become an open champion of the Romanticist school and in that year he wrote *Cromwell*, and *Amy Robsart*, two dramas which met with little success. In 1829 he published *Les Orientales*, a volume of lyrics in which his genius showed a great development. In June, 1829, he wrote his third drama, *Marion de Lorme*. This was approved by Balzac, Dumas, and Alfred de Musset, but its representation was forbidden by the censor. His next production, *Hernani*, was given at the Theatre Française, February 25, 1830, and was an enormous success. Mlle. Mars played "Dona Sol," and for two months the play drew crowded houses. In 1831 appeared the first part of *Notre Dame de Paris*, to which in 1832, in the eighth edition, Hugo added three new chapters. *Marion de Lorme* was produced in August, 1831, and was followed a year later by *Le Roi s'amuse*. In 1833 appeared *Lucretia Borgia*, and a few months later *Marie Tudor*. The last of Hugo's successful dramas, *Ruy Blas*, was produced at the Renaissance theater, in November, 1838. The *Burgraves*, which appeared five years later, was a failure. In 1836 Hugo was a candidate for the Academy, but was defeated by an obscure competitor. In 1839-40 he was again defeated, but on June 3, 1841, took his seat. Four years later he was made a peer of France and spoke in the chamber in favor of Poland, and on other subjects, and in the revolution of 1848 he supported the republic. On August 1, 1848, he started a daily newspaper, which advocated him for the presidency of the republic. During the next three years he was in opposition to Louis Napoleon, and on the day of the *coup d'état*, Hugo's name appeared at the head of the proscribed with a reward of \$5,000 for his arrest. After being concealed in Paris for five days he escaped to Brussels, and his long exile began. Early in 1852 he wrote the *History of a Crime*, being a graphic account of the *coup d'état*. This he followed with *Napoleon le Petit*, a terrible satire on Napoleon III., and from 1852 until the revolution of 1870, Victor Hugo resided, first in Jersey and afterward in Guernsey. In 1862 appeared the great work by which Hugo is known to the world, *Les Misérables*. It was issued simultaneously in nearly every European capital and in New York and Rio



**Janeiro.** In 1866 appeared the *Toilers of the Sea*, and in 1869, *L'Homme qui Rit*. On September 5, 1870, Hugo returned to Paris. The empire had fallen and there was a universal demand for the return of those who had been exiled under it. Twelve days later Hugo issued an appeal to the French people to resist the German invasion to the last. In February, 1871, he was elected to the Assembly from the department of Paris and acted with the Extreme Left. He opposed the ratification of peace and the cession of Alsace and Lorraine. On March 8th he resigned from the Assembly on the ground of having been interrupted while making a speech. He retired to Brussels, where he remained during the Communist rebellion, and on his expulsion from Belgium he again returned to Paris. At the subsequent election of that year he failed to obtain a seat, but in 1876 was elected life senator. From this time on he acted with the Extreme Left, but took no conspicuous part in politics except to support the Communist amnesty measure. At the time that McMahon was preparing for a repetition of the *coup d'état*, Hugo republished the *History of a Crime*. In 1872 appeared *L'Année Terrible*, and in 1874 his last powerful romance '93. On February 25, 1880, a jubilee performance was given at the *Comédie Française*, to mark the fiftieth anniversary of *Hernani*. Hugo became the idol of Paris and of France, and retained his health until within a few days of his death, which occurred May 22, 1885. The funeral ceremony was held in the Panthéon, and not even Paris itself ever witnessed a popular pageant of like magnitude. No French author ever succeeded so well in so many lines of art, and no Frenchman ever attained such unbounded popularity during his life, or was followed to the grave by such a concourse of mourners.

**HULL, EDWARD, M.A., LL.D., F.R.S.**, director of the geological survey of Ireland, was born in Antrim, May 21, 1829. He was employed upon the geological survey of Great Britain under the late Sir H. T. De la Beche and Sir R. I. Murchison. In 1867 he was appointed district surveyor to the geological survey of Scotland, and in 1869 director of the survey of Ireland, and professor of geology in the Royal College of Science, Dublin. On the appointment of the royal commission on coal resources, Professor Hull prepared an estimate of the quantity of coal in the coal fields of Ireland, and also contributed information on those of England, which is published in the report. In 1873 he was elected president of the Royal Geological Society of Ireland, and in 1874 president of the geological section of the British Association at its meeting in Belfast. In 1879 he received the honorary degree of LL.D. from the University of Glasgow. Toward the close of 1883 Professor Hull undertook the charge of a scientific expedition through Arabia Petræa, the Jordan Arabah Valley, and western Palestine, organized by the committee of the Palestine Exploration Fund. The expedition was accompanied by several naturalists, and by Colonel Kitchener, R.E., and a narrative of the journey has been drawn up and published by Professor Hull, 1885. He is the author of several works of scientific importance.

**HULL, ISAAC**, naval officer, was born at Derby, Conn., March 9, 1775. In 1798 he became lieutenant in the new navy created by congress during the difficulties with France. He served with credit in the West Indies and Mediterranean, and, on the outbreak of war in 1812, was captain of the frigate *Constitution*. By skillful seamanship he escaped the close pursuit of five British vessels, and on August 10th he captured the British frigate *Guerriere* off Newfoundland, after a conflict in which the *Guerriere* was so severely cut up that Hull

was forced to burn her. A gold medal was given him by congress. He died at Philadelphia, February 13, 1843.

**HULL, WILLIAM**, born in Derby, Conn., June 24, 1753; died November 29, 1825; served gallantly in the war of the Revolution, but in 1812 surrendered Detroit to the British General Brock without making an attempt at defense. He was court-martialed and sentenced to be shot, but the sentence was remitted in consideration of his early services.

**HUMBERT I.**, king of Italy, the eldest son of the late King Victor Emmanuel, was born March 14, 1844. At an early age he obtained an insight into political and military life under the guidance of his father, whom he attended during the war of Italian Independence, although he was then too young to take an active part in the struggle. The youthful heir to the throne was more closely connected with the movement for the unification of Italy which followed the events of 1859. In particular he took part in the work of reorganizing the ancient kingdom of the Two Sicilies, and in July, 1862, he visited Naples and Palermo, where he shared the popularity of Garibaldi. When the war between Prussia and Austria became imminent, Prince Humbert was dispatched to Paris to ascertain the sentiments of the French Government in reference to the alliance between Italy and Prussia. On the outbreak of hostilities he obtained the command of a division of General Cialdini's army with the title of lieutenant-general; and was present at the disastrous battle of Custoza (June 23, 1866). On April 22, 1868, he married, at Turin, his cousin, the Princess Marguerite Marie Thérèse Jeanne of Savoy, daughter of the late Duke Ferdinand of Genoa, brother of King Victor Emmanuel. A son was born at Naples, November 11, 1869, who received the names of Victor Emmanuel Ferdinand Mary Januarius, and the title of prince of Naples. After the occupation of Rome by the Italian troops in 1870, Prince Humbert and the Princess Marguerite took up their residence in the "Eternal City." He succeeded to the throne on the death of his father, January 9, 1878. As he was entering Naples, November 17, 1878, a man named Giovanni Passanante approached the royal carriage and attempted to assassinate his majesty with a poniard. The king escaped with a slight scratch, but Signor Cairoli, the prime minister, who was with him, was wounded badly in the thigh. Passanante was condemned to death. On July 29, 1900, he fell to the blow of another assassin.

**HUME, ABRAHAM, D.C.L., LL.D.**, born about 1815; was educated at the Royal Belfast College, at Glasgow University, and afterward at Trinity College, Dublin. He was ordained in 1843, and the honorary degree of LL.D. was conferred upon him by the University of Glasgow. In 1847 he was appointed to a new parish in Liverpool. In 1874 he was appointed to an honorary canonry in Chester cathedral.

**HUMPHREY, WILLIAM**, was born at Aberdeen, Scotland, July 31, 1839. He was educated at Marischal College, Aberdeen, and is a member of the general council of the University of Aberdeen. He studied law at the University of Edinburgh; was ordained a clergyman of the Church of England, and held the living of St. Mary Magdalene, Dundee. He became a Roman Catholic in March, 1868, and went to Rome, where he pursued theological studies at the Collegio Romano. He was ordained priest by Cardinal Manning in 1871, and served on the mission in London till 1874, when he entered the Society of Jesus.

**HUMPHREYS, ANDREW A.**, born in Philadelphia, November 2, 1810; graduated at West Point in 1831, served in Florida in the artillery, and afterward as an engr.



neer on coast defenses. At various times between 1838 and the outbreak of the Civil war he was engaged in topographical engineering in the United States service, and rose to the rank of major. He joined McClellan's staff in 1861, became chief topographical engineer of the army of the Potomac, and was made brigadier-general of volunteers in April, 1862. In September following he commanded a division of the fifth corps of the army of the Potomac. He was present at Fredericksburg, Chancellorsville, and Gettysburg, was promoted major-general of volunteers, and from July, 1863, to November, 1864, was chief-of-staff to General Meade. After the surrender he received a major-general's brevet, United States army, and had charge of the district of Pennsylvania. In 1865-66 he had charge of the Mississippi levee work. As chief of the engineer corps he surveyed the Isthmus of Panama for canal routes. He died in Washington, December 27, 1883.

HUMPHREYS, DAVID, patriot, born in Derby, Conn., in July, 1752; died in New Haven, Conn., February 21, 1818. He graduated at Yale in 1771, and at the beginning of the Revolution entered the army as captain. In 1778 he was attached to the staff of General Putnam, was General Washington's aide-de-camp, 1780, and was present at the siege of Yorktown. At the close of the war he accompanied the commander-in-chief to Mount Vernon, and remained with him during a year. In 1784, through the influence of Washington, he became secretary of legation to the American commissioners sent to Europe, and for two years spent most of his time in London and Paris, returning home in 1786. He was then again invited to Mount Vernon, where he remained until the formation of the Federal Government. In 1790 he was appointed United States minister to Portugal, where he served seven years, and thereafter became transferred to the court of Spain in a similar capacity, remaining until 1802. In 1812 he was a member of the legislature of his State, and commanded the State militia.

HUMPHRY, SIR GEORGE MURRAY, M.D., born July, 1820, at Sudbury, Suffolk, England. He was apprenticed to a surgeon of Norwich in 1836, studied at the hospital of that city, and subsequently at St. Bartholomew's. In 1856 he took his degree of M.D. at Cambridge. He became professor of anatomy in 1866, a member of the council of the College of Surgeons in 1868, of the Court of Examiners, 1877, and professor of surgery at Cambridge in 1883. Sir G. Humphry is the author of *A Treatise on the Human Skeleton*; *Old Age, and Changes Incidental to It* (1875); *The Hunterian Oration* (1879), and various articles in the *Journal of Anatomy*, etc. He was knighted in 1891, and died in 1896.

HUNT, ALFRED WILLIAM, was born at Liverpool in 1830, and educated at the collegiate school in that town. In 1848 he gained a scholarship at Corpus Christi College, Oxford. In 1851 he won the "Newdigate," and in 1852 took his degree with a second class in classics. In the following year he became a fellow of his college. He first exhibited in the Royal Academy, in 1854, *Styehead Pass, Cumberland*. In 1856 he made a first success in the Academy, and his picture, *Llyn Idwal*, was much praised by Mr. Ruskin; and the same year he became a member of the Hogarth Club, which was then just founded, and was the center of pre-Raphaelite force. He continued at intervals, to exhibit in the Royal Academy until 1862, when he was elected an associate of the Society of Painters in Water Colors, of which he was made a full member two years later, and for about seven years worked only in that medium. In 1870 he again sent a picture to the Academy, and has since then exhibited both oil and water colors. Mr. Hunt's water colors are so numerous that

it is difficult to make a selection from them. Perhaps the most important are the *Durham*, *The Rainbow*, *Ullswater*, *Landecwyn*, *Loch Corinsk*, and *A Land of Smoldering Fire*. Mr. Hunt is generally considered to be the most distinguished follower of Turner, and the chief upholder of the system of landscape art which endeavors to unite truth of light and poetical feeling with fidelity to nature. In 1882 Mr. Hunt was elected honorary fellow of Corpus Christi College, Oxford.

HUNT, HENRY JACKSON, born in Detroit, Mich., September 14, 1819; graduated at West Point in 1839, served on the Canadian frontier, and distinguished himself in Mexico, where he was twice wounded. He became captain in 1852, and major in 1861, held an artillery command at Bull Run, and became aide to McClellan. In September, 1862, he was made brigadier-general of volunteers. As chief of artillery of the army of the Potomac he fought at Gettysburg, in the army of the Rapidan to Petersburg, and became brigadier and major-general, United States army. He was president of the artillery board, was retired from active service in September, 1883, and became governor of the Soldier's Home at Washington, D. C. He died February 11, 1889.

HUNT, LEWIS CASS, born in Wisconsin, February 23, 1824; graduated at West Point in 1847, served on the Pacific coast, and in the Peninsular campaign of 1862. He was wounded at Fair Oaks, received various brevets up to that of brigadier-general in the regular army, and served as colonel of infantry until his death in September, 1886.

HUNT, ROBERT, F.R.S., born September 6, 1807, at Devonport, Eng.; was the keeper of mining records at the Museum of Practical Geology, and was the first appointed professor of mechanical science to the government school of mines. He is best known by his work on *Photography*, published in 1842; *Researches on Light*, *The Poetry of Science*, and *Panthea, or the Spirit of Nature*, 1849; *Elementary Physics*, 1851; and *Manual of Photography*, 7th ed., 1857; and was the editor of three editions of *Ure's Dictionary of Arts, Manufacture, and Mines*. Mr. Hunt, who was the author of the *Synopsis*, and of the *Handbook* of the great exhibition of 1851, and of the international exhibition of 1862, was the originator of the publication of statistical returns of the mineral produce of the United Kingdom. He died October 17, 1887.

HUNT, THOMAS STERRY, LL.D., F.R.S., was born at Norwich, Conn., September 5, 1825. In 1845 he became assistant to Professor Silliman in his chemical laboratory at Yale College, and in 1847 was appointed chemist and mineralogist to the Geological Survey in Canada. He held this post for more than twenty-five years, resigning it in 1872 to accept the chair of geology in the Massachusetts Institute of Technology, but subsequently returned to Montreal, where he afterward resided. His earliest studies were directed especially to theoretical chemistry, and the theories he deduced were maintained by him in a series of papers in the *American Journal of Science*, beginning in 1848. He made some very thorough researches into the chemical and mineral composition of rocks, and into the chemistry of mineral waters, and also very fully discussed the phenomena of volcanoes and igneous rocks. His views on these and other kindred questions are to be found in an essay on the *Chemistry of the Earth*, in the report of the Smithsonian Institution for 1869, in his address as retiring president of the American Association for the Advancement of Science (1871), and in more recent papers. His contributions to American and European scientific societies and journals were very numerous; and a collection of many of them



was published in 1874. He aided in the organization of the Royal Society of Canada in 1882, and in 1884-1885 he was its president. He died Feb. 12, 1892.

HUNT, WILLIAM HENRY, born in Charleston, S. C., in 1824; was educated at Yale, and practiced law in New Orleans. In March, 1876, he was appointed attorney-general of Louisiana, and in the fall of the same year was the Republican candidate for the same office. There was a dispute over the election, and the Hayes administration recognized the Democratic contestants. In 1878 Mr. Hunt was appointed judge of the Court of Claims, and, in March, 1881, he became secretary of the navy in the Garfield cabinet. This position he held until 1882, when he was appointed United States minister to Russia. He died in St. Petersburg, February 27, 1884.

HUNT, WILLIAM HOLMAN, painter, one of the most prominent of the three working members of the pre-Raphaelite movement, born in London in 1827; exhibited his first picture at the Academy in 1846. He began that series of religious and mystical subjects, whereby he has since made himself best known, with *A Converted British Family Sheltering a Christian Missionary from the Persecution of the Druids*, in 1850, followed by the symbolical *Hiveling Shepherd*, in 1852. The occult meaning of his *Light of the World*, and of the *Awakening Conscience*, of 1854, was explained by Mr. Ruskin in some letters to the *Times*. *The Scapegoat*, of which the scene was painted upon the margin of the salt-encrusted shallows of the Red Sea, was exhibited in 1856. *The Finding of the Saviour in the Temple*, exhibited in 1860, was perhaps the painting which attracted the most exclusive notice of any modern effort. *Isabella and the Pot of Basil* was exhibited in London in 1866. More recent pictures were *London Bridge on the Night of the Marriage of the Prince of Wales*; *The After-Glow*; and *The Festival of St. Swithin*. The last-mentioned was in the Royal Academy Exhibition of 1868. The largest of his works, which exclusively occupied his time during a residence of four years in Palestine, was finished in 1873. It is styled *The Shadow of Death*, and represents a prevision of the Crucifixion. *The Triumph of the Innocents* was exhibited in Bond street in 1885. It represents a company of the spirits of the children of Bethlehem accompanying the Holy Family on their flight into Egypt. A nearly complete collection of Mr. Holman Hunt's works was exhibited at the Fine Art Society's rooms in 1886. Mr. Hunt has also written in the *Contemporary Review*, two articles of reminiscences of the pre-Raphaelite movement. More recently he has, in the columns of the *London Times*, led the attack upon the Royal Academy.

HUNTER, DAVID, born in Washington, D. C., July 21, 1802; died there February 2, 1886. He was graduated at the United States Military Academy in 1822, entered the army as second lieutenant of infantry, and in 1833 became captain of dragoons. For several years he served on the frontier. In 1836 he resigned his commission and engaged in business in Chicago. Being unsuccessful, he reentered the army as a paymaster, with the rank of major. On May 14, 1861, he became colonel of the 6th United States cavalry, and on the 17th was commissioned brigadier-general of volunteers. He commanded a division at the battle of Bull Run, where he was wounded. In August he became major-general of volunteers, and in November succeeded General Frémont in command of the western department. In 1862 General Hunter rendered efficient service at the capture of Fort Donelson. Later he commanded the department of the South, where he issued general orders declaring the slaves of Georgia,

Florida, and South Carolina free. This order President Lincoln declared premature, and annulled. In September General Hunter was recalled to Washington, and in May, 1864, he was placed in command of the department of West Virginia. He received the brevet of major-general on March 13, 1865, and on July 31, 1866, was retired from active service. Thereafter he lived in Washington, D. C.

HUNTER, ROBERT MERCER TALIAFERRO, born in Virginia, April 21, 1809, became a congressman in 1837, and speaker of the House, 1839-41. In 1847 he was elected to the United States Senate; served two terms, and was again elected for the term ending in 1865, but joined the Southern Confederacy, and from July, 1861, to February, 1862, was secretary of state in Jefferson Davis' cabinet. He also represented Virginia in the Richmond senate, 1862-65. He died July 18, 1887.

HUNTER, SIR WILLIAM GUYER, K.C.M.G., M.P., was born in 1831, and educated at King's College, London, Aberdeen University, and at various hospitals. He entered the Indian medical service, Bombay presidency, in 1850, and served through the Burmese war and the Indian mutiny. In 1876 he was appointed principal of the Grant Medical College, and in 1879 vice-chancellor of the University of Bombay. He retired in 1880, and in 1883 went out to Egypt to serve on the cholera commission. For his services on this occasion he was made a K.C.M.G. In 1885 he entered Parliament as Conservative member for Central Hackney, and was again returned for the same constituency in 1886.

HUNTER, SIR WM. WILSON, was born July 15, 1840, and educated at the University of Glasgow, at Paris, and Bonn. He headed the list of Indian civilians appointed in 1862, and after distinguishing himself in Calcutta by high proficiency in Sanskrit and the modern vernaculars of India, passed through the usual appointments of a civil servant in the Bengal districts. On the outbreak of the famine in 1866 he was selected to superintend public instruction in the province of Orissa and the southwestern division of Bengal. Mr. Hunter wrote *The Annals of Rural Bengal*, which in the next ten years passed through five editions, and a *Dictionary of the Non-Aryan Languages of India and High Asia*. In 1869 he was attached on special duty to the secretariat of the government of Bengal; in 1870 to that of the supreme government of India, acting for a time as under-secretary; in 1871 he was appointed director-general of statistics. As the head of this department he organized and carried out the statistical survey of India. In 1876 *The Statistical Account of Bengal* was issued to the public in twenty volumes, and an exact survey had been made of the resources and population of each district in India. He wrote *The Indian Empire* (1886), and a *Life of Dalhousie* (1890).

HUNTINGTON, DANIEL, born at New York, October 14, 1816, graduated at Hamilton College in 1834, entered the studio of S. B. F. Morse in New York in 1835, and soon produced two noted genre pictures, the *Topper Asleep*, and the *Bar-room Politician*, and several excellent landscapes. In 1839 he studied in Florence and Rome, and, on his return to America, painted *Mercy's Dream* and *Christiana and Her Children*. In 1844 he again went to Rome, where he painted the *Roman Penitents*, *Italy*, *The Communion of the Sick*, and several landscapes. He has been president of the National Academy of Design, New York, most of the time since 1860. His *Elsie*, the *Goldsmith's Daughter* and portraits of *Seth Low* and *Elliott F. Shepard* were exhibited in Chicago in 1893.

HUNTINGTON, FREDERIC DANIEL, D.D., S.T.D., bishop of the Protestant Episcopal diocese of Central



**New York**, was born at Hadley, Mass., May 28, 1819. He graduated at Amherst College in 1839, studied divinity at Cambridge, and in 1842 became pastor of a Unitarian Church in Boston. In 1855 he was elected preacher to Cambridge University, and Professor of Christian morals in Harvard College. In 1859 he took orders in the Protestant Episcopal Church; in 1861 was one of the founders of the *Church Monthly*; and in 1869 was elected bishop of the diocese of Central New York. Besides a series of lectures on *Human Society as Illustrating the Wisdom, Power, and Goodness of God*, he has published many volumes of sermons and books of devotion, together with *Hymns of the Ages* (3 vols., 1860-64).

**HUNTINGTON, JEDEDIAH**, soldier, born in Norwich, Conn., February, 1743; died in New London, Conn., September 25, 1818. He was graduated at Harvard in 1763. Early in 1775 he became captain of a regiment; on April 26th joined the American troops at Cambridge, and later aided in repulsing the British troops at Danbury, Conn. On May 12, 1777, he was made brigadier-general, and joined the American army at Philadelphia. He was one of the officers who tried Gen. Charles Lee for misconduct at Monmouth, and was a member of the court summoned to examine the case of Major André at Tappan. Later he was brevetted major-general, became treasurer of Connecticut, and delegate to the convention that adopted the United States constitution. In 1789 he removed to New London, Conn., where he was appointed collector of customs, and he held this office for many years. In May, 1783, he was a member of the committee of four to draft the constitution of the Society of the Cincinnati.

**HURLBUT, STEPHEN A.**, born in Charleston, S. C., November 29, 1815; died in Peru, March 27, 1882. He became a lawyer in his native city, but in 1845 removed to Illinois, where he served in 1859, 1861, and 1867 as a member of the legislature. He entered the volunteer service early in 1861 as brigadier-general, was promoted major-general after Shiloh, led a corps under Sherman in the expedition into Mississippi, and succeeded N. P. Banks in command of the department of the gulf. General Hurlbut was minister to the United States of Columbia (1869-72), served in congress from Illinois (1873-77), and in 1881 was appointed minister to Peru, where he died a year later.

**HURLBUT, WILLIAM HENRY**, born in Charleston, S. C., July 3, 1827; graduated at Harvard and studied in Europe. He became a Unitarian minister, and about 1857 began writing for the press of New York. He served as a correspondent in the South during the Civil war, in Mexico, Santo Domingo, and elsewhere, and in 1876 became editor of the *New York World*, and later London correspondent for *New York papers*.

**HURST, JOHN FLETCHER**, born in Maryland, August, 1834; graduated at Dickinson College, and became a Methodist Episcopal clergyman. In 1871, after some years' travel in Europe, he became professor of theology in Drew seminary, Madison, N. Y., and from 1873 until 1880 was president of that institution. At Cincinnati in the last-named year he was elected bishop.

**HURTADO, DE MENDOZA, GARCIA**, Spanish viceroy, born in Cuenca in 1531; died in Spain about 1610. He was the son of ANDRES, who preceded him in the government of Peru, a despotic and bloody ruler, in the manner of the Spanish conquerors of South America. The son served in the Continental European wars when Spain was in its glory, and in 1556 came with his father to Peru. In 1557 he was appointed governor of Chili, where he made successful war on the turbulent Araucanians. He founded Cañete and Osorno and rebuilt Concepcion, repaired several neglected forts, and sent

an expedition to explore the strait of Magellan. When his father died he returned to Spain, where he became marquis of Cañete and a useful diplomat in the service of Philip II. In 1588 he was made viceroy of Peru, reached Callao on November 28, 1589, and on January 6, 1590, arrived in Lima. In the first year of his administration he sent 1,500,000 ducats to the home government in support of the Spanish wars; at the same time he repaired the forts at Callao, and fitted out several ships-of-war as defenses against the English. In the autumn of 1593 Richard Hawkins, with two vessels, passed the straits, for plunder and conquest, when he was intercepted by three Spanish ships, defeated and taken prisoner. In 1592 Hurtado founded the College of San Marcos, and in 1596, by his own request, was recalled to Spain, where he was appointed to an honorary office in the royal palace.

**HUTCHINSON, ANNE**, born in Lincolnshire, England, about 1590; died near Stamford, Conn., in September, 1643. Her father was a clergyman. About 1612 she was married to William Hutchinson, and in 1644 husband and wife emigrated to Massachusetts. On her arrival in Boston she held meetings and gave lectures, in which she maintained that "the person of the Holy Ghost dwells in a justified person, and that no sanctification can help to evidence to us our justification." She also expressed herself dissatisfied with some of the teachings of the Massachusetts clergy, which aroused much attention and divided the faithful into two theological sections. John Cotton, the distinguished clergyman, and Governor Vane, among others, were won to her side. Mrs. Hutchinson was tried for heresy and sedition, and, with some of her prominent partisans, banished from Massachusetts. Mr. and Mrs. Hutchinson, with their fifteen children, thereafter, for a trifling consideration, purchased from the Narragansett tribe the island of Aquidneck, and founded the town of Portsmouth. In 1642 she was left a widow, removed from Rhode Island, and located somewhere between New Rochelle, N. Y., and Stamford, Conn. In 1643 her home was attacked by the Indians, and she, with most of her children and servants, sixteen in number, were slain.

**HUTCHINSON, JONATHAN, F.R.S.**, was born in July, 1828, at Selby, Yorkshire, England. He was admitted a fellow of the College of Surgeons in 1862, was appointed president of the Hunterian Society in 1869 and 1870; president of the Pathological Society in 1879 and 1880; of the Ophthalmological Society in 1883; and was professor of surgery and pathology in the Royal College of Surgeons from 1877 to 1883.

**HUTCHINSON, THOMAS JOSEPH, M.D., F.R.G.S.**, was born at Stoneyford, county Kilkenny, Ireland, January 18, 1820. In September, 1855, he was appointed to be British consul for the Bight of Biafra, and, in the same month and year, received a like commission for the Island of Fernando Po. He was acting-governor of Fernando Po for Queen Isabella of Spain, from January to July, 1867. He was elected a fellow of the Royal Geographical Society in 1855—of the Ethnological Society in 1860—of the Royal Society of Literature in 1861—of the Anthropological Society in 1863—and of the Society of Arts in 1874. He was vice-president d'honneur de l'Institut d'Afrique of Paris, and honorary member of the Liverpool Literary and Philosophical Society. He was transferred, as consul, to Rosario, in the Argentine Republic, on July 12, 1861, and was transferred, as consul, to Callao, on October 10, 1870. While at Callao he was nominated by President Pardoe one of the fifteen foundation fellows of the Society of Fine Arts in Peru. He died March 23, 1885.

**HUXLEY, THOMAS HENRY, LL.D., Ph.D., D.C.L.,**



**M.D., F.C.S.Eng., F.R.S.**, was born on May 4, 1825, at Ealing, Middlesex, England, and was educated at the school in his native place, where his father was one of the masters. He attended lectures at the medical school of the Charing Cross Hospital, and in 1845 passed the first examination for the degree of M.B. at the University of London, and took honors in physiology. Having passed the requisite examination, he was, in 1846, appointed assistant-surgeon to H. M. S. *Victory*, for service at Haslar hospital. His next appointment was as assistant-surgeon to H. M. S. *Rattlesnake*, and he spent the greater part of the time from 1847 to 1850 off the eastern and northern coasts of Australia. Some of the results of the studies in natural history for which this cruise afforded facilities, appeared in various memoirs communicated to the Linnean and Royal societies, and in a work entitled *Oceanic Hydrozoa, a Description of the Calycophoridae and Physophoridae Observed During the Voyage of H. M. S. Rattlesnake* (1859). Mr. Huxley returned to England in 1850, and in the following year he was elected a fellow of the Royal Society. In 1852 one of the royal medals was awarded to him. In 1855 he was appointed professor of natural history at the Royal School of Mines, and, in the same year, Fullerian professor of physiology to the Royal Institution, and examiner in physiology and comparative anatomy to the University of London. In 1858 he was appointed Croonian lecturer to the Royal Society, when he chose for his subject the *Theory of the Vertebrate Skull*. When, in 1860, it became Professor Huxley's duty to give one of the courses of lectures to the workmen in Jermyn street, he selected for his subject *The Relation of Man to the Lower Animals*. Mr. Darwin's views on the origin of species were the subject of Professor Huxley's lectures to the workmen in 1862, which have been published under the title of lectures *On our Knowledge of the Causes of the Phenomena of Organic Nature*. He also delivered lectures on the *Elements of Comparative Anatomy*, and on the *Classification of Animals and the Vertebrate Skull*. In 1862 it devolved upon Mr. Huxley, who was then one of the secretaries of the Geological Society, to deliver the annual address to the Geological Society, and, as president of Section D at the meeting of the British Association at Cambridge, he gave an address on the *Condition and Prospects of Biological Science*. He was elected professor of comparative anatomy to the Royal College of Surgeons in 1863, and held that office for seven years. He became president of the Geological and the Ethnological Societies in 1869 and 1870, and presided over the meeting of the British Association held at Liverpool in 1870. Professor Huxley's name came prominently before the general public in connection with the London School Board, to which he was elected in 1870. He took a very active part in the deliberations of that body, having rendered himself particularly conspicuous by his opposition to denominational teaching, and by his fierce denunciation, in 1871, of the doctrines of the Roman Catholic Church. Professor Huxley was compelled by ill-health to retire from the board in January, 1872. He was elected lord rector of Aberdeen University for three years December 14, 1872, and installed February 27, 1874. In 1873 he was elected secretary of the

Royal Society. During Professor Wyville Thompson's absence with the *Challenger* expedition, Professor Huxley acted as his substitute as professor of natural history at the University of Edinburgh in the summer sessions of 1875 and 1876. In the latter year he received the Wollaston medal of the Geological Society. He also received the honorary degree of Ph.D. from the University of Breslau, M.D. from the University of Würzburg, LL.D. from the Universities of Edinburgh, Dublin (1878), and Cambridge (1879), D.C.L. from the University of Oxford (1885), and he was elected a fellow of the Royal College of Surgeons in 1884. He is a foreign and corresponding member of the Academies of Brussels, Berlin, Göttingen, Haarlem, Lisbon, Lyncei (Rome), Munich, St. Petersburg, Philadelphia and Stockholm; of the Belgium Academy of Medicine, and the Royal Irish Academy, the Royal Society of Edinburgh, and the Cambridge Philosophical Society.

In June, 1879, the French Academy of Sciences elected Professor Huxley a corresponding member of the section of anatomy and zoölogy, in the place of the late Russian naturalist, Baer. On July 5, 1883, he was chosen president of the Royal Society in place of the late Mr. Spottiswoode; and the same year he was elected by the council of the United States National Academy as one of their foreign members. Professor Huxley is well known as a writer on natural science, being the author of numerous papers published in *Transactions and Journals of the Royal, the Linnean, the Geological and the Zoölogical Societies*, and the *Memoirs of the Geological Survey of Great Britain*. He resigned the presidency of the Royal Society in 1885 and settled down to a quiet life at Eastbourne. He contributed to the *Times* many severe criticisms of General Booth's "Darkest England" scheme in 1890, and was called to the Privy Council in August, 1892. He died June 29, 1895.

**HYATT, ALPHEUS**, born in Washington, D. C., April 5, 1838; studied at Yale and Harvard, served in a Massachusetts regiment in the war and in 1869 became a curator in the Essex Institute. He is a fellow of the American Academy of Arts and Sciences and of the National Academy of Science, and has written extensively on scientific subjects. Died Jan. 15, 1902.

**HYMERS, THE REV. JOHN**, D.D., F.R.S., born in Cleveland, England, July 26, 1803; was educated at St. John's College, Cambridge, elected Lady Margaret's preacher in 1841, and appointed to the rectory of Brandesburton in 1852. He died April 7, 1887.

**HYRTL, JOSEPH**, a distinguished anatomist, was born in 1811 at Eisenstadt, in Hungary; studied at Vienna, and acquired eminence both as a scientific anatomist, and upon account of the extreme beauty of his anatomical preparations. He became professor of anatomy in Prague in 1837, and at Vienna in 1845. While yet a student, he enriched the anatomical museum of Vienna with many preparations. He has contributed not a little to the progress of comparative anatomy, especially that of fishes, and has made the anatomy of the ear a subject of very particular investigation. He has written many books and articles on the subjects above indicated. Hyrtl formed a museum of comparative anatomy at Vienna, and became rector of the university there. He died July 17, 1894.

## I.

**IBERVILLE, PIERRE LE MOYNE**, born in Montreal, Canada, July 16, 1661; died in Havana, Cuba, July 9, 1706. At fourteen years of age he became midshipman in the French navy, and served in the overland expedition in 1686 against the English ports on Hudson Bay. In 1688-89 he captured two British ships, and in 1694 took Fort Nelson. Soon afterward he attained the rank of captain of a frigate, and, cruising in the Bay of Fundy, destroyed Fort Pemaquid and ravaged Newfoundland. On October 17, 1698, d'Iberville left Brest in command of two frigates and two smaller vessels, and early in January, 1699, reached Mobile. In May, 1699, he went to France, but in 1700 returned, built a new fort on the river, and sent a party, under Le Sueur, to the copper mines of Lake Superior. In December, 1701, d'Iberville was again in Louisiana, where he found the colony suffering from fever, and transferred it to Mobile. At that time his health was much broken and he was recalled to France, where in 1702 he was promoted to the command of a line-of-battle ship. Four years later he captured the Isle of Nevis, and was preparing to attack the coast of Carolina when he died.

**IBSEN, HENRIK**, poet and dramatist, was born in Norway, March 20, 1828. He at first studied medicine, but soon abandoned that profession for literature. Under the pseudonym of Brynjolf Bjarme he published in 1850 *Catiline*, a drama in three acts. In the same year he entered the university, where, in conjunction with others, he founded a literary journal, in the columns of which appeared his first satire. Through the influence of Ole Bull, the violinist, he became director of the theater at Bergen, and in 1857 went to Christiania, where several of his plays were produced with complete success. For some time he lived in Rome, and in 1866 obtained from the Storting a pension. His best known works are *Fru Inger til Oesteraad*, 1857; *Haer Maendene paa Helgeland*, 1858; *Brandt*, 1866; *Peer Gynt*, 1867; *De Unges Forbund*, 1869; *Keiser og Galelæer*, 1875; and a volume of poems, *Lyriske Digte*, 1871. Of late years his dramas have been introduced in the United States, and have met with considerable approval, especially his *Doll's House*, *Ghosts*, *Hedda Gabler* and *The Master Builder*.

**IGLESIAS, JOSÉ MARIA**, born in Mexico in 1823; studied law, entered politics, acted as secretary of the treasury under Lerdo de Tejada and supported Juarez. In 1873 he was president of the Supreme Court, and claimed the presidency of the republic on the ground that Tejada had not been legally elected. He was compelled to leave the country, but returned in 1878, and devoted himself to literary work until his death in 1891.

**IGLESIAS, MIGUEL**, born in Peru in 1822; was elected to the Federal congress in 1861, and served in that body and in the senate for several terms. In 1879 he became secretary of war, and later took an active part in the struggle against Chili. In 1883 he was elected president of Peru, but two years later his government was overthrown, and he retired to Spain.

**IGNATIEFF, NICHOLAS PAVLOVITCH**, a Russian general and diplomatist, was born in 1832. He was educated at the Corps des Pages, and entered the guard. At the beginning of the Crimean war he served with his regiment at Revel. Toward the end of the war Ignatieff followed his general to Finland. He then passed from the military to the diplomatic service, finding his point of transition in the military attachéship

to the embassy at London. His chief performance in this capacity was a report on England's military position in India, which so pleased the emperor that he summoned Captain Ignatieff to Warsaw for a personal interview. In 1858 Ignatieff, now made a colonel and aide-de-camp to the emperor, was sent on a special mission to Khiva and Bokhara. He was also sent as plenipotentiary to Pekin (1860), where he concluded a treaty by which the province of Ussuri was ceded by China to Russia. On his return to Russia he was made director of the Asiatic department in the ministry of foreign affairs. In 1864 he was appointed minister at Constantinople, where his legation was afterward (1867) raised to the rank of an embassy. Apart from his rank as ambassador, he was a lieutenant-general, and general aide-de-camp to the emperor. The object which General Ignatieff steadily pursued at Constantinople was to secure for Russia a powerful influence over Turkey. In 1878 he was recalled to become minister of the interior, which position he held for four years. He was also appointed a senator and a member of the imperial council.

**IMHOFFER, GUSTAV MELCHIOR**, Brazilian explorer, born near Grätz, Austria, in 1593; died in Bahia de Todos os Santos in 1651. He was a Jesuit, and in 1624 became attached to the missions of South America. For years he dwelt in Peru; in 1636 crossed the Andes to the head of the Amazon river, and in the following year descended that river to its mouth. Imhoff returned to Bahia, where he became rector of the college of the Jesuits.

**INGELOW, JEAN**, was born at Boston, Lincolnshire, England, in 1820, and died July 20, 1897. She is the author of *Poems*, 1863; *A Story of Doom*, 1867; and a third volume of poems published in 1885. She has also written various prose books.

**INGALLS, JOHN JAMES**, born in Massachusetts, December 29, 1833, and died August 16, 1900. He began the practice of law in Kansas about 1858. He was elected to the territorial council, and afterward to the State Senate, and in 1873 became United States senator. This office he held by successive reelections for eighteen years, and in 1887 he served as president *pro tempore* of the senate.

**INGALLS, RUFUS**, was born in Maine, August 23, 1820; graduated at West Point in 1843, and served in New Mexico, California, and Oregon. During the Civil war he served as aide-de-camp to General McClellan, and from 1862 to 1865 was chief-quartermaster of the army of the Potomac. He received the brevets of brigadier and major-general for distinguished service, and in 1882 became quartermaster-general of the army. He was retired in 1883 and died January 16, 1893.

**INGERSOLL, ERNEST**, born in Michigan, March 13, 1852; became a student under Prof. Louis Agassiz, and served with the Hayden exploration party in the Rocky mountains. He was afterward a member of the United States fish commission, and has written many valuable monographs on natural history.

**INGERSOLL, JOSEPH REED**, born in Philadelphia, June 14, 1786; became a prominent lawyer, and from 1835 until 1849 served in congress, where he consistently supported the Whig party. In 1852 President Fillmore appointed him minister to England. He died February 20, 1868.

**INGERSOLL, ROBERT G.**, was born at Dresden, N. Y., in 1833. The family removed to Illinois in



1845, where Robert studied law, was admitted to the bar, and entered political life as a Democrat. He was nominated for congress in 1860, but was defeated. In 1862 he entered the army as colonel of a regiment of cavalry, and was taken prisoner, but was exchanged. Returning to civil life he became a Republican, and in 1866 was made attorney-general of Illinois. At the Republican Convention of 1876 his speech, in proposing Mr. Blaine's name for the presidency, aroused general attention for its eloquence, and since that time Colonel Ingersoll has been prominent before the country as a public speaker. He has often appeared upon the lecture platform in advocacy of views opposed to Christianity and to the orthodox conception of the Bible, views which he has also maintained in contributions to periodicals. He resides in Washington, where he has a lucrative law practice. He has published *The Gods and other Lectures, Prose-Poems and Selections, Lectures Complete, Mistakes of Moses*, and other works. He died July 21, 1899.

INGLIS, CHARLES, born in Ireland in 1734; died in Halifax, Nova Scotia, February 24, 1816. In December, 1758, he was appointed missionary at Dover, Del., where he labored until 1765, when he became assistant at Trinity Church in New York city. In 1775 he issued a pamphlet in reply to Thomas Paine's *Common Sense*. After the Declaration of Independence he ordered his church closed, and in August, 1776, retired to Flushing, L. I., which at that time was in possession of the British. After the battle of Long Island he followed the army to New York city, and in 1777 was chosen rector of Trinity Church. In 1781-82 he was chaplain in the British army, and in 1783 retired to Halifax, Nova Scotia. In 1787 he visited England, where, on August 12th, he was consecrated the first bishop of Nova Scotia; this made him the earliest colonial bishop of the church of England.

INGRAHAM, DUNCAN NATHANIEL, born in Charleston, S.C., in 1802; entered the United States navy when ten years old, became lieutenant at sixteen, commander in 1838, and captain in 1855. He came into international notoriety in 1853, when a Smyrnian Jew, who had declared his intention to become an American citizen, having returned to Smyrna on business, was arrested by the Austrian authorities. Ingraham was in command of an American vessel, then lying in the harbor of Smyrna, and being satisfied that the man was practically an American citizen, he demanded his immediate release, otherwise proposing to take him from the Austrians by force. Hostilities were averted by the surrender of the man to the French consul, and he was ultimately set at liberty. Ingraham's course was approved by congress, and the matter resulted in an assertion of the rights of naturalized American citizens, which up to that time had been much in dispute. Captain Ingraham was in command of the United States ship *Richmond*, in the Mediterranean, when the Civil war began. He resigned his commission and entered the Confederate service, in which he rose to the rank of commodore. He died in 1891.

INGULF, RUDOLF, German explorer, born in Cologne in 1727; died in Vienna in 1785. He was a merchant, and from 1751 until 1763 lived in Mexico, where he gained a competence. Led by a taste for travel, he visited the remote parts of Mexico, crossed the Isthmus of Panama, and explored portions of New Granada. Thereafter he entered California, where he became impressed with the wealth of its gold mines. He announced this observation in his *Lehrbuch der Geographie von Californien* (Leipsic, 1771). Later he published *Reisen in New Spanien* (2 vols., Leipsic, 1772), and *Die Geologische Formationen von Califor-*

*nien* (Vienna, 1775), which prove him to have been a close observer, with the eyes of a scientist. At the time of the early modern Californian gold fever these books were frequently consulted by the mining explorers, but they never attained the distinction they deserved.

INMAN, HENRY, born in Utica, N. Y., October 20, 1801; died in New York city, January 17, 1846. He painted the portrait of Chief Justice Marshall, and was one of the founders of the National Academy in New York City. In 1832 he removed to Philadelphia, and a few years later retired to Mount Holly, N. J.; thereafter he returned to New York city, and visited England, where he remained one year and executed to order portraits of Macaulay, Wordsworth, Chalmers and Lord Cottenham. In 1845 he returned to the United States. He is best known by his admirable specimens of portraiture; among his best pictures are the likenesses of William Wirt, DeWitt Clinton, John James Audubon and Martin Van Buren. He also painted the full-length portrait of William Penn which hangs in Independence Hall, Philadelphia.

INNESS, GEORGE, landscape painter, was born at Newburg, N. Y., in 1825, and died in 1894. At the age of sixteen he went to New York to study engraving. He visited Europe several times, but lived principally in New York. He died in Scotland, August 4, 1894. Among his best paintings are *The Sign of Promise, Peace and Plenty, Pine Grove and American Sunset*.

IRELAND, JOHN, born in Kilkenny, Ireland, September 11, 1838; came to the United States when a child, and settled in Minnesota. Between 1853 and 1861 he studied in France for the priesthood, and on December 21, 1861, he was ordained at St. Paul. After serving as an army chaplain he became rector of the cathedral at St. Paul, and in 1875 was made coadjutor bishop. He was a prominent member of the Vatican council of 1870, and in 1888 he became archbishop of St. Paul. Archbishop Ireland is well known as an author and an orator of high repute.

IRVING, JOHN HENRY BRODRIBB, actor, was born in England, February 6, 1838, and made his first appearance on the boards of the Sunderland theater, September 29, 1856. On September 25, 1859, he appeared at the Princess theater, London, where he remained about three months. He proceeded in April, 1860, to Glasgow, and remained there until the 29th of the following September. After this he went to Manchester Theater Royal, and continued to play there up to April 1, 1865. From January, 1866, to July in that year, he was engaged at the Prince of Wales' theater, Liverpool, and on July 30th was engaged to play, with Miss Kate Terry, of Manchester, by Mr. Dion Bouicault, in an original play of his, entitled *Hunted Down*. This led to a London engagement, when he came out at the St. James' theater as "Doricourt" in the *Belle's Stratagem*. In December, 1867, he proceeded to the Queen's theater, and subsequently acted in the provinces from time to time, as well as at various London houses. In May, 1870, he transferred his services to the Vaudeville theater, where he appeared as "Digby Grant" in Mr. Albery's comedy of the *Two Roses*, which character he sustained for 300 consecutive nights. His next appearance, November 20, 1871, was at the Lyceum theater, in the *Bells*. He afterward represented the principal characters in Mr. Wills' dramas of *Charles I.* and *Eugene Aram*, 1873, and "Richelieu" in Lord Lytton's play. His representation of "Hamlet" at the Lyceum theater (October 31, 1874) produced a great sensation among the play-going public. *Hamlet* was played for 200 nights, the longest run of the play on record. Irving appeared

in *Macbeth* September 25, 1875, in *Othello* in 1876, and next as "Philip" in Lord Tennyson's drama of *Queen Mary*. Afterward Mr. Irving played his Shakespearean parts in the provinces in Scotland and Ireland. In January, 1877, Mr. Irving added to his Shakespearean repertory by playing *Richards III.* at the Lyceum. The most remarkable incidents of Mr. Irving's management have been the production of *Othello* (in which he alternated the parts of the "Moor" and "Iago" with Mr. Edwin Booth), *The Merchant of Venice*, *Much Ado About Nothing*, *Louis XI.*, *Twelfth Night*, and *Faust*, all of which have been played in conjunction with Miss Ellen Terry. A public banquet was given to Mr. Irving at St. James' Hall, on July 4, 1883, shortly before his departure with the Lyceum company, for a theatrical tour in the United States. A second visit to America was paid in 1884, and since then Mr. Irving has made several tours through the United States.

IRVING, JOHN B., born in South Carolina, November 26, 1825; died April 20, 1877. He studied art at Düsseldorf, and on his return to the United States became an associate of the National Academy. He was best known by his genre pictures, although he did some good portrait work.

IRVING, ROLAND DUER, born in New York city, April 27, 1847; became professor of geology and mineralogy in the University of Wisconsin, and also served as assistant State geologist. His writings on geology and other scientific subjects are extensively known. He died in Madison, Wis., May 30, 1888.

ISABELLA II., MARIA ISABELLA LOUISA, ex-queen of Spain, was born at Madrid, October 30, 1830. Her father, Ferdinand VII., had been induced by the influence of his wife to issue the pragmatic decree, revoking the Salic law; and at his death, September 29, 1833, his eldest daughter, then a child, was proclaimed queen, under the regency of her mother, Maria Christina. This event proved the signal for civil warfare, as the claims of the late king's brother were warmly supported by certain classes of the people. The war of succession lasted seven years, and the country was desolated by the struggle between the contending Carlist and Christina parties, until the cortes confirmed the claims of Isabella by pronouncing sentence of exile on Don Carlos and his adherents. In 1840 the queen-regnant, finding it impossible to carry on the government without making concessions to public feeling, for which she was indisposed, retired to France, resigning her power into the hands of Espartero, whom she had been previously compelled to summon to the head of affairs. For the following three years, while that constitutional leader was able in great measure to direct her education and training, the young queen was subjected to better influences than she had before experienced. She was declared by a decree of the cortes to have attained her majority, October 15, 1843, and took her place among the reigning sovereigns of Europe. Maria Christina returned to Madrid in 1845, and her restoration to influence was marked by the marriage of Isabella II. to her cousin, Don Francisco d'Assisi, the elder son of her maternal uncle, Don Francisco de Paula, which took place October 10, 1846. Sacrificed to the intrigues of a party whose interests were based on this uncongenial union, Isabella II. never knew the beneficial influence of domestic happiness; estrangements and reconciliations having succeeded each other alternately in her married life. On September 16, 1868, a great revolution broke out in Spain, starting with the fleet off Cadiz, and gradually spreading over the whole peninsula. The speedy result was the formation of a

republican provisional government under Prim, Serrano, and others at Madrid, and the flight of Queen Isabella to France. On November 6th her majesty took up her residence in Paris, where she remained during her exile, with the exception of an interval spent at Geneva during the Franco-Prussian war. On June 25, 1870, she renounced her claims to the Spanish throne in favor of her eldest son, the prince of the Asturias. After eight years of exile she returned to Spain, and was received at Santander by her son, the late King Alfonso XII. (July 29, 1876).

ISMAIL PACHA, ex-viceroy or khedive of Egypt, son of Ibrahim Pasha, and grandson of the celebrated Mehemet Ali, was born at Cairo in 1830, and succeeded his brother, Said Pasha, January 18, 1863. He was educated in Paris, and on his return to Egypt, in 1849, he opposed the policy of Abbas Pasha, the viceroy, who, as it was supposed for political purposes, made, in 1853, a criminal charge against him, which was not, however, proceeded with. In 1855 he visited France on a confidential mission, and proceeded thence to Rome, where he conveyed some magnificent Oriental presents for the Pope's acceptance. On June 8, 1878, a firman was granted by the sultan to the khedive of Egypt, sanctioning the full autonomy of that country, and enacting the law of primogeniture in favor of Ismail Pasha's family. The attempt to Europeanize the country entailed a vast expenditure, and Egypt acquired a national debt of more than \$400,000,000. In 1875 the khedive procured a temporary respite from his difficulties by the sale of his shares in the Suez canal to the British Government for the sum of \$20,000,000. In 1879 trouble arose, owing to the dissatisfaction of the over-taxed people, and finally the sultan issued a firman deposing Ismail, and appointing his son Tewfik as khedive. Ismail retired to Italy, where he died in March, 1895.

ISRAELS, JOSEF, a Dutch painter, was born at Groningen in 1824. He studied at Amsterdam, under Kruseman, and next at Paris, under Picot, and received gold medals of honor at Paris, Brussels, and Rotterdam. He also had conferred upon him the Belgian Order of Leopold, and was nominated a member of the French legion of honor.

ISTRIA, THE PRINCESS DORA D', the literary pseudonym of the Princess Helen Ghika, one of the daughters of Michael Ghika, and niece of Prince Gregory IV., who was the first to spread among the people of Wallachia the liberal institutions of civilization, was born at Bucharest in 1829, and was married in 1849 to the Russian Prince Koltzoff-Massalsky. Disliking the absolutist system of government in Russia, she quitted that country in 1855. She spent five years in Belgium and Switzerland, carefully studying the customs and laws, and, having made a tour through Greece, she went in 1861 to reside in Florence. She is acquainted with all European languages, has written much on the vital questions affecting the future of the Greeks, the Albanians and the Slavs of Northern Europe, and contributed to leading European and American reviews.

ITO, HIROBUMI, COUNT, prime minister of Japan, was born about 1840, traveled extensively in Europe and America, imbibed western ideas and has been prominent in promoting the material and political progress of Japan as well as in the direction of the war with China in 1894-95.

IZARD, RALPH, born in South Carolina in 1742, became a member of the Continental congress; was United States senator from his native State for six years (1789-95), and died in 1804.



## J.

**JACKSON, CHARLES**, born at Newburyport, Mass., May 31, 1775; graduated at Harvard in 1793, became judge of the Supreme Court of the State (1813-24), and afterward was one of the commissioners appointed to codify the State laws. He died in Boston, December 13, 1855.

**JACKSON, CHARLES LORING**, born in Boston, Mass., April 4, 1847; graduated at Harvard, and became professor of chemistry there. He is a member of the American Academy of Arts and Sciences, and has made several valuable discoveries in chemistry.

**JACKSON, CHARLES THOMAS**, born at Plymouth, Mass., June 21, 1805; graduated at Harvard medical school in 1829, and began, in 1832, a series of investigations in electricity which produced important results. It is claimed that he exhibited in 1834 an electric telegraph which preceded that patented a year later by Morse. It is also claimed for Jackson that he was the original discoverer of the anæsthetic properties of sulphuric ether. Doctor Jackson was, for many years, connected with the Boston Society of Natural History, and his contributions to scientific literature were numerous. He died at Somerville, Mass., August 28, 1880.

**JACKSON, CLAIBORNE FOX**, born in Kentucky, April 4, 1807; died at Little Rock, Ark., December 6, 1862. He was a member of the Missouri legislature for many years, and in 1860 was governor of Missouri. His sympathies were with the South, and he attempted to carry his State with him, but failed, and was driven from office. He took service with the Confederate army, but failed to distinguish himself, and died early in the war.

**JACKSON, CONRAD F.**, born in Pennsylvania, September 11, 1813; entered the army in 1861 as colonel of a Philadelphia regiment, and was killed at Fredericksburg, December 13, 1862, while leading his brigade into action.

**JACKSON, EDWARD PAYSON**, born in Turkey in March, 1840, was the son of an American missionary. He served during the Civil war in a Massachusetts regiment; graduated at Amherst in 1870, and has written several mathematical works.

**JACKSON, HELEN HUNT (FISKE)**, was born in Amherst, Mass., October 18, 1831, and married Captain Hunt in 1852. She became a contributor to magazines and periodicals, writing under the signature of "H. H." She was appointed special United States commissioner to examine into the condition of the California Indians, and while engaged in this occupation she died in San Francisco, August 12, 1885. She wrote *Ramona*.

**JACKSON, HENRY R.**, lawyer, was born in Athens, Ga., June 24, 1820; graduated at Yale, rose to a colonelcy in the Mexican war, was minister to Austria, 1854-58, became major-general of Georgia troops, 1861, and in 1864 was taken prisoner at Nashville. In 1885 he was U. S. minister to Mexico. Died May, 1898.

**JACKSON, HOWELL EDMUNDS**, was born at Paris, Tenn., April 8, 1832, educated at the University of Virginia, practiced law at Jackson and in Memphis, held a civil appointment under the Confederacy, was elected United States Senator in 1881, was appointed 19 President Cleveland U. S. circuit judge for the Sixth Judicial Circuit in 1886, and in February, 1892, was appointed associate justice of the United States Supreme Court by President Harrison.

**JACKSON, JAMES**, born in England, 1757; moved to Georgia and served in the Revolution, becoming a

brigadier-general. In 1789 he was elected to congress, and in 1793 to the United States senate. He was afterward governor of his State, and again senator. He died at Washington, D. C., in March, 1806.

**JACKSON, JOHN ADAMS**, born at Bath, Me., in 1825; studied art in France and Italy, and executed portrait busts of Daniel Webster and other statesmen, and other works, of which the most noted is his *Eve and the dead Abel*. He died in Tuscany in August, 1879.

**JACKSON, WILLIAM LAWRIES, M.P.**, was born at Otley, England, in 1840, and was educated privately. He carries on an extensive leather business in Leeds, and is a director of the Great Northern Railway Company. He represented Leeds from April, 1880, until the dissolution in 1885, after having unsuccessfully contested the borough in 1876. In 1885 and 1886 he was returned for the northern division of Leeds. In Lord Salisbury's first administration he received the important appointment of financial secretary to the treasury, in succession to Sir Henry Holland, and in his second cabinet held the same post.

**JACKSON, WILLIAM WALROND, D.D.**, bishop of Antigua; born in Barbadoes about 1810; received his education at Codrington College, Barbadoes, of which he was a licentiate in theology. He was formerly chaplain to the forces in Barbadoes, and was consecrated bishop of Antigua in 1860. Died Nov., 1895.

**JACOBI, ABRAHAM**, born in Westphalia in May, 1830; studied medicine at Bonn and Göttingen, and became implicated in revolutionary movements in Germany, which led first to his imprisonment and afterward to his expatriation. In 1854 he came to New York, where he became prominent as a physician. For many years he held professorial chairs in the medical department of the University of the City of New York, has been president of the New York State Medical Society, and in 1885 became president of the New York Academy of Medicine.

**JACOBINI, LUDOVICO**, cardinal priest of the Holy Roman Church, was born at Albano, May 6, 1832. In 1862 Pius IX. made him one of the *Prelati Domestici* and one of the referendaries of the segnatura. Soon afterward he was made secretary of that section of the congregation *de Propaganda Fide* which is charged with the special supervision of the affairs of the Eastern Churches. When, in 1874, the nuncio at Vienna, Falcinelli-Antoniacci, was created cardinal and withdrew from his post, Monsignor Jacobini was chosen by Pius IX. to succeed to the vacancy, which was at the time a position of no small difficulty. According to custom, he received episcopal consecration with the title of Archbishop of Thessalonica in *partibus infidelium*, and was accredited to the court of Vienna, where he remained until October, 1880. On September 19, 1879, he was created cardinal. In conformity with the strict etiquette of the papal court, which forbids a cardinal to hold the inferior rank of nuncio, Cardinal Jacobini, after his elevation to the purple, bore the title of pro-nuncio. He was recalled from Vienna in October, 1880, and appointed by Leo XIII. to the office of papal secretary of state, in succession to Cardinal Nina. He died February 28, 1887.

**JACOBUS, M.W., LL.D.**, born at Newark, N. J., September 19, 1816; graduated at Princeton and in 1851 became professor of Oriental and Biblical literature at Allegheny Seminary, Penn. He died October 28, 1876.

**JAHN, FRIEDRICH LUDWIG**, born in Prussia, August 11, 1778; was the founder of the German system of gymnasia known as the "Turners." He served in the Prussian army, and after 1815 established Turn-art schools which were at first supported by the government, but were afterward suppressed as being nurseries of a radical school of thought not acceptable to despotic monarchs. Jahn was imprisoned for over five years at Spandau and other fortresses, was afterward a member of the Frankfort parliament of 1848, and died at Freiburg, October 15, 1852. His system has been extended wherever Germans congregate, and is well known in the United States.

**JAMES, HENRY**, novelist and essayist, was born in New York city, April 15, 1843. He is the son of the late Rev. Henry James, a forcible writer on religious and philosophical topics (born 1811, died December 18, 1882). Mr. James attended the Harvard Law School but has lived abroad since 1869, latterly in London. He contributed to American magazines, but his celebrity rests upon his novels, which usually deal with Americans abroad, and are extremely analytical. His *Daisy Miller*, as portraying an American type, has been much discussed and abused. Other well-known novels of his are *The Bostonians*, *Princess Casamassima*, *Washington Square* and *The Private Life* (1894).

**JAMES, SIR HENRY, Q.C., M.P.**, was born at Hereford, England, October 30, 1828, and received his education at Cheltenham College. He was called to the bar in the Middle Temple in 1852, was made a queen's counsel in June, 1869, and became a bencher of his Inn in 1870. In March, 1869, he obtained a seat in the House of Commons as one of the members for Taunton, and continued to represent that borough in the Liberal interest until 1885, when he was returned for Bury (Southeast Lancashire). During the session of 1872 he took a prominent part in the debates on the Judicature Bill. In September, 1873, Mr. Gladstone appointed him solicitor-general in succession to Sir George Jessel, and in November of that year he became attorney-general, and received knighthood. He went out of office with the Liberal party in February, 1874. He was again appointed attorney-general on the return of the Liberals to power under Mr. Gladstone in May, 1880. In Mr. Gladstone's administration of 1886, Sir Henry James (who had been offered the lord chancellorship) declined to take office, on the ground of disagreement with the prime minister's home rule policy. He was returned unopposed for Bury, as a Unionist Liberal, at the general elections of 1886, and he was reelected in 1892, and took a prominent part in the Home Rule bill discussions of 1893.

**JAMES, THOMAS LEMUEL**, born at Utica, N. Y., March 29, 1831; was a pupil at the Utica Academy until he was fifteen years of age. His first journalistic experience was upon *The Liberty Press*, an anti-slavery paper. Entering actively upon political life before he had attained his majority, he was made associate editor (1849) of *The Madison County Journal*, the organ of the Seward wing of the Whig party in New York. Upon the formation of the Republican party Mr. James entered the new organization with zeal, and during the Fremont canvas for the presidency became sole proprietor and editor of the *Journal*, which he retained for ten years. Upon the inauguration of President Lincoln in 1861 he was appointed inspector of customs, and removed to New York city. In 1874 he was made weigher, and in 1876 deputy collector of customs. The efficiency he displayed in all these positions induced President Grant, in 1877, to make him postmaster of New York city, a

position that he filled with ability. He removed the office entirely "out of politics," making merit the only test for appointments and promotions, largely increased its revenues, introduced many mechanical improvements, and in other ways added greatly to its usefulness. His success was so marked that President Garfield appointed him postmaster-general in March, 1881, but the assassination of Mr. Garfield led him to tender his resignation to Mr. Arthur, and in December, 1881, he retired from political life to accept the presidency of the Lincoln National Bank in New York city.

**JANAUSCHEK, FRANCESCA MADELINA**, born in Prague, July 20, 1830; distinguished herself both in Europe and in the United States as a tragic actress, and was well known as a representative of artistic excellence in the higher walks of the drama.

**JANES, EDMUND STORER**, born in Sheffield, Mass., April 27, 1807, died September 18, 1876. He entered the Methodist Episcopal ministry in 1830, served as financial agent for Dickinson College, and as financial secretary of the American Bible Society, and in 1844 was elected bishop.

**JANET, PAUL**, a French author, was born in Paris in April, 1823. He is a follower of Cousin, and has been a professor at Bourges and Strasbourg, and at the Lycée of Louis-le Grand, Paris. In 1864 he became professor of the history of philosophy at the Sorbonne, and a member of the Academy of Moral and Political Sciences. Among his more recent works are *Histoire de la Science Politique*, 1871; *Problèmes du XIX. Siècle*, 1872; *Philosophie de la Révolution Française*, 1875; *Les Causes Finales*, 1876; *La Philosophie Française Contemporaine*, 1879; *Les Maîtres de la Pensée Moderne*, 1883. He has also contributed to the *Revue des Deux Mondes*, *Dictionnaire des Sciences Philosophiques*, *Le Temps*, etc., and is an officer of the Legion of Honor.

**JANS, ANNEKE**, born in Holland about the year 1600; came to New York with her husband, who, in 1636, obtained a grant of land on Broadway, New York city, which has since become of immense value. The property passed into the hands of the corporation of Trinity church, New York, but persons claiming to be descendants of Anneke Jans have made several efforts to recover it by legal process, and the estate furnishes one of those instances of fabulous riches just out of reach of people who trustingly hope to get possession of wealth. As a matter of fact the title of the church is a good one, and has been so declared by the courts on several occasions.

**JANNSEN, JOHANNES**, born in Germany, April 10, 1829; wrote a *History of the German People Before the Reformation*, in which he treated the matter from an ultramontane standpoint. He died December 24, 1891.

**JARVES, JAMES JACKSON**, born at Boston, Mass., August 20, 1818; served as United States consul in Honolulu, and established a newspaper there. He published a history of the Sandwich Islands, and having traveled extensively in Europe produced *Art Hunts* and *Art Studies*, being critical considerations of famous pictures and statuary. He died in Switzerland, June 28, 1888.

**JARVIS, EDWARD**, born at Concord, Mass., January 9, 1803; graduated at Harvard in 1826, and practiced medicine in Massachusetts, where he became well known as an authority on insanity. Died, 1884.

**JAY, JOHN**, born in New York, June 23, 1817; graduated at Columbia College in 1836, and was admitted to the bar in 1839. He took prominent part in the anti-slavery agitation, was one of the founders and for some years the president of the New York Union



League, and was United States minister to Austria 1869-75. He died May 6, 1894.

JAY, WILLIAM, son of John Jay (1745-1829), was born in New York city, June 16, 1789; graduated at Yale, and entered the legal profession. In 1818 he became a county judge, and while on the bench rendered some important decisions as to the rights of fugitive slaves. Judge Jay was for several years president of the American Peace Society. He died October 14, 1858.

JAYNE, FRANCIS JOHN, M.A., was born about the year 1844, and educated at Wadham College, Oxford, of which he was a scholar. He took a first class in moderations in 1866, and a double first class in the final schools, 1868, in which year he became a fellow of Jesus College. In 1886 he accepted the important vicarage of Leeds, vacant by the resignation of Doctor Gott, who became dean of Worcester.

JEAFFRESON, JOHN CORDY, was born on January 14, 1831, at Framlingham, England, where his father, William Jeaffreson, F.R.C.S., was an eminent surgical operator. He entered Pembroke College, Oxford, and took his degree in 1852, proceeding afterward to Lincoln's Inn, where he was called to the bar in 1859. His first novel, *Creue Rise*, was published in 1854, and has been followed by several others. In connection with these works of fiction, mention may be made of their author's history of the literature of prose fiction in England, entitled, *Novels and Novelists from Elizabeth to Victoria*, 1858. Mr. Jeaffreson's principal contributions to the social history of England are his three well-known books on the three learned professions, *A Book about Doctors*, 1860; *A Book about Lawyers*, 1866; *A Book about the Clergy*, 1870. Mr. Jeaffreson's latest works are, *The Real Lord Byron: New Views of the Poet's Life*, 2 vols., 1883; *The Real Shelley*, 2 vols., 1885. He died Feb. 2, 1901.

JEBB, JOHN, D.D., nephew of the late Doctor Jebb, some time bishop of Limerick, born in Dublin in 1805; was educated at Winchester and Trinity College, Dublin. Having held a rectory and a prebendal stall in the diocese of Limerick, in 1843 he was presented to the rectory of Peterstow, Herefordshire; was in 1860 appointed a prebendary, and in 1870 a canon residentiary of Hereford cathedral. He died at Hereford January 8, 1886.

JEBB, RICHARD CLAVERHOUSE, LL. D., born at Dundee, Scotland, August 27, 1841, was educated at St. Columba's College, county Dublin; at Charterhouse School, London; and at Trinity College, Cambridge, where he graduated as senior classic in 1862, and was afterward elected a fellow. As a classical lecturer of his college, he took a foremost part of organizing at Cambridge the system of inter-collegiate classical lectures, and was the first secretary of an association of college lecturers for that purpose. Along with Prof. E. B. Cowell, he was also instrumental in founding the Cambridge Philological Society, of which he was the first secretary. In 1869 he was chosen by the senate to be the public orator of the university. In 1884, on visiting the United States, he received the honorary degree of doctor of laws from Harvard University. In 1885 the degree of doctor of letters was conferred on him by the University of Cambridge. He wrote *The Attic Orators*, *Theophrastus*, *Modern Greece*, *Life of Bentley*, and other works, and in 1891 was elected to the House of Commons, as a Conservative, for the University of Cambridge.

JEFFERSON, JOSEPH, actor, was born in Philadelphia, February 20, 1829. His grandfather and great-grandfather were distinguished actors, and his mother, Mrs. Burke, was a celebrated vocalist. He

appeared on the stage at a very early age, and soon rose to the front place as a comedian, and his merits are recognized in both England and America. His range of characters is very wide, covering almost the entire field of comedy and farce, without degenerating into burlesque. His most famous rôle is that of "Rip Van Winkle" in Mr. Dion Boucicault's play of that name, founded upon the story by Washington Irving; a character which Mr. Jefferson may be said to have created, as well as to have made his own. Perhaps he is equally successful as "Bob Acres" in *The Rivals*. Besides playing in every city in the United States, he has made professional visits to England and Australia. His son, Joseph Jefferson, Jr., is also an actor of decided ability.

JELLETT, JOHN HEWITT, B.D., provost of Trinity College, Dublin, born at Cashel, Ireland, December 25, 1817; received his education at Trinity College, Dublin, of which he was elected a fellow in 1840. He was appointed professor of natural philosophy in the University of Dublin in 1848; a commissioner of national education in 1868; and president of the Royal Irish Academy in 1869. Mr. Jellett, who was one of the ablest mathematicians of the day, wrote a *Treatise on the Calculus of Variations*, published at Dublin in 1850; *Treatise on the Theory of Friction*, published in Dublin and London, 1872; besides various papers on *Pure and Applied Mathematics*, and *Experimental Optics*, with their application to chemistry, published in the *Transactions and Proceedings of the Royal Irish Academy*. He died in 1888.

JENKINS, CHARLES JONES, born in South Carolina January 6, 1805; died in Georgia June 13, 1883. He entered the State legislature of Georgia in 1830, and served in it for twenty years, much of the time as speaker of the House. In 1860 he was appointed to the State supreme bench, and in 1865 was elected governor. In 1877 he presided over the Georgia constitutional convention.

JENKINS, EDWARD, born in 1838 at Bangalore, India; was educated at the high school and McGill College, Montreal, and in the University of Pennsylvania. He was called to the bar at Lincoln's Inn in 1864; and practiced with success up to 1872-3, when he entered upon politics; was appointed agent-general for Canada in February, 1874, resigning in January, 1876, and was elected member of parliament for Dundee February, 1874, while absent in Canada. He continued to represent that borough till April, 1880. In January, 1881, he contested the city of Edinburgh against Mr. McLaren, the lord advocate, but only succeeded in polling 3,940 votes, while 11,390 were recorded in favor of his opponent. Mr. Jenkins is an advanced liberal, chiefly on social questions; an anti-Republican; and is in favor of imperial unity as against the anti-colonial party. He is the author of *Ginx's Baby*, *Lord Bantam*, *The Coolie*, *Little Hodge*, *The Devil's Chain*, *Lutchmee and Dilloo*, *The Captain's Cabin*, *Fatal Days*, 1874; *A Paladin of Romance*, *Contemporary Manners*, 1882; *Jobson's Enemies*, 1883; and several political essays.

JENKINS, THORNTON ALEXANDER, born in Orange county, Va., December 11, 1811; entered the United States navy in 1828, was commissioned lieutenant in 1839, and engaged in the coast survey and in various exploring expeditions. He was promoted captain in 1862, was engaged in the blockade of Mobile, and acted as chief of staff of Farragut's Mississippi squadron. In 1866 he was commissioned commodore, was afterward chief of the board of navigation and became rear-admiral in 1870. In December, 1873, he retired from active service. He died August 9, 1893.

JENNER, SIR WILLIAM, F.R.S., born at Chat-

ham, England, in 1815; was educated at University College, London, and began his professional career as a general practitioner, his first public appointment being that of surgeon-accoucheur to the Royal Maternity Charity. He graduated M.D., London, in 1844, when he retired from general practice. In 1848 he became a member of the Royal College of Physicians, and in the same year was appointed professor of pathological anatomy in University College, and assistant-physician to University College Hospital. He was elected fellow of the Royal College of Physicians, and appointed to deliver the Gulstonian Lectures before the college in 1852. On the death of Doctor Baly, in 1861, Doctor Jenner was appointed to succeed him as physician extraordinary to the queen, and in 1862 was gazetted physician in ordinary. In 1862 he became professor of the principles and practice of medicine at University College, and in 1863 physician in ordinary to the prince of Wales. On his appointment as physician to the queen, he resigned his connection with the London Fever Hospital, and in 1862 resigned the post of physician to the Hospital for Sick Children. In 1864 he was elected a fellow of the Royal Society. He has written several series of papers on fever, the acute specific diseases, diphtheria, diseases of children, diseases of the heart, lungs, skin, etc. He was created a baronet in 1868, and made a K.C.B. January 20, 1872, in recognition of services rendered during the severe illness of the prince of Wales. In 1881 Sir Wm. Jenner was elected president of the College of Physicians. Died Dec. 11, 1898.

JENNINGS, LOUIS JOHN, M.P., was born in London in 1837. Between 1863 and 1868 he acted as special correspondent of the *Times* in India and the United States, and took part in exposing and overthrowing the celebrated "Tammany Ring." After his return to England he published (1877) a book descriptive of country walks in England, *Field Paths and Green Lanes*, and in 1880, a similar and popular work, *Rambles among the Hills*. He also wrote *Eight Years of Republican Government in the United States* (1868), and *The Millionaire*, a novel (1883), besides editing the well-known *Crocker Papers* (1884). From 1885 until his death, February 9, 1893, he sat in the House of Commons, as a Conservative, for Stockport.

JERMYN, HUGH WILLOUGHBY, D.D., bishop of Brechin, was educated at Trinity Hall, Cambridge, was made archdeacon of St. Christopher, West Indies, in 1858 became rector of Nettlecombe, Somersetshire, and in 1871 was appointed bishop of Colombo. He resigned this see early in 1875 and soon afterward was elected bishop of Brechin. In September, 1886, he was elected primus of the Episcopal Church of Scotland in succession to Bishop Eden.

JEROME, JEROME K., English humorist, born in 1861, was a railway clerk, actor, journalist, tutor, shorthand writer, and solicitor's clerk in succession till 1889, when he published *On the Stage and Off*, *Idle Thoughts of an Idle Fellow* and *Three Men in a Boat*, the last of which had a striking popular success. He also earned distinction in the drama with *Barbara* and *Woodbarrow Farm*. He founded the *Idler* in 1892 and *To-day*, a weekly magazine, in 1893.

JERROLD, WILLIAM BLANCHARD, son of the famous Douglas JERROLD (q. v.), was born in London, England, in 1826. He engaged in literature, and was the author of numerous plays, a *Life of Napoleon III.*, and other works, and succeeded his father as editor of *Lloyds' Weekly London News*. He died March 10, 1884.

JESSE, GEORGE RICHARD, was born at Caen, in Normandy, in 1820. He is a civil engineer, an etcher on copper, and the author of *Researches into the History of the British Dog*, 2 vols., 1866. He has been en-

gaged in the construction of railways in England, Egypt, and India. He has written on the Suez canal, the projected Euphrates Valley railway, and Indian public works. He is also a leader of the anti-vivisectionists, and has written many pamphlets on the subject of vivisection.

JESSEL, SIR GEORGE, born in London, England, of Jewish parents, in 1824; was called to the bar in 1847, became queen's counsel in 1865, solicitor-general of England in 1871, and in 1873 became master of the rolls, one of the highest judicial offices. He was considered the best equity lawyer of his time. He died March 21, 1883.

JESSOP, AUGUSTUS, D.D., was born in 1824, in England. He was educated at St. John's College, Cambridge, of which he is M.A.; and he is D.D. of Worcester College, Oxford. He was appointed headmaster of Helston grammar school, Cornwall, 1855; headmaster of Norwich school, 1859; and rector of Scarning, Norfolk, 1879. He was preacher before the University of Oxford in 1870. His numerous papers on *Acadia* (i.e., the homes, thoughts, and ways of the East Anglican peasantry) have deservedly attracted much notice. He has likewise contributed many papers on historical and antiquarian subjects in the proceedings of the Norfolk and Norwich Archæological Society, of which he is literary secretary.

JEVONS, WILLIAM STANLEY, born at Liverpool, England, September 1, 1835; was educated in London, and spent several years in Australia, where he was connected with the Sydney mint. In 1866 he became professor of logic at Manchester, and in 1875 professor of political economy at University College. He wrote an *Elementary Treatise on Logic*, and articles on political economy. He died by accident August 13, 1882.

JEWELL, MARSHALL, born in New Hampshire, October 20, 1825; died in Connecticut February 10, 1883. He engaged in business, with much success, and in 1869 was elected governor of his State. Defeated the following year, he was again successful in 1871 and 1872. In 1873 he was sent as minister to St. Petersburg, and in 1874 returned to become postmaster-general. He resigned this position in 1876, being dissatisfied with the treatment accorded to Benjamin H. Bristow, whose candidacy for the presidency Mr. Jewell strongly favored. In 1880 he was chairman of the Republican national committee.

JEX-BLAKE, THOMAS WILLIAM, D.D. was born in London, England, January 26, 1832, and entered Rugby School as a pupil of Mr. Cotton, in 1844. In 1851 he was elected a scholar of University College, Oxford, where he took his B.A. degree in 1855, obtaining a first-class in classical honors both in moderations and in the final schools. He was appointed composition master to the sixth form at Marlborough College in 1855. In the same year he was elected to a fellowship at Queen's College, but he vacated it by his marriage in 1857. He was ordained deacon in 1856, and priest in the following year. He was appointed an assistant master at Rugby in January, 1858; principal of Cheltenham College, in June, 1868; and head-master of Rugby School in February, 1874. In 1886 he announced his resignation of the head-mastership. Dr. Jex-Blake published *Long Vacation in Continental Picture Galleries*, in 1858.

JOACHIM, JOSEPH, a celebrated violinist, born in Hungary, of Jewish parents, July 15, 1831; entered while very young the Conservatory of Music at Vienna, where he studied under Joseph Böhm. From the age of twelve years he attracted much attention at Leipzig by his rare skill on his instrument, and obtained an engagement, which he held for seven years, in the orchestra.



tra of the Gewandhaus. He assiduously pursued his studies under the guidance of Ferdinand David, and also received lessons from Moritz Hauptmann. In 1850 he paid his first visit to Paris, and in the same year was appointed director of the concerts at Weimar. In 1853 he became master of the Chapel Royal at Hanover. After this he appeared in most of the capitals of Europe, and paid annual visits to London, where he gave several series of concerts. In 1869 he became a member of the senate of the Berlin Academy, and was nominated director of the school of instrumental music in the Conservatory of Music, then recently established in the Prussian capital. He was created an honorary Mus. Doc. of the University of Cambridge, March 8, 1877. Herr Joachim's fame rests mainly on his extraordinary skill as an instrumentalist. As a composer he belongs to the school of Schumann. The *Concert à la Hongroise* is one of his chief compositions for violin and orchestra. In 1882, he became conductor of the Royal Academy of Music at Berlin, and musical director of the Royal Academy of Arts. He has played in the United States.

JOGUES, ISAAC, French missionary, born in Orleans, France, January 10, 1607; died near Auriesville, N. Y., October 18, 1646. He was a Jesuit, and became priest in 1636, when he went to Canada to labor among the Huron tribe of Indians. In 1642, accompanied by several natives, he sailed down the St. Lawrence river in a canoe to Quebec, to obtain supplies for the missions. On his return his party fell into a Mohawk ambuscade; was vanquished and the priest taken prisoner. All were treated with savage barbarities, and three of the Huron captives burnt at the stake. Jogues alone was conveyed by the Mohawks to their hunting grounds where he was treated as a slave. Later some Holland settlers combined to liberate him, in which attempt they were successful. In November, 1643, he sailed for Europe, and, after suffering shipwreck, reached France. In 1644 he embarked anew for Canada from the port of La Rochelle, and for some time was stationed at Montreal, where he was employed in negotiations with the Mohawk Indians. He passed through Lake George, which he called Sainte Sacrement, halted at Fort Orange and visited the Mohawk settlements. However, new troubles again arose between the natives and foreigners, and Jogues for a second time was made captive. This was on October 17, 1646. After being again tortured, he was slain.

JOHNSON, BUSHROD R., born in Ohio, October 7, 1817; died, September 11, 1880. He graduated at West Point in 1840; served in the Seminole and Mexican wars, and became superintendent of the Western Military Institute of Kentucky. In 1861 he entered the Confederate service, was taken prisoner at Fort Donelson, commanded a division at Chattanooga, and was promoted major-general in 1864. He was afterward chancellor of the University of Nashville.

JOHNSON, CAVE, born in Tennessee in 1793; died there in 1866. He became a circuit judge, was elected to Congress as a Democrat, and served in 1829-37 and 1839-45. In the last-named year he became postmaster-general in Polk's cabinet, and from 1850 to 1859 he was president of the Bank of Tennessee. He supported the Union cause during the Civil war.

JOHNSON, DAVID, artist, born in New York city May 10, 1827, became in 1860 an associate, and in 1862 a member, of the National Academy. He is best known by his landscapes, and as a faithful delineator of American scenery.

JOHNSON, EASTMAN, was born at Lovell, Me., July 29, 1824. In 1849 he went to Düsseldorf, where he studied two years, and afterward resided for four

years at the Hague, where, besides numerous portraits, he executed *The Savoyard* and the *Card Players*, his earliest elaborate pictures in oil. After visiting the principal European galleries, he returned to New York in 1856, devoting himself largely to portrait painting. His *Portrait of Dr. McCosh*, *Portrait of a Girl*, *The Cranberry Harvest*, and other pictures were exhibited at the World's Fair in Chicago in 1893.

JOHNSON, EDWARD RALPH, bishop of Calcutta, was born in England, February 17, 1828, and educated at Rugby, and at Wadham College, Oxford (B.A. 1850; M.A. 1860). He was ordained deacon and priest. He was selected by the bishop of Chester, in 1871, to fill the post of archdeacon of Chester, upon the resignation of the late Archdeacon Pollock. In October, 1876, he was appointed to the bishopric of Calcutta.

JOHNSON, SIR EDWIN, was born July 4th, 1825, at Bath, and educated at Addiscombe college. He entered the service as second lieutenant, Bengal artillery, June 10, 1842, and served in the horse artillery during the Sutlej campaign, 1845-46. In 1848 he was appointed deputy judge advocate-general, and served on the staff under Lord Gough in 1848-49, during the Punjaub war. He served throughout the Indian mutiny in 1857-58, including the siege and capture of Delhi, and the siege and capture of Lucknow. In 1862 he was appointed adjutant-general of the army, and in July, 1873, quartermaster-general in India, and adjutant-general in India in the following year, returning to England as a member of the India council in 1874. He was appointed member of the viceroy's council in India in March, 1877; resigned the post in September, 1880, and became director-general on military education on December 10, 1884. Died, 1893.

JOHNSON, SIR GEORGE, M. D., was born in November, 1818, in Kent, England. In 1843 he was appointed the first medical tutor at King's College; in 1850, when he resigned that office, he was elected an honorary fellow of the college; in 1857 he was appointed professor of materia medica; and in 1863 he succeeded the late Dr. George Budd as professor of the principles and practice of medicine. In 1876 he was appointed professor of clinical medicine, with the office of senior physician of King's College Hospital. In 1862 he was elected a fellow or senator of the University of London, and in 1872, a fellow of the Royal Society. In 1846 he became a member of the College of Physicians, and in 1850, having been elected a fellow, he was appointed to give the Gulstonian lectures. In 1877 he delivered the Lumeleian lectures, and in 1882 the Harveian oration. Died June 3, 1896.

JOHNSON, SIR JOHN, born in Mount Johnson on the Mohawk river, November 5, 1742; died in Montreal, Canada, January 4, 1830. He was educated at Albany and in New York city by clergymen of the Reformed and Anglican churches, and in youth spent some time in England, where he was knighted. Returning to America, he had much military experience. When his father died, in 1774, he succeeded to the baronetcy and estates, and also to the post of major-general of militia. In 1776, being pursued by the troops under General Schuyler, Sir John, with about 300 Scottish Tories, fled through the wilderness to Montreal. On his arrival there he was made colonel, became active in forming two battalions, and in 1777, under the lead of Col. Barry H. Leger, took part in the investment of Fort Stanwix. When General Arnold marched toward Fort Stanwix for its relief, St. Leger and Johnson fled into Canada. In 1780, in connection with the Indians under Brant and Cornplanter, he ruthlessly desolated Cherry valley and the Mohawk country, a barbarous proceeding that led to no military result.



At the termination of the war his estates were confiscated. In return for his losses the British Government gave him large tracts of land in Canada, and he was made superintendent-general of Indian affairs.

JOHNSON, REVERDY, born in Annapolis, Md., May 21, 1796; died there February 10, 1876. Reverdy was educated at St. John's College, studied law with his father, and was admitted to the bar in 1815. He began to practice in Upper Marlboro, and in 1817 removed to Baltimore. From 1821 until 1825 he was a State senator. Later he was appointed attorney-general in President Taylor's cabinet. From 1845 to 1849 he sat in the United States senate as a Whig, but he supported the Mexican war, in opposition to the political party to which he belonged. He opposed the doctrines of the American or Know-Nothing party, in 1856 united with the Democrats, and supported the administration of James Buchanan. He was again elected to the United States senate in 1862, throughout the Civil war sustained the national government, and when peace was restored, argued in favor of the prompt readmission of the Southern States. In 1868 he was appointed minister to Great Britain, as a Democrat, and on the accession of General Grant to the presidency in 1869, was succeeded in that office by a Republican. In his international negotiations with the British Government he was remarkably successful. On his return from England he renewed his law practice.

JOHNSON, RICHARD MENTOR, born in Kentucky, October 17, 1781; died November 19, 1850. He was educated at Transylvania University, practiced law, entered the State legislature in 1804, and three years later was elected to congress as a Republican. He sat in congress for twelve years, but during the war with Great Britain left his legislative duties to assist in the campaign. He took part in the engagement at Chatham, Ontario, and at the battle of the Thames, October 5, 1814, killed an Indian chief, and was himself severely wounded. From 1819 to 1829 Mr. Johnson served in the United States senate, and from 1829 to 1837 again in the lower house of congress. He was a candidate for vice-president on the ticket with Van Buren, in 1836, failed to obtain a majority of the electoral vote, but was chosen by congress. He was a member of the legislature of Kentucky at the time of his death.

JOHNSON, ROSSITER, author, born in Rochester, N. Y., January 27, 1840; was graduated at the University of Rochester in 1863. From 1864 until 1868 he was co-editor of the *Rochester Democrat*, a Republican newspaper, and from 1869 until 1872 edited the *Concord* (N. H.) *Statesman*. From 1873 until 1877 he was one of the editors of the *American Cyclopaedia*, and in 1879-80 assisted Mr. Sidney H. Gay in preparing the last two volumes of the so-called *Bryant's History of the United States*. In 1883 he became editor of the *Annual Cyclopaedia*. He planned and edited the series of *Little Classics* (18 volumes, published in Boston, 1874-75, and 1880).

JOHNSTON, ALEXANDER, painter, born at Edinburgh in 1813; first exhibited at the Royal Academy in 1836. His earlier pieces were derived from Scottish song and story, *The Gentle Shepherd*, exhibited in 1840, and *Sunday Morning*, in 1841, from Burns; *The Covenanter's Marriage*, in 1842; and *The Covenanter's Burial*, in 1852. *The Arrest of John Brown the Lollard* was painted in 1856, followed by *The Pressgang*, in 1858, which was published for the Art Union of Glasgow; *John Bunyan in Bedford Jail*, in 1861; *The Cotter's Saturday Night*, in 1863; *Robin Adair*, in 1864; and *The Child Queen and Her Four Maries*, in 1866. *The Flight of Mary Modena*, *Charlotte Corday*

and *Flora Macdonald* were all painted in 1869, and exhibited in that year's Royal Academy exhibition. The last-named was bought by the prince of Wales. *The Elopement of Dorothy Vernon* was exhibited in 1871. *The Waif*, painted in 1877, is now in the Sidney National Gallery. He died January 13, 1891.

JOHNSTON, GEORGE, M.D., F.R.G.S., fellow and president of the King and Queen's College of Physicians in Ireland, was born in Dublin in 1814, and studied at the University of Dublin. He was the author of *Clinical Reports of the Rotunda Lying-in Hospital, Dublin*, during his seven years' mastership, from 1868 to 1875, which contain a most accurate and valuable body of statistics on obstetrical subjects, and of other medical papers. He died in 1889.

JOHNSTON, JOSEPH ECCLESTON, was born in Prince Edward county, Va., February, 1807. He graduated at the Military Academy at West Point in 1829, and served in various military capacities, chiefly in the topographical engineers, until the outbreak of the Civil war, at which time he was made quartermaster-general, with the rank of brigadier-general. He resigned his commission April 22, 1861, and entered the Confederate service as major-general. During the earlier part of the campaign of 1862 he was in command of all the Confederate forces in Virginia, and was severely wounded at the battle of Fair Oaks, near Richmond, May 31st. In November, having been made lieutenant-general, he was assigned to the command of the military department of Tennessee, and in the following spring made an ineffectual effort to relieve Vicksburg, on the Mississippi, which was then besieged by General Grant. After the defeat of General Bragg, at Chattanooga, November 25, 1863, Johnston was assigned to the command of all the Confederate forces in the Southwest, with the rank of general. In 1864 he was at the head of the forces which opposed Sherman in his famous "march to the sea." Compelled to fall back from point to point, the authorities at Richmond became dissatisfied, and on July 17th Johnston was ordered by President Davis to turn over his command to General Hood. Near the close of February, 1865, when Sherman had marched into South Carolina, Johnston, at the express urgency of General Lee, was directed to assume the command of the remnant of the army of Tennessee, and of all the forces in South Carolina, Georgia, and Florida, to "drive back Sherman." The force which he could concentrate was greatly inferior to that of Sherman, and he was unable seriously to check his march. Having learned that Lee had surrendered the army of Virginia to Grant, Johnston capitulated to Sherman at Durham's Station, N. C. From the close of the war until 1885 he was engaged in agricultural, commercial and railroad enterprises. In March, 1885, he was appointed commissioner of railroads by President Cleveland, which position he was deprived of in 1889 by President Harrison. He published a narrative of military operations conducted by him during the war between the States. He died March 21, 1891.

JOHNSTON, RICHARD MALCOLM, an American author, was born in Hancock county, Georgia, March 8, 1822. He was professor of literature in the University of Georgia before the war, and in 1867 removed to Baltimore county, Maryland. He has published, in addition to contributions to periodicals, a *Life of Alexander H. Stephens* (1878), a *History of English Literature* (1879), *Dukesborough Tales* (1883), *Old Mark Langston* (1884), *Mr. Absalom Billingslea and other Georgia Folk* (1888), *Ogeechee Cross-Firings* (1889), *Widow Guthrie* (1890), *Little Ike Templin* (1894), and other stories. He died Sept. 23, 1898.

JOHNSTON, WILLIAM, M. P. (known as Mr.



Johnston of Ballykilbeg), born in Downpatrick, Ireland, February 22, 1829, was educated at Trinity College, Dublin, called to the Irish bar in 1872, and has been M. P. for Belfast in the Conservative interest, 1868-78, and since 1886. He was Inspector of Irish Fisheries 1878-85. Mr. Johnston was imprisoned for two months in 1868, for taking part in an Orange procession, and is the leading Orangeman in Parliament. He is the author of the novels—*Nightshade*, 1857; *Freshfield and Under which King? 1872*.

JOHORE, TUNKOO ABUBEKER BIN IBRAHIM, K.C.S.I., the maharajah of Johore (commonly called the Tumongong), born in 1835; is grandson of one of the Malay princes by whom the island of Singapore was first ceded to Sir Stamford Raffles, as political agent for the British Government, and succeeded to the sovereignty of the Johore territories on the death of his father in 1861. He is one of the most enlightened princes of Eastern Asia, and is a firm ally of the British Government. Died June 4, 1895.

JOINVILLE, PRINCE DE (FRANÇOIS-FERDINAND-PHILIPPE-LOUIS-MARIE-D'ORLÉANS), son of the late Louis Philippe, king of the French, was born at Neuilly, August 14, 1818. Soon after his father's accession to the throne in 1830 he began his naval studies, was sent to sea at the age of thirteen, and passed a brilliant examination at Brest. From that time he devoted himself entirely to his profession, and became a great favorite with the French navy. Being with the Mediterranean squadron in 1837, he disembarked and rode up to Constantine, in the hope of taking part in the storming of that stronghold, but arrived just too late. Not long afterward he received the command of the corvette *Créole*, and, joining the fleet of Admiral Baudin, was intrusted with the difficult mission of obtaining reparation from the Mexican Government. The *Créole* took a prominent part in the bombardment of St. Juan d'Ulloa. In 1841 he was selected by the king to command *La Belle Poule* frigate, charged with the service of conveying to France the body of the emperor Napoleon, and he married, at Rio Janeiro, May 1, 1843, Donna Francisca de Braganza, sister of Dom Pedro II., emperor of Brazil. Becoming rear-admiral, he took part in the sittings of the admiralty. When war broke out between France and Morocco he commanded a squadron, with which he bombarded Tangiers and took Mogador. After this decisive expedition he was raised to the rank of vice-admiral. Being almost always on active service, the Prince de Joinville was in Algiers with his brother, the Duc d'Aumale, when the revolution of February, 1848, overthrew the constitutional monarchy. The two brothers sought refuge in England, and joined King Louis Philippe at Claremont. Died June 16, 1900.

He had already, in 1844, begun publishing in the *Revue des Deux Mondes* his studies on the French navy. One of his articles, published in 1865, was a comparative review of the fleets of the United States and France, and excited much attention at the time. Happening to be in the United States about a twelvemonth after the breaking out of the Civil war, he accompanied his nephews, the Comte de Paris and the Duc de Chartres, to the camp of General McClellan, with whose staff he witnessed the principal actions of the Virginian campaign of 1862, and gave an account of these events in a well-written and impartial article published in the *Revue des Deux Mondes* in 1863. After the downfall of the Napoleonic dynasty, he went back to France with the other Orleanist princes. He and the Duc d'Aumale took their seats in the national assembly, December 19, 1871, but he was finally expelled from France, with other dynastic pretenders, and now resides in England.

JÓKAI, MAURUS (or MÓR), the most productive and genial of Hungarian novelists, was born February 19, 1825, at Komorn. For two years before his father's death, in 1837, he had been learning German at Presburg, but he was now left to teach himself, until, in 1840, he went to the high school at Pápa, and in 1842 to that of Kecskemét, at both having the Hungarian poet Alexander Petöfi as his schoolfellow. In 1844 he went to Pesth, where he was articled to an advocate, and obtained his diploma, of which, however, he never availed himself; for, in 1846, he was already editor of the then very famous *Wochenblatt*. In 1848 he proclaimed the *Twelve Points of Pesth*, and in the same year he married Rosa Laborfalvi, the greatest of Hungarian tragediennes. In 1849 he followed the Hungarian government to Debreczin, where he edited the *Abendblätter*, and was present at the capitulation of Villagos, August 28th, and at last got safe to Pesth. Ten years followed, during which Hungarian literature became well nigh extinct. Almost alone this young man created a new one, and since political journalism was impracticable he betook himself to fiction. He has published in 160 volumes 25 romances of several volumes each, 320 novelettes, and 6 dramas, of which more than 500,000 copies have been sold among 6,000,000 of Magyars, besides translations into various languages. In 1863 Jókai established, as an organ of the Left, the *Hon (Fatherland)*, the most widely diffused Hungarian journal. His jubilee was celebrated in 1894.

JOLIET, LOUIS, born in Quebec, September 21, 1645; died in Canada in May, 1700. He was educated at the Jesuit College of Quebec. In 1672 Governor Frontenac and Talon made an effort to trace the course of the Mississippi river, which was then supposed to discharge itself into the Sea of California. Joliet was intrusted with this enterprise, for which he was provided with a canoe and an assistant. At a Jesuit mission the two were joined by Father Marquette and five others, and proceeded as far as Mackinaw, December 8, 1672. Here they derived some information from the Indians, enough to enable them to make a rough outline map of their proposed route. The party then descended the Wisconsin and Illinois rivers, and on June 17, 1673, entered the Mississippi. After visiting several Indian villages on its banks, they became assured that the river emptied its waters into the Gulf of Mexico, and began their return journey. They reached Lake Winnipeg at the end of September, where they spent the winter at the mission of St. Francis Xavier, and in 1674 returned to Quebec. On the way Joliet lost his map and papers by the upsetting of his canoe in the Lachine rapids of the St. Lawrence. He was thereafter made governor of the colony, and was married. About 1680 he was granted Anticost Island, where he built a fort, which was destroyed by the British, and his wife taken prisoner. Later Joliet explored Labrador, and on April 30, 1697, was granted the seigniory of Joliet, near Quebec. The honor of the earliest exploration of the Mississippi remains unsettled; Joliet, Marquette, and LaSalle each have their advocates.

JOLY, HENRY GUSTAVE, born in France, December 5, 1829; was educated in Paris, removed to Lower Canada, and was called to the bar in 1855. He sat in the Canadian assembly from 1861 until the Union, when he was elected both to the Dominion parliament and the legislature of Quebec. In 1874 he retired from parliament but continued his services in the legislature. In March, 1878, he became premier of Quebec, resigned in 1879, and led the opposition until 1883.

JONES, ANSON, born in Massachusetts, January 20, 1798, died in Houston, Tex., January 8, 1858. He



became a physician and in 1833 settled in Texas, then under Mexican domination. He prepared in 1835 the resolutions of a declaration of the independence of Texas, raised a military organization and took part in the war, 1836-37, and was elected to the Texan congress. From 1837 to 1839 he was Texan representative at Washington; afterward president of the Texan senate, secretary of state, 1841-44, and president of the republic from 1845 until the annexation of Texas to the United States. He committed suicide.

JONES, HENRY ARTHUR, English dramatist, was born September 20, 1851, at Granborough, Buckingham. His principal dramas are the *The Silver King*, *Saints and Sinners*, *The Middleman*, *Judah*, *Heart of Hearts*, *The Noble Vagabond*, *Wealth and The Dancing Girl*. *The Masqueraders* appeared in 1893, and *The Case of Rebellious Susan* in 1894.

JONES, HUGH BOLTON, artist, born in Baltimore, in 1848; studied in Europe, in 1881 became associate, and in 1883 a member of the National Academy.

JONES, JACOB, U. S. naval officer, born at Smyrna, Del., in March, 1768; he, in October, 1812, while in command of the *Wasp*, eighteen guns, captured the British ship *Frolic*. Another English ship, the *Poictiers*, of seventy-four guns, recaptured the prize and the *Wasp*, but congress gave Commander Jones a vote of thanks and a gold medal, and gave \$25,000 to the officers and crew. Jones became post-captain, and died in Philadelphia, August 3, 1850.

JONES, MORRIS CHARLES, F.S.A., was born in Montgomeryshire, Wales, May 9, 1819. He is the author of numerous genealogical and antiquarian articles and privately printed pamphlets, and of *The Abbey of Valle Crucis: its Origin and Foundation Charter*, 1866; and *The Feudal Barons of Powys*, 1868.

JONES, SIR HORACE, born May 20, 1819, in London, England. He traveled in France, Italy, and Germany in 1841 and 1842, and soon after his return to England in 1843 began practice as an architect and surveyor in London. About 1847, having obtained the first prize in a public competition, he was appointed architect to the town hall and law courts in Cardiff, South Wales. In 1855 and 1856 he designed and erected the Royal Surrey music hall to contain an audience of nearly 10,000 persons; and in the next few years designed various gentlemen's residences and public and commercial buildings. In February, 1864, he was elected architect to the corporation of the city of London, and designed and superintended the restoration of the present oak roof at the Guildhall, 1864 and 1866; also, the Guildhall library and public reading room. Among other works designed in this capacity may be named the Metropolitan meat market, the poultry market, the vegetable (temporarily used as a fish) market, Billingsgate fish market, Deptford cattle market, Leadenhall market, Temple Bar memorial, 1878 (a work which has not been regarded with unmixed admiration), new council chamber for the court of common council (opened in 1885), and the Guildhall school of music (lately completed). He died May 21, 1887.

JONES, WILLIAM BASIL, D.D., bishop of St. David's, was born in England in 1822. He was educated at Shrewsbury school under Doctor Butler and Doctor Kennedy, and he was thence elected, in 1840, to a scholarship at Trinity College, Oxford, where he obtained the Ireland University scholarship in 1842, and took his B.A. degree with second-class honors in classics in 1844. Subsequently he held a Michel fellowship at Queen's College and a fellowship at University College. He became tutor of the latter college in 1854, and held various university offices. The queen nominated him to the bishopric of St. David's, when the see

was vacated by the resignation of Doctor Thirwall, and he was accordingly consecrated in Westminster Abbey, August 24, 1874. Died Jan. 14, 1897.

JONES, THOMAS WHARTON, F.R.S., physiologist, born at St. Andrews, Scotland, in 1808; was educated at the University of Edinburgh; settled in London in 1838, and entered upon the practice of his profession. He is a fellow of the Royal College of Surgeons, and has been lecturer on physiology at the Charing-Cross Hospital, Fullerian professor of physiology in the Royal Institution of Great Britain, and professor of ophthalmic medicine and surgery in University College, London, and ophthalmic surgeon to the hospital. He is the author of various physiological discoveries, recorded in the Philosophical Transactions and elsewhere. Facts he discovered relating to the mechanism of the extreme vessels and the course of the blood in them have greatly elucidated the phenomena of the inflammatory process.

JORDAN, DAVID STARR, born in Gainesville, N. Y., January 19, 1851; became professor of biology at Butler University, and afterward in the University of Indiana, and president of Leland Stanford Junior University, California in 1891. He has written extensively on ichthyology and other zoological subjects.

JORDAN, THOMAS, born in Virginia, September 30, 1819; graduated at West Point in 1840, and served against the Seminole Indians and in Mexico. He resigned his United States army commission in 1861, to become adjutant-general of the Confederate forces at Manassas Junction. He was afterward chief of staff to Beauregard and Bragg. In 1869 he joined the Cuban insurgent army as a soldier of fortune, but returned to this country the following year. He has written reviews of military operations for magazines. He died Nov. 27, 1895.

JOULE, JAMES PRESCOTT, F.R.S., was born at Salford, near Manchester, England, December 24, 1818. He was the discoverer of the laws of the evolution of heat, and of the induction of magnetism by electric currents, and of the mechanical equivalent of heat, and was the originator of the Kinetic theory of gases. In 1850 the Royal Society presented him with the royal medal, and in 1870 with their Copley medal, for his experimental researches on the dynamical theory of heat. He received, in 1880, the Albert medal of the Society of Arts. The honorary degree of LL.D. was presented to him by the universities of Dublin and Edinburgh in 1857 and 1871, and the honorary degree of D.C.L. by the University of Oxford in 1866. He was doctor of natural philosophy of Leyden, and a member of a score of scientific associations. He died in Manchester, England, October 11, 1889.

JOWETT, BENJAMIN, M.A., LL.D., was born at Camberwell in 1817. His father, who died at Tenby in 1859, was the author of a metrical version of the psalms of David. He was educated at St. Paul's school; was elected to a scholarship at Balliol College, Oxford, in 1835, and to a fellowship in 1838. He was tutor of Balliol College from 1842 to 1870, and in the discharge of that office he gained the regard of many pupils and friends. He was appointed to the Regius professorship of Greek on the recommendation of Lord Palmerston, in 1855. Professor Jowett wrote an able commentary on the Epistles of St. Paul to the Thessalonians, Galatians, and Romans; he also contributed an essay on the interpretation of scripture to *Essays and Reviews*. In 1870 he was elected master of Balliol College, and in 1871 published a translation of the *Dialogues* of Plato, in 4 vols., with introduction (2nd ed. in 5 vols. 1875). The honorary degree of LL.D. was conferred upon him by the Uni-



versity of Leyden in February, 1875, and by the University of Edinburgh at its tercentenary in 1884. He was appointed vice-chancellor of the university for the four years 1882-86. He died October 1, 1893.

JOY, CHARLES ARAD, born in Tompkins county, N. Y., October 8, 1823; graduated at Union and Harvard law school, and studied at Berlin and Göttingen. He became professor of chemistry at Union and from 1857 to 1877 held a similar chair at Columbia College. In 1886 he became president of the New York Academy of Sciences. He died May 29, 1891.

JUAREZ-CELMAN, MIGUEL, born in Cordova, September 29, 1844; entered the provincial assembly, and became in 1880 governor of his native province, and on April 11, 1886, was elected president of the Argentine Republic, but in 1890 was forced, by a revolution, to resign.

JULIEN, ALEXIS ANASTAY, born in New York, February 13, 1840; graduated at Union College in 1859, made a geological examination in the Pacific islands, and became connected with the Columbia School of Mines as instructor and demonstrator. He was one of the founders of the New York Microscopical Society, and has written many valuable monographs.

JUMEL, ELIZA BOWEN, born at sea in 1769; died in New York city, July 16, 1865. Her mother's name was Capet. She died at her daughter's birth, and the child was adopted by a Mrs. Thompson, of Newport, R. I. At the age of seventeen she eloped, and was married to Col. Peter Croix, a British officer. The couple settled in New York city. After the death of Colonel Croix, the widow was married, about 1801, to

Stephen Jumel, a French wine merchant; with him she went to Paris, where she spent her large fortune. On their return to the United States she turned her attention to the accumulation of wealth, and succeeded so well that before long she regained the amount dissipated. After the death of Jumel she had occasion to seek legal advice from Col. Aaron Burr, with whom she had had a long passing acquaintance. He was then seventy-eight years of age. In 1830 the pair were married. After the wedding she gave her new husband a large sum of money for investment, which he lost in Texas speculations. Thereupon she filed a complaint against him, a final separation ensued, she resumed her former name of "Madame Jumel," and to her end continued to live in partial retirement.

JUNCKER, HENRY D., born in France in 1810; came to the United States when young, and in 1834 was ordained priest in the Roman Catholic church. In 1857 he was consecrated bishop of Alton, Ill. He died October 2, 1868.

JUNEAU, LAURENT S., born in Canada in 1793; was a French fur-trader, who in 1816 settled at Mackinaw, and five years later was the first white settler of what is now Milwaukee, Wis. He was the first post-master and first mayor of that city, and a park there is named for him. He died November 14, 1856.

JUNKER, WILHELM, African traveler, born in Moscow of German parents in 1845, went to Africa in 1874 and spent 1876-88 exploring the Makaraka country. A friend of Gordon and Stanley, Dr. Junker threw much light on "Darkest Africa." He wrote *Reisen in Africa*, and died February 14, 1892.

## K.

KAHNIS, KARL FRIEDRICH AUGUST, born in Germany, December 22, 1814; was educated at Halle, and became professor extraordinary at Breslau. He became an active writer on Lutheran theology, and in 1850 became professor of theology at Leipsic. He died in 1888.

KAIN, JOHN JOSEPH, born in West Virginia, May 31, 1841; studied at St. Mary's College, Baltimore, and was ordained as a Roman Catholic priest in 1866. After holding various pastorates he was, in 1875, consecrated bishop of Wheeling.

KALAKAUA, DAVID, king of the Sandwich or Hawaiian Islands, was born about 1838. He belonged to one of the ruling families in the islands. When King Kamehameha V. died in 1872, there were two candidates for the vacant throne—David Kalakaua and William Lunailo. The latter was elected by a plebiscitum, which was confirmed by the legislature. Lunailo died within a twelvemonth, and Kalakaua again put forward his claims. A legislature, specially convened for the purpose, elected him in February, 1874; but the validity of this election was contested by Queen Emma, widow of Kamehameha IV., who died in 1863. Queen Emma was the daughter of a native chief by an Englishwoman, and was adopted by Doctor Rooke, an English physician on the islands, and, before her marriage with Kamehameha, was known as Emma Rooke. The dispute threatened to result in a civil war, the adherents of Emma hoping that the British Government would refuse to acknowledge Kalakaua, who was presumed to be hostile to European influence in the islands; but in June, 1874, Queen Victoria sent a letter to Kalakaua, congratulating him upon his accession, and his right was then admitted. In the autumn of 1874 he decided to visit America and Europe, and the United States

Government dispatched a steam frigate to convey him to San Francisco, where he arrived November 28th. In July, 1887, he was compelled to grant a new constitution. He died at San Francisco, January 20, 1891.

KALB, JOHN, born in Germany, July 29, 1721; died near Camden, S. C., August 19, 1780. His father was a peasant; the "de" prefixed to his name is unauthorized and he was no baron. In 1743 he became lieutenant in the French army, in 1747 rose to the rank of brigadier-general, and later took part in the Seven Years' war. In 1768 he visited the American colonies on behalf of the French Government, and made an engagement with Benjamin Franklin and Silas Deane to take command in the Continental army. On June 3, 1777, in company with LaFayette, he arrived in the bay of Georgetown, and was promptly appointed by congress a major-general. He was with the army at Valley Forge, and served in New Jersey and Maryland until April, 1780. In Carolina General Kalb was appointed to command the Delaware and Maryland troops, and there united his forces with those of General Gates. At the battle of Camden Kalb commanded the American right, which was surrounded. Dismounted and bareheaded, he had a number of hand-to-hand encounters, and fell pierced by eleven wounds, from which he died three days afterward. A monument was erected to his memory in 1825, by the people of Camden, and on August 16, 1886, a statue of him was placed in front of the court-house of Annapolis, Md.

KALISCH, DAVID, born in Breslau, Germany, on February 23, 1820, of Jewish parentage. He became a correspondent in Paris of German newspapers, and contributed to *Charivari* and *Kladderatsch*, the French and German comic weeklies. He died at Berlin, August 21, 1872.

**KALISCH, MARCUS**, born in Prussia, May 16, 1828; studied at Berlin and Halle, but was compelled to leave Germany during the political troubles of 1848. In England he prepared a critical commentary on various portions of the Old Testament, a Hebrew grammar, and other works. He died August 23, 1885.

**KALM, PETER**, botanist, born in Finland in 1715; died in Abo, Sweden, November 16, 1779. He was educated at Upsala and Abo; traveled in Russia, and was chosen by the Academy of Science at Abo to make a botanical tour in North America. In 1748 he landed in Philadelphia, and traveled for three years in New York, Pennsylvania, and Canada, gathering botanical specimens. He returned to Abo in 1751, published an account of his travels; was created a knight of the order of Vasa and chosen a member of the Stockholm Academy of Sciences. The evergreen plant "Kalmia" was named in his honor. In addition to several scientific works he published *A Voyage to North America*; English translation, London, 1772. His was the earliest work to give an extended account of American botany.

**KALNOKY, GUSTAV, COUNT**, born in Moravia, December 29, 1832; entered the Austrian diplomatic service, in which he held several important posts, and in 1881 became prime minister of the Austro-Hungarian empire and minister of foreign affairs. He is Austria's foremost statesman. He died Feb. 13, 1898.

**KANE, SIR ROBERT, M.D.**, born in Dublin in 1810; was educated for the medical profession. In 1830 he obtained the prize for the best essay on the pathological condition of the fluids in typhus fever. Mr. Kane became a licentiate in 1832, and was elected a fellow of the King and Queen's College of Physicians in Ireland in 1841. He resigned his professorship in 1845, and was succeeded by Doctor Aldridge. In 1832 he projected the *Dublin Journal of Medical Science*. He held the appointment of professor of natural philosophy to the Royal Dublin Society, from 1834 till 1847, and in the latter year the Royal Academy awarded him the Cunningham gold medal for his discoveries in chemistry. He had been a member of the Royal Irish Academy from 1832, was placed upon its council in 1841, and was afterward elected its secretary. He became president of the Queen's College of Cork in 1842. In 1875 he was elected member of the academic council of the University of Dublin, and in 1876 president of the Royal Irish Academy. In 1880, on the formation of the Royal University of Ireland to replace the Queen's University, of which he had been elected vice-chancellor, Sir R. Kane was appointed by the crown a member of the senate of the new university, and also a member of the Board of National Education for Ireland. He died February 16, 1890.

**KAPP, FRIEDRICH**, born in Prussia, April 13, 1824; studied at Heidelberg and Berlin, and practiced law at Frankfurt-on-the-Main. In 1850 he removed to New York, where he carried on a law business and acted as commissary of emigration. He returned to Germany in 1870, and entered the German Diet. He died in Berlin, October 27, 1884.

**KARR, JEAN BAPTISTE ALPHONSE**, author, born at Paris, November 24, 1808; received his first instructions from his father and afterward entered the Collège Bourbon, in which he became a teacher. A copy of verses which he sent to the satirical journal *Figaro* introduced him to literary life. In 1832 he published a novel written in his youth, *Sous les Tilleuls, a mélange of irony and sentiment, of good sense and trifling*, which at once made him popular. *Une Heure trop Tard* appeared in 1833, *Vendredi Soir* in 1835, *Le Chemin le plus Court* in 1836, *Einerley and Genevieve* in 1838, and *Voyage autour de mon Jardin* in 1845,

followed by numerous other works. In 1839 he became editor-in-chief of *Figaro*, and the same year founded *Les Guêpes*, a monthly satirical journal, which had a remarkable success. After the revolution of 1848, M. Karr, disgusted with political life, retired to Nice, and continued for some years to write occasionally in the *Revue des Deux Mondes* and other periodicals. The publication of a complete edition of this author's works commenced at Paris in 1860. He was made chevalier of the Legion of Honor, April 25, 1845. His daughter, Mlle. Thérèse Karr, has written *Les Soirées Germaniques offertes à la Jennesse*, published in 1860; *Les Huit Grandes Epoque de l'Histoire de France*, in 1861; *Contre un Proverbe et Dieu et ses Dons*, in 1864, and other works. He died September 30, 1890.

**KARSTEN, HERMANN**, born at Straslund, November 6, 1817; became professor of botany in the University of Berlin, and, in 1868, in that of Vienna. He wrote extensively on botany.

**KAUFMANN, CONSTANTIN P.**, born in the Baltic province of Russia in 1817; entered the army and served as an engineer, being chief-of-staff in the Caucasus. In 1864 he became governor-general of Wilna, and, in 1868, he defeated the Emir of Bokhara, and occupied Samarcand. Five years later he made an advance on Khiva, which he occupied in June, 1873. He died May 15, 1882.

**KAUTZ, AUGUST V.**, born in Bavaria, January 5, 1828; came to this country while a child, and volunteered from Ohio for the Mexican war. In 1848 he entered West Point Academy, served (1852-60) on the frontier, and became captain of regular cavalry at the beginning of the Civil war. He afterward commanded a brigade in Kentucky, and in the armies of the James and the Potomac. After the war he became lieutenant-colonel and colonel of the 8th infantry.

**KAY, SIR EDWARD EBENEZER**, was born July 2, 1822, at Meadowcroft, near Rochdale, England. He was educated at Trinity College, Cambridge, where he graduated B.A. in 1844, and M.A. in 1847. He was called to the bar at Lincoln's Inn, in Trinity term, 1847. He published *Kay's Reports* and a part of *Kay and Johnson's Reports*; he obtained the honor of a silk gown in 1866, and practiced as queen's counsel. In April, 1878, he relinquished the leadership, and confined his practice thenceforward to the House of Lords and special business. He was appointed a judge of the supreme court, March 30, 1881. Died Mar. 16, 1897.

**KAYSERLING, M.**, born in Hanover, Germany, June 17, 1829; was educated there and at the University of Berlin. He was appointed by the government of Aargau, in 1861, rabbi of the Swiss Jews, and in September, 1870, rabbi and preacher of the Jewish community in Pesth, Hungary.

**KAY-SHUTTLEWORTH, SIR UGHTRED JAMES, M.P.**, is the eldest son (born 1844) of the late Sir James Phillips Kay-Shuttleworth, Bart, D.C.L. Sir Ughtred was educated at Harrow, at home, and at the London University, and is author of the *First Principles of Modern Chemistry* (the second edition of which was published in 1870). In October, 1869, he became a member for Hastings. His maiden speech in parliament was delivered on the second reading of the elementary education bill in 1870. In 1874 he was reelected member for Hastings, and brought before the House the state of the dwellings of working people in London, which resulted, in 1875, in the passing of the Artisans' Dwelling Act. At the next general election (1880) he lost his seat for Hastings, and having failed at a bye-election in 1881, at Coventry, he was out of the House of Commons till he was returned in 1885, for the Clitheroe division of Northeast Lancashire. He be-



came under-secretary for India when Mr. Gladstone's third administration was formed in 1886. At the general election of 1886, Sir Ughtred Kay-Shuttleworth was returned unopposed for Clitheroe, as a Gladstonian Liberal and reelected in 1892.

KEARNY, PHILIP, born in New York city, June 2, 1815, died near Chantilly, Va., September 1, 1862. He was graduated at Columbia, and studied law, but in 1837 became first-lieutenant in the 1st dragoons, commanded by his uncle, Col. S. W. Kearny. In 1839 he was sent to Europe by the war department to study cavalry tactics, and for this purpose entered the French cavalry school at Saumur. After six months' training he went to Algiers as a volunteer in the 1st chasseurs d'Afrique, made the passage of the Atlas mountains, and was concerned in several engagements. In 1840 he returned to the United States, and was appointed aide to General Macomb, and later served on the staff of Gen. Winfield Scott. In 1845 he accompanied his uncle, General Kearny, on the march to the South Pass. During the war with Mexico, in 1846, he was made captain, and in the final assault on the capital he was shot in the left arm, which necessitated amputation. At the close of the war he was brevetted major. Early in 1851 he went to California and Oregon, but resigned at the end of the year. In 1859 he served with the French army in Italy, and was present at the battles of Magenta and Solferino. In 1861, soon after the outbreak of the Civil war, he returned, to the United States, and offered his services to the country. He was made brigadier-general of volunteers after the battle of Bull Run. At first he was placed in General Franklin's division, and later under General Heintzelmann. He did important service at the battle of Williamsburg, served through the actions in the Peninsula, and acted with the army of Virginia from the Rapidan to Warrenton. On July 7, 1862, he was promoted major-general of volunteers. At the second battle of Bull Run he forced Gen. Thomas J. Jackson's corps back against General Longstreet's men. A short time afterward, at Chantilly, while reconnoitering, he entered the Confederate lines and was shot.

KEATING, SIR HENRY SINGER, born near Dublin in 1804; was educated at Trinity College, Dublin, where he graduated M.A.; was called to the bar at the Inner Temple in 1832. He became a Q.C. and bencher of the Inner Temple in 1849, in which year he edited, jointly with Mr. (afterward Mr. Justice) Willes, that great legal work, *Smith's Leading Cases*. Mr. Keating was returned at the general election of 1852 one of the members for Reading, as a Liberal in favor of vote by ballot and an extension of the suffrage, and opposed to the Maynooth grant and church-rates. On the resignation of Mr. Stuart Wortley in 1857, he was appointed solicitor-general, and received the honor of knighthood; in 1859 he was appointed a second time solicitor-general, and in December of the same year succeeded Mr. Justice Crowder as judge of the common pleas. He resigned his judgeship February 1, 1875, and on his retirement was sworn a member of the privy council. He died October 1, 1888.

KEBBEL, THOMAS EDWARD, M.A., youngest son of the Rev. Henry Kebbel, was born November 23, 1828, and graduated at Oxford in 1849. He was called to the bar in 1862. Mr. Kebbel's first introduction to journalism was in 1855, when he was invited to join the staff of the *Press* newspaper, the weekly organ of the Tory party. In 1867, when the *Day* newspaper was started by Mr. James Hutton, Mr. Kebbel was engaged as the leading political writer in support of the Conservative Reform bill. Since that time Mr. Kebbel has been a writer in the principal publications of the day—

the *Quarterly*, *Fortnightly*, *Nineteenth Century*, and *National reviews*, the *Cornhill*, *Fraser*, and *Macmillan's* magazines, and in several of the daily papers.

KEENE, LAURA, a popular actress, who was born in England, in 1820, and died in Montclair, New Jersey, November 4, 1873. She first visited the United States in 1852, established the Keene, afterward the Olympic theater in New York, in 1858, brought out in that year "Our American Cousin," with Joe Jefferson and the elder Sothorn in the cast, organized the Laura Keene Company, and was presenting "Our American Cousin" at Ford's theater, Washington, when President Lincoln was shot, April 14, 1865.

KEIFER, JOSEPH WARREN, born in Clark county, Ohio, January 30, 1836; graduated at Antioch College, and began the practice of law in Springfield, Ohio. He entered the volunteer service as a major and was mustered out a major-general of volunteers. In 1868-69 he served in the State Senate, and in 1876 entered congress, where he served until 1885. From December, 1881, until March 3, 1883, he acted as speaker of the House.

KEITH, ALEXANDER, born in Scotland in 1795, died in Halifax, Nova Scotia, December 14, 1873. In 1817 he began business in Halifax, of which he was three times mayor. He sat for thirty years from 1843 in the legislative council, and was in 1867 president of the upper house of the Nova Scotian legislature.

KEITH, SIR WILLIAM, lieutenant-governor of Pennsylvania and Delaware, born near Peterhead, England, in 1680; died in London, November 18, 1749. His father was a Scottish baronet. Keith was made surveyor-general of the customs for the southern district of North America, and as such lived in Virginia; under the later rule of the Whig party he was recalled. However, he had been popular with the colonists, and after two years' negotiation for reinstatement he returned, newly accredited, on May 31, 1717. After his father's death, in 1720, he succeeded to the baronetcy. At about that time he became unfaithful to the proprietary trust, which led to much disturbance in the province, and he was superseded. In March, 1728, he fled from his creditors, and clandestinely embarked at New Castle for Europe, to avoid their pressing demands. Arrived in England in November, 1728, he presented to the government "a short discourse on the present state of the colonies in America, with respect to the interest of Great Britain." In London he was for some time imprisoned for debt, and became utterly forsaken. He published a number of essays (London, 1740). His colonial history of Virginia was published by the Society for the Encouragement of Learning in 1738.

KELLEY, BENJAMIN F., born in New Hampshire, April 10, 1807; entered the volunteer army as colonel from Virginia, and was several times wounded. He commanded in West Virginia in 1863, and received the brevet of major-general in March, 1865. After the war he held various federal offices. He died July 16, 1891.

KELLEY, WILLIAM D., born in Philadelphia, April 12, 1814; practiced law and became, in 1845-46, attorney general of Pennsylvania. From 1846 to 1856 he was judge of the common pleas. Originally a Democrat, he joined the Republican party at its formation, and became an ardent advocate of abolition. From 1860 to the end of 1889 he represented his district in congress, and was serving his fifteenth term at the time of his death, in January, 1890, being then the senior member of the House in continuous service. He was a strong protectionist, and from his frequent speeches upon the tariff in its relation to the iron industry, was popularly known as "Pig-Iron Kelley."

KELLOGG, CLARA LOUISE, was born at Sumter-



ville, South Carolina, July, 1842. In 1843 her parents returned with her to Connecticut, where they remained until 1856, when they went to New York. At an early age she gave evidence of musical talent, and after some years of careful study made her first appearance at the Academy of Music in New York in 1860. After four more years of study, she appeared as "Marguerite" in Gounod's *Faust*, in the season of 1864-65, when she vindicated her title to be regarded as one of the best artists of her time. Her success was not less complete in *Crispino*, as "Linda di Chamounix," in the *Barber of Seville*, *La Sonnambula*, *Lucia di Lammermoor*, and other operas, within the next two years. On November 2, 1867, she made a successful *début* in London as "Marguerite" in *Faust*. She returned to the United States in 1868. In 1872 she again visited England, appearing at the Drury Lane opera house. In the winter of 1873-74 she organized a company, and has since that time appeared in English operas and concerts in the principal cities of the United States. She married Carl Strakosch in 1887, retiring from the stage.

KELLOGG, WILLIAM PITT, born in Vermont, December 8, 1831, removed to Illinois in 1848, and practiced law in Fulton county. In 1861 he was appointed chief justice of the Territory of Nebraska, but later in the year he entered the volunteer service. In April, 1865, he was appointed collector of the port of New Orleans, and from 1868 to 1871 he served as United States senator from Louisiana. His election as governor in 1872 was contested, and considerable trouble ensued. The McEnery party appealed to arms and the difficulty was only settled by the interference of United States troops. Mr. Kellogg retained his office, although impeached by the State legislature, and in 1877 he was again elected to the United States senate. From 1883 until 1885 he sat in the House of Representatives.

KEMBALL, GENERAL SIR ARNOLD BURROWES, K.C.B., K.C.S.I., born in 1818; was educated for his profession at Addiscombe, and received his first commission as second lieutenant in the Bombay artillery, December 11, 1837. His battery formed part of the army of the Indus under Lord Keane, and with it he served in the first campaign in Afghanistan, 1838-9. He was appointed as assistant political resident in the Persian Gulf in 1842, where he was employed in various political duties for twenty-eight years, and acquired a special and valuable experience of Turkish and Persian affairs, and mastery of the Turkish, Persian, and Arabic languages. He was made political resident in the Persian Gulf in 1852, and consul-general at Bagdad and political agent in Turkish Arabia in 1855. He took part in the Persian expedition in 1857, under Sir James Outram. For his services in the Persian war, Captain Kemball was rewarded with the medal and clasp, a brevet-majority, and the C.B. In 1866 he was nominated to the second class of the Star of India, and in 1874 was promoted to general-officer's rank.

KEMBLE, FRANCES ANNE, daughter of Charles Kemble, and niece of Mrs. Siddons, was born in Newman street, London, November 27, 1809. She made her first appearance, October 5, 1829, as "Juliet," at Covent Garden theater, then under the management of her father. *Venice Preserved* was revived, December 9th, in that year, for the purpose of introducing her as "Belvidera," and she sustained the parts of the "Grecian Daughter," "Mrs. Beverly," "Portia," "Isabella," "Lady Townley," "Calista," "Bianca," "Beatrice," "Constance," "Lady Teazle," "Queen Catherine," "Louise of Savoy" in *Francis I.*, "Lady Macbeth," and "Julia" in the *Hunchback*. In 1832 she visited America, and, with her father, performed with great success at

the principal theaters of the United States. An account of these wanderings is given in her *Journal of a Residence in America* (1835). At this period she became the wife of Mr. Pierce Butler, a planter of South Carolina, from whom she obtained a divorce in 1839. She resumed her maiden name, and retired to Lenox, Mass., where she resided, with the exception of a year spent in Italy, for nearly twenty years. From 1869 to 1873 she was in Europe. She then returned to America, but later resided in London, where she died January 15, 1893.

KEMPE, JOHN EDWARD, M.A., born March 9, 1810, was educated at St. Paul's School and Clare College, Cambridge, where he graduated B.A. in 1833 as a senior optime, and first class in classics, and M.A. in 1837. He was appointed curate of Tavistock, Devon, in 1833, and elected a fellow of his college in 1841. In 1861 he was appointed by Bishop Tait to the prebendal stall of Chamberlainewood, in St. Paul's; in 1864 he became one of her majesty's chaplains, and in 1868 he was elected one of the proctors in convocation for London, being reelected in 1874. In 1880 he retired from convocation. He is a rural dean of the diocese.

KENDAL, MRS. MARGARET BRUNTON actress, long known to the public as "Madge" Robertson, and more recently as the wife of Mr. William Hunter Kendal (see Grimston), the actor; was born at Great Grimsby, Lincolnshire, March 15, 1849. Her grandfather, her father, and her uncle were all actors. Her brother was the dramatist, T. W. Robertson. Miss Robertson's *début* in London was made on July 29, 1865, when she appeared at the Haymarket as "Ophelia" to the "Hamlet" of Walter Montgomery, and in the following month she played, at the same theater, "Desdemona" to the "Othello" of Ira Aldridge. In 1867 Miss Robertson returned to town, appearing at Drury Lane on Easter Monday as "Edith" in Andrew Halliday's *Great City*. On March 14, 1868, she made her first decided hit in the metropolis, as "Blanche Dumont," in Dr. Westland Marston's *Hero of Romance*. August 7, 1869, Miss Robertson was married to Mr. William Hunter Grimston, who on the stage is known by his assumed name of Kendal. In the ensuing five years she appeared at the Haymarket as "Galatea" in *Pygmalion and Galatea*, as "Selene" in *The Wicked World*, and as "Mrs. Van Brugh" in *Charity*. The creation of the character of "Lilian" gave Mrs. Kendal a position among the leading *comédiennes* of the day. In January, 1875, she began a short engagement at the Opéra Comique. Afterward she joined the Prince of Wales' theater, then under the management of Mr. and Mrs. Bancroft, where her greatest triumph was that which she achieved as "Dora" in the adaptation from M. Sardou called *Diplomacy*. In 1881 she joined the company at the St. James' theater, under the joint management of Mr. Kendal and Mr. Hare. In 1890 Mr. and Mrs. Kendal played a highly successful engagement in the United States, which they have repeated annually. They played *The Second Mrs. Tanqueray* and *Lord Clancarty* in 1894-95.

KENDALL, AMOS, born in Dunstable, Mass., August 16, 1789; died in Washington, D. C., November 11, 1869. He entered Dartmouth and was graduated in 1811; studied law, removed to Lexington, Ky., and was for a short time tutor in the family of Henry Clay. He then was appointed postmaster of Georgetown, Ky., edited the local paper and in 1816 became co-editor of the *Argus of Western America*, a democratic newspaper published at Frankfort, Ky. In 1824 he supported the nomination of Gen. Andrew Jackson for the presidency, and in 1829 was appointed fourth auditor of the United States treasury; in 1835 he was appointed postmaster-general. President Van Buren



retained him in office, from which he retired in 1840. In 1841 and 1842 he established two newspapers, and in 1845 he was connected with Professor Morse in the ownership of patents, by which he became wealthy. He was the originator of the Washington deaf and dumb asylum.

KENDRICK, ASAHEL CLARK, born in Vermont, December 7, 1809; graduated and taught at Hamilton, and in 1854 became professor of Greek in the University of Rochester. He acted as a member of the committee on the revision of the New Testament, and is the author of several educational works and volumes of selections.

KENNAN, GEORGE, born in Norwalk, Ohio, February 16, 1845; became a telegraph operator, and located a route for the Russo-American telegraph line between Behring Strait and the Sea of Okhotsk. In 1885-86 he made a tour through Siberia, for the purpose of investigating the Russian convict prisons, the horrors of which he has graphically described in a series of magazine articles.

KENNEDY, ALEXANDER WILLIAM MAXWELL CLARK, was born at Rochester, England, September 26, 1851. He was educated at Eton, where, at the age of sixteen, he published *The Birds of Berkshire and Buckinghamshire; a Contribution to the Ornithology of the two Counties*, 1868, by an "Eton Boy." He entered the Coldstream guards in 1870, became captain in 1874, and retired the same year. He is the author of various poems and verses, and of a work of travels, *To the Arctic Regions and Back in Six Weeks*, 1878.

KENNEDY, BENJAMIN HALL, D.D., born at Summer Hill, near Birmingham, November 6, 1804. He graduated B.A. as senior classic and senior chancellor's medalist in 1827, was elected fellow and classical lecturer of St. John's College in 1828, became an assistant master at Harrow, under Doctor Longley, in 1830, and was appointed head master of Shrewsbury School, vacant by the promotion of Doctor Butler to the see of Lichfield, in 1836. Doctor Kennedy has contributed largely to the *Sabrina Corolla*, 1850, 3d ed. 1866; and has published *The Psalter in English Verse*, 1860, 2d ed. 1877; *The Public School Latin Grammar*, 1871, 6th ed. 1882; *The Birds of Aristophanes, translated into English Verse*, 1874; a school edition of *Virgil*, 1876, 3d ed. 1881. He died in 1889.

KENNEDY, JOHN PENDLETON, author, born in Baltimore, Md., October 25, 1795; died in Newport, R. I., August 18, 1870. He was graduated at Baltimore College in 1812, in 1814 took part in the defense of Bladensburg, studied law, and was admitted to practice in 1814. In 1820 he was chosen a member of the State legislature, where he served three years. In 1838 he was elected to congress as a Whig; and in 1840 served as one of the presidential electors on the Harrison ticket. In 1852 Mr. Kennedy was appointed secretary of the navy, and as such zealously pushed forward Commodore Perry's Japan expedition and Doctor Kane's second polar voyage. At the expiration of his term of office he retired permanently from politics. During the Civil war he supported the National cause.

KENNION, GEORGE WYNDHAM, D.D., bishop of Adelaide, born about 1846; was educated at Oriel College, Oxford (B.A. 1867, M.A. 1871). He was ordained deacon in 1869, and priest in the following year. On November 30, 1882, he was consecrated, in Westminster Abbey, bishop of Adelaide, in succession to Doctor Short, who had resigned the see, which comprises the whole of South Australia.

KENRICK, PETER RICHARD, D.D., Roman Catholic archbishop of St. Louis, Mo., was born in Dublin, in 1806. He was educated at Maynooth, and ordained

a priest in Ireland, but soon afterward came to Philadelphia, where his brother (the late archbishop of Baltimore) was then coadjutor to the bishop. Here he edited the *Catholic Herald* for several years, and published various works, original and translated. He was also made vicar-general of the diocese. In 1841 Bishop Rosati, of St. Louis, requested his nomination as his coadjutor with the right of succession. He was consecrated bishop of Drasa *in partibus*, and coadjutor of St. Louis, November 30, 1841. In 1843, on the death of Bishop Rosati, Doctor Kenrick became bishop of St. Louis, and in 1847 the first archbishop of that city. He has been very successful in promoting the interests of the see, having established a large hospital, an orphanage, two magnificent convents, numerous schools and charitable institutions, and one of the most extensive and beautiful cemeteries in the United States. Besides the translations already referred to, and editions of devotional works, the archbishop has published *The Holy House of Loreto; or, an Examination of the Historical Evidence of Its Miraculous Translation; also Anglican Ordinations*. Archbishop Kenrick was present at the vatican council, and was reported to have maintained the inopportune of defining the dogma of papal infallibility. He, however, acquiesced in the definition, and published it, together with the other decrees of the council. Died March, 1896.

KENSETT, JOHN FREDERICK, painter, born in Cheshire, Conn., March 22, 1816; died in New York city, December 16, 1872. In 1840 he went to England, where he became employed as an engraver, and devoted much of his time in studying the art of design. In 1845 he exhibited at the Royal Academy of London his earliest painting, *Windsor Castle*. He went to Rome, where he spent two years, and completed a number of Italian landscapes. His *View on the Arno and Shrine*, exhibited at the National Academy in New York city in 1848, established his reputation as an artist. In 1848 he returned to New York city, where he became permanently located. In 1849 he was made an academician, and in 1859 was appointed a member of the commission to superintend the decoration of the capitol at Washington.

KENT, WILLIAM CHARLES MARK (known as Charles Kent), was born in London, November 3, 1823. From an early age he adopted literature as a profession, and has produced a number of volumes of poems, essays, and stories. He was for twenty-five years editor of the *Sun* newspaper, and for seven years (1874-81) editor of the Roman Catholic publication, the *Weekly Register*. He has edited the works of Lamb, Burns, and Moore, and the late Lord Lytton, and has published a number of articles, essays, pamphlets, etc., under various assumed names, besides some theological works of which *Corona Catholica* is the best known.

KENTON, SIMON, pioneer, born in Fauquier county, Va., April 3, 1755; died in Logan county, Ohio, April 29, 1836. At the age of eighteen he had an affray with another youth about a love affair. In the belief that he had slain his antagonist in the encounter he fled into the wilds beyond the mountains, where for a time he was known as Simon Butler. Here he came in contact with Simon Girty and other traders, hunters, and backwoodsmen, and eventually he joined Daniel Boone as a hunter and explorer. Later, he was employed by the colonial governor, Dunmore, as a spy, and among other daring exploits saved the life of Boone. In 1778 he joined Gen. George R. Clark at the falls of the Ohio, and was with him at the surprise of Kaskaskia. He was captured by the Indians during that year and taken prisoner to the British commander at Detroit, from whom he escaped. In 1782 he visited his native place,



and in 1784 went back with his parents to Kentucky, settling near Maysville. Thereafter he was actively engaged in conflicts with the Indians until peace was established in 1793. Previously Kenton had been promoted major. In 1805 he became brigadier-general of Ohio militia, and in 1813 fought at the battle of the Thames. In 1824 he appeared in Frankfort, Ky., before the legislature, in tattered garments, petitioning for relief, which was granted, and an annual pension of \$240 procured for him from congress.

KEOKUK, chief of the Sacs and Foxes, born on Black river, Illinois, about 1780; died in Kansas in June, 1848. He was of the tribe of Sacs, and rose to distinction during the war of 1812. Opposed to the sway of Black Hawk and other chieftains, he sided with the whites, and on several occasions succeeded in quieting his turbulent followers. After the capture of Black Hawk in 1832, Keokuk was formally recognized as the head chief of the Sacs and Foxes. In 1837, in company with several minor chieftains, he visited Washington, when peace was made between his people and their old-time adversaries, the Sioux. Later, this party, in company with Black Hawk, visited the principal cities of the Union. In 1832 the United States Government gave the Indians a reserve of forty miles square on Iowa river, and in 1845 they were removed to Kansas. In 1848 he was poisoned by an Indian of the Black Hawk band.

KEPPEL, SIR HENRY, admiral, born June 14, 1809, entered the British navy at an early age, was made lieutenant in 1829, and commander in 1833. In command of the *Childers*, sixteen guns, he served on the south coast of Spain during the civil war of 1834-35, afterward on the west coast of Africa, was made captain in 1837, and commanded the *Dido* from 1841 till 1845; he served in the Baltic and in the Black Sea, and having, in July, 1855, exchanged into the *Rodney*, seventy-four guns, obtained command of the naval brigade before Sebastopol. After the fall of that stronghold he returned to England and was appointed to the *Colossus*. He commanded a division of boats at the destruction of the Chinese war fleet in the Fatsan creek, June 1, 1857, for which service he was made a K.C.B. He returned to England in December, 1869, on attaining the rank of full admiral, and was made D.C.L. of Oxford in 1870. He was created a G.C.B. in 1871, and he became an admiral of the fleet in 1877.

KEPPLER, JOSEPH FERDINAND, born in Vienna, Austria, February 2, 1838; removed to the United States in 1869, and in 1873 established a weekly illustrated paper, *Puck*, of which he was the principal caricature artist. He died February 19, 1894.

KERATRY, EMILE, COMTE DE, was born at Paris, March 20, 1832, of an ancient Breton family. Having completed his studies at the Lyceums of St. Louis and of Louis-le-Grand, he entered as a volunteer the 1st regiment of chasseurs d'Afrique in 1854, went through the Crimean campaign, removed successively to the 1st regiment of spahis and of cuirassiers, and in 1859 was appointed sous-lieutenant in the 5th regiment of lancers. In 1861 he exchanged into the 3rd regiment of chasseurs d'Afrique, in order that he might make the campaign in Mexico. The Comte de Keratry was several times mentioned in the *Order of the Day* in Africa and Mexico. On his return to France he devoted himself to literary pursuits, and contributed to the *Revue Contemporaine* a remarkable series of articles on the Mexican expedition in which he severely attacked the government and the conduct of Marshal Bazaine. Soon afterward he became editor of the *Revue Moderne*, in which periodical he continued his accusation. In 1869 he was returned by the electors of Brest to the corps législatif, when he associated himself with the

new Liberal *tiers-parti*. On the establishment of the government of the national defense in September, 1870, he was made prefect of police; but in the following month he escaped from Paris, then besieged, in a balloon, and proceeded on a diplomatic mission to Madrid, where, soon afterward, he was replaced by M. Edmond Adam. He is the author of *Le Contre-Guérilla*, 1867; *La Créance Jecker*, 1867; *L'Élévation et la Chute de Maximilien*, 1867; a work on French events entitled *Le 4 Septembre et le Gouvernement de la Défense Nationale*, 1871; *Armée de Bretagne, 1870-71*, published in 1874; and *Mourad V., prince, sultan, prisonnier d'état*, 1878.

KERN, J. CONRAD, statesman, was born in 1808, in the market-town of Berlingen, near Arenenberg, in the canton of Thurgau, Switzerland. After studying at the gymnasium of Zurich, he proceeded to the University of Basle, to study theology, which he gave up, became a law student, and finished his education in the schools of Berlin, Heidelberg, and Paris. From 1837 he performed in his canton the duties of president of the supreme court of judicature, and those of president of the council of education. He was, from 1833, under the old compact as under the new federal constitution, regularly chosen representative of his canton in the diet or in the national assembly. In 1838 the French Government insisted, through its ambassador, the duke of Montebello, on the extradition of Prince Louis Napoleon, who with his mother, Queen Hortense, had for some time resided in the canton of Thurgau. In the diet, Doctor Kern protested against the right of any power to interfere with the hospitality of his canton, or with the liberty of a Swiss citizen; and on his return to Thurgau to render to the town council an account of the deliberations of the diet, he urged his fellow-citizens not to allow themselves to be intimidated by the menaces of France. Doctor Kern had the satisfaction to return to the diet with the unanimous votes of his canton in favor of his principle. As president of the École Polytechnique of Zurich, he did much for that valuable institution. Died April 15, 1888.

KERR, MICHAEL CRAWFORD, born in Titusville, Penn., March 15, 1827; died in Virginia, August 19, 1876. He removed to Indiana in 1852, practiced law, and in 1856 was elected to the State legislature. From 1864 to 1872 he served in congress as a Democrat, and in the last-named year was defeated for congressman-at-large. Re-elected for his own district in 1874, he was chosen speaker of the House December 6, 1875, but his health failed, and he died a few months later.

KERSHAW, JOSEPH BREVARD, born in Camden, S. C., January 5, 1822; was admitted to the bar in 1843, and served in the State senate and State convention of 1860. He raised a regiment for the Confederate army, and commanded it at Bull Run, and lost half his brigade at Gettysburg. Becoming a major-general he commanded a division of Lee's army, and surrendered at Sailor's Creek, April 6, 1865. He afterward served in the State senate, and in 1877 was elected a circuit judge. He died April 13, 1894.

KERVYN DE LETTENHOVE, JOSEPH MARIE BRUNO CONSTANTIN, a Belgian statesman and historian, born at St. Michel, near Bruges, August 17, 1817. From an early age he devoted himself to historical and antiquarian studies. He has been for many years a member of the Chamber of Representatives, where he distinguished himself as a supporter of the Conservative or Catholic party. When that party came into power in July, 1870, he accepted office under Baron d'Anéthan as minister of the interior, and retained that post until the resignation of the ministry in December, 1871. M. Kervyn de Lettenhove is the author of



a French translation of the select works of Milton, *Histoire de Flandre, an Étude sur les Chroniques de Froissart, and Jacques d'Artevelde*, 8vo, Ghent, 1863. He has also edited *Les Cronikes des Comtes de Flandres*, Bruges, 1849. M. Kervyn de Lettenhove, who is a member of the Royal Academy of Belgium, was elected in 1863 a member of the French Academy of Moral and Political Sciences in the section of general and philosophical history. Died April, 1891.

KESHUB CHUNDER SEN (Baboo), a Hindu who renounced the Brahminical caste, and became a leader of the reformed "Brahma Somaj," a theocratic religious society. He was born at Bengal in 1838, and died at Calcutta in January, 1884.

KEY, DAVID MCKENDREE, born in Tennessee, January 27, 1824; practiced law, and at the beginning of the Civil war entered the Confederate service. After the war he was a member of the State constitutional convention and chancellor of the third division, which latter office he held until 1875. From December, 1875, until January 29, 1877, he sat in the United State senate, and from 1877 until 1880 was postmaster-general in the Hayes cabinet. In 1880 he became judge of the eastern and middle districts of Tennessee.

KEY, FRANCIS SCOTT, author, born in Frederick county, Md., August 9, 1780; died in Baltimore, Md., January 11, 1843. His father was a Revolutionary officer. He was educated at St. John's College, studied law in the office of his uncle at Annapolis, commenced practice in Frederick City, Md., and soon afterward removed to Washington city, where he was appointed attorney for the District of Columbia. Being detained by the British fleet during the bombardment of Fort Henry, near Baltimore, Sept. 13, 1814, he wrote those stirring, popular verses, *The Star Spangled Banner*, which has become one of our national lyrics. They were made complete on his return to Baltimore, arranged to be sung to the air "Anacreon in Heaven," and soon widely diffused throughout the United States. A collection of Mr. Key's "poems" was published, with an introductory letter by Roger B. Taney (New York, 1857).

KEY, ADMIRAL SIR ASTLEY COOPER, was born in 1821, and educated at the Naval College, Portsmouth, where he obtained the first medal and a lieutenant's commission in the navy, which he entered in 1835. He was junior lieutenant of the *Gorgon* in 1844, and was officially mentioned for rescuing her on being stranded at Monte Video. In 1845 he was wounded in the action of the *Obligado* while in command of the *Fanny*. After three years' service in the *Bulldog*, on the coasts of Italy and Sicily, Commander Key was made a captain in 1850. He served in command of the *Amphion* during the Baltic campaign, taking part in the capture of the forts of Bomarsund, and other operations. When the honors were distributed, he was nominated a C.B. He passed to the *Excellent* in 1863, and found himself in first charge of the great development of the iron-plate and the heavy gun. The great changes in gunnery necessitated the creation of a new office at Whitehall, and Captain, afterward Rear-Admiral Key, filled the post of director-general of navy ordnance until 1869, when he became superintendent of Portsmouth dockyard. He was promoted vice-admiral in 1873, and admiral in 1878. In 1879 he was appointed principal naval aide-de-camp to the queen. The University of Oxford conferred on him the honorary degree of D.C.L. in 1880; and for his services in the Egyptian expedition of 1882 he was made a G.C.B. Sir A. Cooper Key, from 1879, held the office of second lord of the admiralty under two successive administrations, and was sworn in as privy counselor in 1884. He died March 3, 1888.

KEYES, ERASMUS DARWIN, born in Massachusetts, May 29, 1810; was graduated at West Point in 1832, served on frontier and garrison duty, and as instructor of cavalry and artillery at West Point, and was appointed major in 1858. He served throughout the Civil war and was brevetted brigadier-general but resigned in 1864 and engaged in business in California. Died, 1895.

KIDD, WILLIAM, navigator, born in Scotland about 1654; died in London, England, May 24, 1701. His father was a dissenting clergyman. The son went to sea at an early age, became captain of a ship, and engaged in privateering against the French in the West Indies. In 1695 the earl of Bellmont, governor of the province of New York, desiring to suppress the piracy then prevalent, organized a company that bought, in England, a new vessel, the *Adventure*, a galley of 287 tons, carrying thirty-four guns. Kidd at that time was living in New York city in comfortable circumstances, and, after considerable deliberation, was chosen its commander. He sailed for England to select his crew, but failing to find his complement left Plymouth on April 23, 1696, and visited New York, where he found many volunteers. On his way home, when off Newfoundland, he captured a French fishing vessel, and brought his prize with him. On September 6th, with a crew of 154 men, he sailed for the coast of Madagascar, at that time a noted piratical resort. Gradually it became rumored that Captain Kidd had made friends of the pirates, and orders were sent to the governors of all English colonies to apprehend him. He remained cruising off the east coast of Africa about a year, without reporting any captures, which was unsatisfactory and looked suspicious. Then his turbulent crew induced him, for the sake of "booty," piratically to attack and capture an East Indianman, the *Quidah Merchant*. Burning his own galley, he transferred his men and stores to the prize. Later he seized other vessels. In April, 1699, Captain Kidd arrived in the West Indies, secured his ship in a lagoon on the island of Saona, southeast of Hayti, and, in a sloop called *San Antonio*, of fifty-five tons, with forty men, sailed for the inner coast of Long Island. From there he sent a message to Lord Bellmont, then in Boston, asking for assurance of safety. Kidd was finally encouraged to go to Boston, where he arrived July 1, 1699. A week later he was arrested, tried, and, with some of his men, sent to England. He was charged with piracy, murder, and brutality on several occasions; in particular, with killing one of his gunners, William Moore. In self-justification, Kidd pronounced the man a mutineer, and the killing done in self-defense. In London, where he arrived April 1, 1700, his trial was long delayed. He was not allowed counsel, nor proper facilities for defense; moreover, the evidence against him seems to have been insufficient. Nevertheless, he was found guilty of murder and piracy, and hanged on May 24, 1701.

KIEFT, WILLIAM, governor of the New Netherlands, born in Holland about 1600; died off the coast of Wales in 1647. He was the fifth Holland governor of New Netherlands, and arrived in the colony on the *Herring*, March 28, 1638. He had been a merchant in Holland, was sent on a mission to Turkey and was said to have misappropriated government funds. In 1640 he erected the first colonial brewery on Staten Island. Among other ordinances he forbade selling arms and powder to the Indians. He also established two annual cattle fairs, erected a stone tavern on the corner of Pearl street and Crenzie's slip, fronting the East river, and a stone church inside the fort. Kieft's severities against the Indians caused considerable trouble to the colony. In 1643 he made a raid on the



Mohawks at Hoboken, N. J., and later, the Indians of Long Island, aroused to enmity, threatened the existence of the colony. Finally, the burghers of New Amsterdam petitioned the home government for his recall, and celebrated his departure with salutes of artillery. On August 16, 1647, he sailed for Holland, and his ship was lost at sea.

KIEPERT, HEINRICH, born in Berlin, July 31, 1818; became director of the Weimar Geographical Institute, and made scientific explorations in Asia Minor. In 1859 he became professor in the University of Berlin. He has written extensively on geography and Egyptology.

KILPATRICK, HUGH JUDSON, born near Dockettown, N. J., January 14, 1836; died in Valparaiso, Chili, December 4, 1881. He was graduated at the United States Military Academy in 1861, was appointed captain of volunteers on May 9th, and promoted first lieutenant of artillery in the regular army on May 14th. In the action at Big Bethel he was wounded. In August he was made lieutenant-colonel of a regiment of cavalry. In January, 1862, he went to Kansas as chief of artillery, under command of General Lane. Later he rejoined his regiment in Virginia, where he was present in several skirmishes, and served in the second battle of Bull Run. On June 13, 1863, he was promoted brigadier-general of volunteers, took part in the battle of Gettysburg, and earned the brevet of lieutenant-colonel in the regular army. Thereafter he led in several raids, notably toward Richmond, in the Peninsula. In May, 1864, he took part in the invasion of Georgia, as commander of a cavalry division of the army of the Cumberland, and on May 13th was wounded at the battle of Resaca. Throughout the war he was particularly useful as a raider on the enemy. He was brevetted colonel for bravery at Resaca, and, November 30, 1864, promoted captain of artillery in the regular army. For capturing Fayetteville, N. C., and services throughout the Carolina campaign, he was brevetted major-general of volunteers. He resigned his commission in the regular army in 1867. In 1865 he had been appointed minister to Chili, and continued in that office until 1868. Thereafter he spent some time delivering lectures. In March, 1881, he was again appointed minister to Chili.

KIMBALL, HEBER C., born in Franklin county, Vt., June 14, 1801; died in Utah in June, 1868. He joined the church of Latter-day Saints in 1832, was ordained an elder by Joseph Smith, and in February, 1835, became one of the so-called "Twelve Apostles." He was one of the pioneers who crossed the plains to Salt Lake, and, until his death, he held high rank in the Mormon hierarchy.

KIMBALL, JAMES PUTNAM, born at Salem, Mass., April 26, 1836; studied at Harvard, Berlin, and Göttingen, and became connected with the geological surveys of Wisconsin and Illinois. He served during the Civil war on the staffs of McClellan, Burnside, Hooker, and Meade. In 1874 he became honorary professor of geology in Lehigh University, and in 1885 was appointed director of the United States mint. He is a member of various scientific societies, and has written on geology and metallurgy.

KIMBALL, RICHARD B., born in New Hampshire, October 11, 1816; graduated at Dartmouth College, and practiced law in New York city. He was the author of many stories and sketches, and also edited a magazine. He founded a town in Texas, named after him, and was many years president of the first railroad in that State, which was built by him. He died December 28, 1892.

KIMBERLEY, EARL OF (THE RIGHT HON. JOHN WODEHOUSE, K.G.), born January 7, 1826; was edu-

cated at Eton and Christ Church, Oxford, where he graduated B.A. in 1847, taking a first class in classical honors. He succeeded his grandfather as third Baron Wodehouse, May 29, 1846, and was raised to the earldom of Kimberley, June 1, 1866. In December, 1852, he accepted the post of under-secretary of state for foreign affairs, which he held under Lords Aberdeen and Palmerston until 1856, when he was appointed envoy at St. Petersburg. He returned from Russia in 1858, and resumed his post as under-secretary for foreign affairs in Lord Palmerston's second administration, June 19, 1859, retiring August 14, 1861. In 1863 he was sent on a special mission to the north of Europe, with the view of obtaining some settlement of the Schleswig-Holstein question; and in 1864 was appointed under-secretary for India. In October of the same year he succeeded the late earl of Carlisle in the lord-lieutenancy of Ireland, resigning that post on the fall of Lord Russell's second administration, in July, 1866. He held the office of lord privy seal in Mr. Gladstone's administration from December, 1868, to July, 1870, and that of secretary of state for the colonies from the latter date until the retirement of Mr. Gladstone in February, 1874. He was reappointed secretary of state for the colonies on Mr. Gladstone's return to power in May, 1880; and in June, 1882, he was also appointed to hold provisionally the seals of the office of chancellor of the duchy of Lancaster, resigned by Mr. Bright. On December 16, 1882, he received from the queen the seals of the office of secretary of state for India, which he held till June, 1885, and to which he was reappointed on the formation of Mr. Gladstone's third government in February, 1886, and again in August, 1892, holding this post until March, 1894, when he was appointed foreign secretary. He died April 8, 1902.

KIMBERLY, LEWIS ASHFIELD, born in Troy, N. Y., April 2, 1830; entered the United States navy as a midshipman in 1846; became lieutenant in 1855, and during the Civil war served in the western gulf blockading squadron. He was commissioned commander in July, 1866; commodore in 1884, and rear-admiral in January, 1887.

KING, CHARLES, born in New York city, March 16, 1789; son of Rufus King; became a member of the New York legislature, and from 1823 to 1849 edited the *New York American*. From 1849 until 1864 he was president of Columbia College. He died in Italy, September 27, 1867.

KING, CLARENCE, born in Newport, R. I., January 6, 1842; graduated at the Sheffield Scientific School of Yale in 1862, and for several years assisted in the geological survey of Colorado and the Rocky mountains. From 1867 to 1872 he had charge of a second expedition to the Cordilleras, and from 1878 to 1881 he had charge of all the national surveys. He is a member of the National Academy of Sciences. Died Dec., 1901.

KING, EDWARD, D.D., bishop of Lincoln, was born about the year 1829, and was educated at Oriel College, Oxford (B.A. 1851, M.A. 1855). He was ordained deacon in 1854 and priest 1855. In 1858 he was appointed chaplain and assistant lecturer of Cuddesdon College, and from 1863 to 1873 he was principal of the college. In 1873 he became canon of Christ Church, Oxford, and regius professor of pastoral theology, in which position he exercised a wide influence throughout the university. On the death of Dr. Christopher Wordsworth in 1885, Doctor King was appointed to the bishopric of Lincoln, and was consecrated in Lincoln Cathedral. Doctor King is a pronounced High Churchman.

KING, JOHN H., born in Michigan in 1818, was appointed second lieutenant of infantry in the regular army in 1837, and served in Florida and Mexico. During the



Civil war he was engaged at Shiloh, Corinth, and Murfreesboro, and from April, 1863, until the end of the struggle commanded a brigade of regular troops. He received all brevets up to major-general of volunteers; was brevetted colonel United States army for gallantry at Chickamauga, and afterward brigadier and major-general. In 1865 he was commissioned colonel of the 9th United States infantry, and on February 6, 1882, he was retired from active service. He died April 7, 1888.

KING, RUFUS, born in Scarborough, Me., 1755; died in New York city, April 29, 1827. He graduated at Harvard in 1777; studied law in Newburyport, Mass., and in 1780 was admitted to the bar. In 1784 he was sent as a delegate to the congress sitting at Trenton, N. J., and again in 1785 and 1786. He was also one of the commissioners to settle the boundary line between Massachusetts and New York. In 1788 he removed to New York city, where he was prominent as a Federalist, and was elected to the first United States senate. In 1795 he was reelected, and in the following year appointed minister to Great Britain, which position he held for eight years. After his return to the United States in 1804 he resided at Jamaica, L. I.; in 1813 he was again elected to the United States senate, and reelected in 1819. When Missouri applied for admission as a slave State Mr. King acted in opposition thereto, and resisted Henry Clay's compromise. In March, 1825, he was for the second time appointed minister to Great Britain, but ill health compelled his return in the year following.

KING, SAMUEL ARCHER, a noted aeronaut, born near Philadelphia, Pa., August 7, 1828; in 1849 constructed a balloon, and in 1851 made his first ascension from Philadelphia. He has made 300 voyages, traversing nearly the entire country and has often been accompanied by United States signal service men, besides other scientists, who have made many important observations from his balloon.

KING, THOMAS STARR, born in New York city, December 17, 1824; died March 4, 1863. At first a clerk and teacher, he studied under Hosea Ballou and in September, 1845, delivered his first sermon in Woburn, Mass. He then preached for a Universalist society in Boston, and in July, 1846, went to his father's former church in Charlestown. He preached at Hollis Street Unitarian church, Boston, from 1848 to 1860, when he settled in San Francisco, Cal.

KING, WILLIAM RUFUS, born in North Carolina, April 6, 1786; died in Alabama, April 18, 1853. He graduated at the University of North Carolina in 1803; practiced law and was elected to the legislature of his native State. From 1810 to 1816 he served in congress, and supported the Madison administration. For two years he was secretary of legation at Naples; in 1818 removed to Alabama, assisted in framing the constitution of that State, and became one of its first representatives in the United States senate. He remained in that body until 1844, acting throughout with the Democratic party, and supporting President Jackson in all his measures. From 1844 to 1846 Mr. King was minister to France; in 1848 he again became United States senator, and in 1852 was elected vice-president of the United States. The oath of office was administered to him in Cuba, where he had gone for his health, and he died immediately on his return.

KINGLAKE, ALEXANDER WILLIAM, born in 1811; was educated at Eton and Trinity College, Cambridge, where he graduated B.A. in 1832; was called to the bar at Lincoln's Inn in 1837, but retired from the law in 1856. He published *Eöthen*, an interesting volume of sketches of eastern travel, in 1844, but is best known in literature for his *Invasion of the Crimea*, an able,

brilliant, but partisan, history of the Crimean war of 1854-6, in eight volumes. He entered parliament as a Liberal for Bridgewater in 1857, moved the first amendment against the "Conspiracy Bill," in 1858, denounced the annexation of Savoy and Nice to the French empire in 1860, and criticised Emperor Napoleon so harshly in his history of the Crimean war that its sale was prohibited in France during the empire. In parliament he was a vigorous opponent of injustice and oppression. He died January 2, 1891.

KIP, WILLIAM INGRAHAM, D.D., LL.D., an Episcopal clergyman, was born in New York, 1811, graduated at Yale, 1831, held pastorates in New York and New Jersey, in 1853 became missionary bishop of California, and bishop in 1857, wrote extensively on theological subjects and died April 7, 1893.

KIPLING, RUDYARD, born in Bombay in 1865, of English parentage, wrote for the East Indian press and became widely popular in England and America in 1890 by the republication of his brilliant tales of Indian civil and military life, notably *Soldiers Three*, *Plain Tales from the Hills*, and *Story of the Gadsbys*, and his *Barrack-room Ballads*. His novels, *The Light That Failed* and *The Naulakha*, the latter written in collaboration with the late Wolcott Balestier, an American author, whose sister he married, were less successful. He sustained his reputation, in 1894, with his *Jungle Book*. In 1893 Mr. Kipling became a resident of Vermont.

KIRBY, TOBIAS, bishop of Lita, was born in Waterford, Ireland, in 1803, went to Rome in 1829. Studied with the present pope, Leo XIII., was ordained a priest in 1833, selected for the post of vice-rector of the Irish College in 1835, and for rector in 1850, and in May, 1881, was appointed bishop of Lita, in *partibus infidelium*. He died Jan. 20, 1894.

KIRCHHOFF, GUSTAV ROBERT, born at Königsberg, Germany, March 12, 1824; graduated at the university of his native city in 1846, and was made professor of natural philosophy at Heidelberg in 1854. In connection with BUNSEN (*q. v.*) he made valuable discoveries with regard to spectrum analysis, and his papers on electricity, heat, and vapors are of much scientific value. He died in 1887.

KIRCHMANN, JULIUS VON, was born in Germany, in 1802, and died in 1884. He studied at Leipsic and Halle, and wrote extensively on philosophical subjects. His views were too liberal for the Prussian Government, which deprived him of his seat as a councilor. He prepared the Prussian civil and penal codes.

KIRK, EDWARD N., born in Ohio; entered the volunteer service from Illinois in 1861, and commanded a brigade at Shiloh. He was wounded at the battle of Stone River, and died July 29, 1863.

KIRK, JOHN FOSTER, was born at Fredericton, New Brunswick, in 1824; came to the United States at the age of eighteen, and from 1847 to 1859 acted as secretary to Prescott, the historian. His publications include a three volume history of *Charles the Bold*. For fourteen years (1871-85), he edited *Lippincott's Magazine* and he then became professor of American history in the University of Pennsylvania.

KIRK, SIR JOHN, was born at Arbirlot, Scotland, in 1833. He graduated M.D. in the University of Edinburgh in 1854, and early distinguished himself in botany and other departments of natural history. He served on the civil medical staff during the Crimean war, and subsequently, for six years, as medical officer and naturalist to the late Doctor Livingstone's second exploring expedition to the Zambesi river 1858-64, acting as chief officer until the return of the expedition. In 1866 he was appointed acting surgeon to the political

agency at Zanzibar. He was promoted to be vice-consul at the same place in 1873, and he accompanied the sultan of Zanzibar in his visit to England in 1875. Doctor Kirk has materially aided the progress of geographical discovery in East Africa; but his great achievement is the almost complete suppression of the slave trade in the greater part of Eastern Africa. In 1875 he was appointed consul in the Comoro Islands; agent and consul-general at Zanzibar in 1880; and a K. C. M. G. in September, 1881.

KIRKWOOD, DANIEL, born in Maryland, Sept. 27, 1814; became professor of mathematics in Delaware College, and from 1854 to 1856 president of that institution. In the latter year he was appointed to a professorship in the Indiana University. He has published a work on comets and meteors, and other astronomical works. Died June 11, 1895.

KIRKWOOD, SAMUEL J., born in Maryland, December 20, 1813; removed to Ohio in 1835, and practiced law there until 1855, when he went to Iowa. In the next year he served in the Iowa State senate, and in 1859 was elected governor. Re-elected in 1861 he became known as one of the great "War Governors," and by his energy in raising troops, Iowa was enabled to fill her quota without having recourse to the draft. In 1866 Mr. Kirkwood was elected United States senator, in 1875 was for a third time governor of Iowa, and in 1876 was re-elected to the senate. He resigned in 1881 to become secretary of the interior under Garfield until April, 1882. He died April 30, 1894.

KLAPKA, GEORGE, born at Temesvár, Hungary, April 7, 1820; entered the army at eighteen, was at first attached to the artillery, and completed his military education at Vienna. He was about to travel abroad when the revolution of 1848 broke out. Fighting against Austria, he took command of a company of Honveds, and distinguished himself in the war against the Servians. Toward the close of 1848 he was the chief of the staff of General Kis, and after the defeat of Kaschau (January 4, 1849), replaced Messaros at the head of his *corps d'armée*. Under Kossuth he was minister of war, and entered completely into the views of the government of the revolution. Quitting the ministry, he took command of Comorn, and vainly endeavored to reconcile Kossuth and Gorgei. After the unfortunate capitulation of Vilagos (August 13, 1849), Klapka maintained himself heroically in Comorn, and menaced Austria and Styria, until he heard of the alleged defection of Gorgei. In September, 1849, a convention was signed between the defenders of the place and General Haynau, and Klapka went into exile, first in London, and afterward in Switzerland and Italy. His *Memoirs*, published at Leipzig in 1850, were followed by *The National War in Hungary and Transylvania*, in 1851. In the unfortunate arrangements set on foot by Garibaldi for the attempt on Rome, in 1862, when he sought to excite the Hungarians to take the field, a judicious counter-proclamation from Klapka, pointing out the headlong temerity and rashness of the undertaking, kept them quietly in their homes. In 1866, however, after the defeat of Austria at Königgrätz, he formed a company of Honveds, and endeavored to bring about a revolution in Hungary; but the attempt failed, and Klapka fled to Oderberg. In 1873 he was engaged upon the reorganization of the Turkish army, and in the war of 1877-78, he aided the Turkish generals. He died May 16, 1892.

KNAPP, JACOB, born in New York State, December 7, 1799; was ordained in the Baptist communion in 1825, and for many years acted as an Evangelist in Illinois and other western States. He died at Rockford, Ill., in March, 1874.

KNAUS, LUDWIG, a celebrated German genre

painter, was born at Wiesbaden, October 10, 1829, and entered the academy at Düsseldorf, where he studied under Sohn and Schadow. He then went to Paris, and, with a break of one year in Italy, lived there for eight years, perfecting himself in the technical part of his art by close study of modern French masters. His first important pictures were *The Golden Wedding*, 1858, and *The Christening*, 1859. In the following year he returned to Wiesbaden, but in 1861 went to Berlin, in 1866 to Düsseldorf, whence in 1874 he once more returned to Berlin, in order to fill an important post in the academy. Besides the above-named works may be mentioned *Funeral in a Hesse Village*, 1871; *His Excellency Traveling*, *The Village Musician*, *The Inn*, 1876; and *A Peep Behind the Scenes*, 1880. His portraits of *Mommsen* and *Helmholtz*, and *The Fight Behind the Fence* were shown at the World's Fair in Chicago in 1893.

KNEELAND, SAMUEL, born in Boston, August 1, 1821; graduated at Harvard in 1840; and practiced medicine. From 1862 to 1865 he acted as an army surgeon, and in 1866 became professor of zoölogy and physiology in the Massachusetts Institute of Technology. Among his works are *An American in Iceland*, and *Wonders of the Yosemite*. Died in 1888.

KNICKERBACKER, DAVID BUEL, born in New York State, February 24, 1833; took orders in the Protestant Episcopal Church, in 1856; was for sixteen years rector of a church at Minneapolis, and in 1883 was consecrated bishop of Indiana. He died Dec. 31, 1894.

KNOLLYS, HANSARD, born in Chalkwell, England, about 1598; died in London, England, September 19, 1691. He was educated at Cambridge University, and became master of the free schools in Gainesborough. In 1629 he was made deacon of the Church of England, became priest, and received a living in Humberstone. After a while he doubted some of the tenets of the established church, and preached without surplice or prayer-book. Thereafter he resigned, and in 1636 was imprisoned in Boston, England, whence he escaped, and fled to the American colonies, reaching Massachusetts early in 1638. On his entrance he was denounced by Cotton Mather, and by him nicknamed "Absurd Knowless." For a time he was pastor of a church in Dover, N. H., he then removed to Long Island, and finally settled near New Brunswick, N. J. He returned to London in 1641. He is considered the first Baptist clergyman who preached in the American colonies.

KNOTT, JAMES PROCTOR, born in Lebanon, Ky., August 29, 1830; sat in the State legislature, and in 1859 was appointed attorney-general of the State, to which office he was elected in the following year. He was imprisoned for refusing to take an ironclad oath, and his office declared vacant. In 1866 he was elected to congress, and obtained his seat with some difficulty. He was re-elected in 1868, but was not in the forty-second or forty-third congresses. In 1874 he was again elected, and served from 1875 to March 1883. In 1883 he was elected governor of Kentucky for four years.

KNOWLES, JAMES, born in 1831; was educated as an architect at a private school, at University College, in his father's office, and in Italy. He is a fellow of the Royal Institute of British Architects, and has executed many architectural works, chiefly in London and its neighborhood. Mr. Knowles has also been engaged in literature from an early age, contributing many articles to journals and reviews, and in 1860 compiling (from *Sir Thomas Malory*) *The Story of King Arthur*, which reached a sixth edition. In 1869 he originated "The Metaphysical Society," a club consisting of forty members, chiefly being eminent representatives of the most various forms of contemporary thought and belief



n speculative subjects—Anglican, Roman Catholic, Nonconformist, Positivist, Agnostic, and Atheistic—and constituted for the full, free, and confidential discussion of philosophical questions. In 1870 he succeeded Dean Alford in the editorship of the *Contemporary Review*. In 1877, owing to a change in the proprietorship of the *Contemporary Review*, a separation took place between it and Mr. Knowles, when—supported by more than one hundred writers of celebrity (mostly members of the Metaphysical Society, and contributors to the *Contemporary Review*)—he established *The Nineteenth Century*, a monthly review.

KNOX, HENRY, major-general in the American Revolutionary army, was born at Boston, July 25, 1750. Beginning life as a bookseller, he commanded an independent company in Boston, and was made an engineer and artillery officer by Washington at the opening of the Revolution. Under his charge the artillery arm of the service came to be of essential value. He was made secretary of war in 1785, and Washington, on becoming president in 1789, gave him the same office under the new government. He resigned in 1794, and retired to private life in Maine. He died at Thomaston, Me., October 25, 1806. See *Drake's Life of Knox* (1874).

KNOX, JOHN JAY, born in New York State, March 19, 1828; became a banker in Minnesota. About 1863 he became connected with the treasury department under Secretary Chase. He was appointed deputy comptroller of the currency in 1867, and was made comptroller by President Grant in 1872. In 1884 he resigned to become the head of a New York banking institution. He wrote *United States Notes and History of Banking in the United States*, which are authoritative works on finance. He died February 9, 1892.

KNYPHAUSEN, WILHELM VON, GENERAL, born in Lützberg, Germany, November 4, 1716; died in Cassel, Germany, December 7, 1800. He was a general officer under Frederick the Great, and in 1776 was second in command under General Von Heister, of the 12,000 "Hessian" troops hired by the British Government to fight against the Americans. In 1777 he succeeded Von Heister. He fought at Long Island, White Plains, Fort Mifflin, Brandywine, and Monmouth.

KOBELL, FRANZ VON, born at Munich, July 19, 1803; became professor of mineralogy in the university of that city in 1834, and wrote valuable papers on mineralogy besides a number of dialect poems. He died Nov. 11, 1882.

KOCH, ROBERT, an eminent German bacteriologist and physician, born at Klausthal, December 11, 1843, was educated at Göttingen. An obscure practitioner until 1880, his remarkable analyses in the celebrated Speicher poisoning case made him famous, and his profound erudition secured him a summons to Berlin as member of the Sanitary Commission and professor of the Royal School of Medicine. In 1882 he attracted the attention of the civilized world by his discovery of the bacillus tuberculosis, and in 1883, while head of the cholera commission sent to Egypt and India he discovered the cholera microbe, for which he was rewarded with an honorarium of 100,000 marks, the rank of Privy Councilor, and the rectorship of the Imperial Institute of Hygiene. Dr. Koch resumed his researches, and in September, 1890, startled the medical world by the announcement that he had discovered a remedy which would destroy the bacillus tuberculosis and expel it from the human system without injuring the tissues.

KOELLIKER, ALBERT, born at Zurich, July 6, 1817, became professor of anatomy and physiology at Würzburg, published a *Manual of Human Histology* (1852), and is prominently known by his discoveries with the microscope.

KOSSUTH, Louis, ex-governor of Hungary, was

born April 21, 1802, at Monok, in the county of Zemplin, where his father was a small owner, of the noble class. Louis was educated at the Protestant College of Scharashepatack, where he qualified himself for the profession of an advocate; obtained his diploma in 1826, and in 1830 became agent to the Countess Szapary, and as such sat in the comital assembly. At the age of twenty-seven he took his seat in the national diet of Presburg, as representative of a magnate. He published reports of the proceedings of this assembly on lithographic sheets, until they were suppressed by the government, and afterward in MS. circulars. The government, which determined not to allow reports of parliamentary debates to become current in Hungary, prosecuted him for high treason; and in 1839 he was sentenced to four years' imprisonment. After about a year and a half of confinement, he was liberated under an act of amnesty. In January, 1841, he became chief editor of the *Hírlap*, a newspaper published at Pesth. His influence with his countrymen steadily increased until, in March, 1848, he entered Vienna with a deputation to urge the claims of his country upon the government, and returned to Presburg as minister of finance. Under his influence the internal reforms which he had advocated were carried out; the last remains of the oppressive feudal system were swept away, and the peasants were declared free from all seigniorial claims, the country undertaking to indemnify the landlords. The diet was dissolved, and a new diet summoned for July 2d, by which Kossuth was created governor of Hungary, and he held that post during the civil war of 1848-9. After the efforts of the Hungarians had been crushed, mainly by the aid of Russian armed intervention, Kossuth was compelled to retire to Turkey. He reached Schumla with Bem, Dembinski, Perczel, Guyon, and 5,000 men, and was appointed a residence in Widin. Austria and Russia wished the refugees to be given up, in which case they would probably have been executed. Through the intervention of England and France the demand was refused. The refugees were removed to Kutahia, in Asia Minor, where they remained prisoners until August 22, 1851. Kossuth left Kutahia, September 1st, and after touching at Spezzia, called at Marseilles, but was refused permission to travel through France. Having been hospitably received at Gibraltar and at Lisbon, he reached Southampton, October 28th; sailed for the United States November 21st, and made a tour, agitating in favor of Hungary. He soon returned to England, where he resided for some years, occupying himself chiefly in writing for newspapers, and delivering lectures against the House of Hapsburg. One of the occasions on which his name was brought prominently before the public was in 1860, when the Austrian Government instituted a successful process against Messrs. Day and Sons for lithographing several millions of bank-notes for circulation in Hungary, signed by Kossuth, as governor of that country. In November, 1861, he published in the *Perseveranza*, an Italian journal, a long letter, setting forth the situation of Hungary, and urging the Italians to commence war against Austria, with the view of enabling the Hungarians to develop their strength against that power; issued an inflammatory address to the Hungarians, June 6, 1866, and after the close of the war of that year advised the Hungarians to reject the concessions offered by Francis Joseph. He was elected deputy for Waitzen, August 1, 1867, but he declined to accept the office. In April, 1875, M. Kossuth purchased an unpretending dwelling in Turin, where he lived for nearly twenty years, in the strictest privacy. Latterly he devoted much of his time to science, and he published a paper on the *Farbenveränderung der Sterne* in

1871. In November, 1879, he lost his rights as a Hungarian citizen, as the chamber of deputies adopted a bill declaring that any native of the country who voluntarily resided abroad for an uninterrupted period of ten years should lose his civil status. The extreme left violently opposed the measure, accusing the government of leveling it directly against Kossuth, but it was finally carried by 141 votes to 52. Kossuth was engaged for several years in writing his *Memoirs*, the last volume of which appeared in 1882. He died March 20, 1894.

KRAPOTKIN, PETER ALEXEIEVITCH, was born at Moscow, December 9, 1842. At the age of fifteen he entered the corps of pages at St. Petersburg, and was promoted lieutenant in 1862. He joined a regiment of Cossacks of the Amur, and spent five years in Eastern Siberia, first as aide-de-camp to the military governor of Transbaikalia, and, after 1863, as attaché for Cossacks' affairs to the governor-general of Eastern Siberia. During these five years he thrice visited the Amur and Usuri, and made extensive journeys in Siberia and Manchuria. In 1863 he crossed North Manchuria from Transbaikalia to the Amur, via Merghen; in the same year he took part in the first steamer-expedition up the Sungari to Ghirin. Accounts of these journeys, and several others, are published in the memoirs of the Russian and Siberian Geographical Society, from the former of which he received the gold medal. Promoted captain in 1865, he returned in 1867 to St. Petersburg, and studied four years at the mathematical faculty of that university, and acted as secretary to the physical-geography section of the Geographical Society. In 1871 he was sent by this society to explore the glacial deposits in Finland and Sweden, the account of which is embodied in a larger work on the Glacial Period, the first volume of which was published in the memoirs of the Geographical Society. In 1872 he paid a visit to Switzerland and Belgium, and became acquainted with the International Working Men's Association, and joined the most advanced anarchist section of it. He returned to Russia and became a member of the widely spread organization of the Tchaykovtry; was arrested in March, 1874, and confined to the fortress of St. Peter and St. Paul, where he continued to write on the Glacial Period. He was transferred to the prison of the Military Hospital, and escaped on July 12, 1876, and went to England. The next year he rejoined, in Switzerland, the Jura Federation of the International Working Men's Association, and in February, 1879, founded at Geneva the anarchist paper *Le Révolté*, now published at Paris. Expelled from Switzerland in September, 1881, he stayed first for a few months at Thonon while his wife passed her examination of B.Sc. and then went to reside in England, where he roused an agitation against the Russian Government both in the press (*Newcastle Chronicle*, *Fortnightly Review*, and *Nineteenth Century*), and by a series of lectures at Newcastle and in Scotland. In October, 1882, he went again to stay at Thonon, where he was arrested December 20, 1882. On January 19, 1883, he was condemned by the Police Correctionnelle

Court at Lyons to five years' imprisonment for participation in the International Working Men's Association. He was liberated on January 15, 1886, by decree of the president of the French republic. His anarchist papers contributed to the *Révolté* have been collected by his friend Elisé Reclus, and were published in October, 1885, in a separate volume, under the title *Paroles d'un Révolté*.

KRUPP, ALFRED FRIEDRICH, born at Essen, Westphalia, April 26, 1812; was the son of a small iron-master there. Young Krupp carried on his father's business, and having secured government patronage, developed the Essen factory to immense proportions. More than 20,000 men are constantly employed in the various branches of Krupp's works, at which hundreds of cannon, of the largest size, are annually manufactured. Herr Krupp died July 14, 1887, but his factory is continued by his sons, and supplies all the material for the German army.

KUENEN, ABRAHAM, D.D., LL.D., a native of Holland, was born in Haarlem September 9, 1828. He was educated in the local gymnasium. In 1846 he was entered as a student of theology in the University of Leyden, and in 1821 took, with great distinction, the doctor's degree in that faculty. The next year he qualified as professor extraordinary of the science by a learned dissertation on the importance of an exact knowledge of Hebrew antiquity for the study. In 1853 the academical senate honored him with the doctorate in literature, and, in October, 1855, he became ordinary professor of theology. Doctor Kuenen made himself a great name as a critic of the Biblical books, and especially of the Pentateuch. He died December 10, 1891.

KUHN, ADELBERT, born at Königsberg, Germany, November 19, 1812; became a professor in the Cologne gymnasium, and wrote extensively on comparative mythology, especially with reference to German myths. He died in 1881.

KUNG, PRINCE, Chinese statesman, was born in 1833, and was a brother of Hin-fung, who reigned as emperor of China from 1850 to 1861. Prince Kung served as commissioner of foreign affairs, and on the death of Hin-fung he was made regent of China. He employed foreign officers to suppress the Taiping rebellion, and in many ways showed himself anxious to introduce and utilize inventions and methods of European civilization. In 1866 and 1869 he visited Europe and the United States, and in 1874 fell into temporary disgrace over a peace made by him with Japan. It is alleged that he was actually condemned to death, but in any case he was speedily restored to imperial favor, and from 1875 to 1884 he was prime minister of the emperor. In the last-named year he was again driven from power. He died May 29, 1898.

KWANG-SU, "Succession of Glory," is the name of the reigning emperor of China. He was born on August 15, 1871, and succeeded to the throne January 12, 1875. His coming of age and marriage were celebrated with great pomp in 1889.



## L.

**LABICHE, EUGÈNE MARIN**, a French dramatist, born at Paris, May 5, 1815; was educated at the Collège Bourbon, then entered the School of Law, and made his first attempts at authorship in 1835, when he sent various contributions to the minor journals of the day. In 1838 he published a novel, *La Clef des Champs*. M. Labiche thenceforward devoted himself to the production of farces, with the most extravagant plots, and abounding in droll situations. The pieces he has brought out, chiefly in collaboration with other writers, are upward of 100 in number. In February, 1880, he was elected a member of the French Academy, in the room of M. de Sacy, and his reception took place on November 25th, when M. John Lemoine delivered the address of welcome. He died January 23, 1888.

**LABOUCHERE, HENRY, M.P.**, nephew of the late Lord Taunton, was born in 1831, and educated at Eton. He entered the diplomatic service in 1854; and was successively attaché at Washington, Munich, Stockholm, Frankfort, St. Petersburg, and Dresden; he was appointed third secretary in 1862, second secretary at Constantinople in 1863, and retired in 1864. In 1865 he entered parliament as Liberal member for Windsor; but in April, 1866, he was unseated on petition, and from 1867 to 1868 sat for Middlesex. In February, 1874, he unsuccessfully contested Nottingham, but in 1880 was returned at head of the poll for Northampton, and has since been one of the members for that borough. Mr. Labouchere is an advanced Radical and an able speaker. He is proprietor and editor of *Truth*, part proprietor of the *Daily News*, and was the defendant in the celebrated libel case, *Lawson v. Labouchere*. He married Miss Henrietta Hodgson, the well-known actress. In 1893 he introduced a bill providing for the election of all members of parliament.

**LABOULAYE, EDOUARD RÉNE**, born in Paris in 1811; died May 25, 1883. He was the author of a *History of the United States*, and translated several of the works of Doctor Channing into French.

**LADD, GEORGE TRUMBULL**, born in Painesville, Ohio, January 19, 1842; graduated at Western Reserve College and Andover Seminary. He served as pastor of Congregational churches in Ohio and Wisconsin until 1879, when he became professor of intellectual and moral philosophy in Bowdoin. In 1881 he assumed the chair of philosophy in Yale.

**LAFARGE, JOHN**, artist, born in New York city, March 31, 1835; became a national academician in 1869, and has paid great attention to decorative art. Among his principal works are the interior decoration of Trinity church, Boston, and St. Thomas' church, New York.

**LAFITTE, JEAN**, born in France about 1780; died in Yucatan in 1826. He arrived in New Orleans about 1809, in company with one of his brothers, where they established a blacksmith shop attended to by hired slave labor. Both men were imperfectly educated, but persuasive and enterprising. Later they entered into smuggling, became leaders of a band, and were outlawed. These smugglers were also buccaneers; during the French-Spanish wars they had received letters-of-marque from the French republic, and later from the republic of Cartagena, giving them authority to prey on Spanish vessels. Their merchandise was conveyed to the city through the small lakes and bayous, and their general depot was on the island of Grand Terre. On March 15, 1812, the governor of Louisiana

issued a proclamation against the outlaws; but they received warning of the measures of the authorities, and went to other parts of the river delta. On November 24, 1813, when a revenue officer had been fired on, Governor Claiborne offered \$500 reward for the capture of John Lafitte. In January, 1814, the outlaws offered for sale a body of slaves; when the government sent forward their inspector of revenue he was killed; but no action was immediately taken by the authorities. Lafitte continued as before, under guard of armed men, to send his goods for sale to Donaldson and other places on the Mississippi river, and the people flocked thither for purchase. About September 1st Colonel Nicolls, commanding the British forces at Pensacola, tempted Lafitte to enter the service of Great Britain, by offering him a captain's commission in the navy, \$30,000, and to his followers immunity for past transgressions, indemnification for losses and money rewards. At that time Lafitte's brother Pierre had been seized by the United States authorities, and was held for trial in the New Orleans jail. On the departure of the British agent Lafitte communicated the proposed arrangement, together with sundry letters, to the governor of Louisiana, and offered the services of himself and his band on the condition of their being pardoned for past offenses.

Governor Claiborne refused, and sent out an expedition which captured several vessels, many men, and a rich booty. The two Lafittes escaped, and collected their men anew on an island near the mouth of bayou Lafourche. In December the British forces approached New Orleans, when Lafitte's terms were accepted, and he was employed in fortifying the passes of Batavia bay, while part of his followers garrisoned the forts on the river. On February 6, 1815, President Madison issued a proclamation offering full pardon to all engaged in the defense of New Orleans. After the war the brothers left New Orleans. In 1816, for about four years, one of them was settled in Galveston, Texas, whence he was expelled on May 12, 1820.

**LAING, SAMUEL**, born at Edinburgh in 1810; was educated at St. John's College, Cambridge, where he took his B.A. degree in 1832, being second wrangler and second Smith's prizeman. He was elected a fellow of St. John's, resided in the university as a mathematical tutor, and entered at Lincoln's Inn, where he was called to the bar in 1840, and soon after became private secretary to Mr. Labouchere, then president of the Board of Trade. Upon the formation of the railway department, he was appointed secretary, and thenceforth distinguished himself in railway legislation under successive presidencies of the Board of Trade. In 1844 he proved the results of his experience in "a report on British and foreign railways." In 1845 Mr. Laing was nominated a member of the railway commission. In 1848 he accepted the post of chairman and managing director of the Brighton Railway Company. In 1852 he became chairman of the Crystal Palace Company, from which he retired in 1855, as well as from the chairmanship of the Brighton Railway Company. In July, 1852, Mr. Laing was returned in the Liberal interest for the Wick district, which he represented till 1857, and having been reelected in April, 1859, resigned in October, 1860, on proceeding to India as finance minister, and was once more elected in July, 1865. He was an unsuccessful candidate for Wick in November, 1868, but in January, 1873, he again ob-

tained a seat in the House of Commons as member for Orkney and Shetland. Mr. Laing, who was financial secretary to the treasury from June, 1859, till October, 1860, again accepted the chairmanship of the Brighton railway in 1867. Of late years he has written books, and his *Modern Science and Modern Thought* (1886) has been read with interest. Died Aug. 6, 1897.

LAIRD, DAVID, born in Prince Edward Island, March 12, 1833; represented Belfast in the assembly of his native province, and in 1873 was elected to the Canadian parliament. He established, and for many years edited, the *Charlottetown Patriot*. He served on the executive council; was minister of the interior, 1873-76, and for five years was governor of the north-western provinces.

LAKE, WILLIAM CHARLES, D.D., dean of Durham, born in January, 1817; was educated at Rugby under Doctor Arnold, whence he was elected, in 1834, to a scholarship at Balliol College, Oxford, and took first class honors in classics. He obtained the Latin essay, became fellow and tutor of his college, proctor and university preacher and public examiner in classics and in modern history. He was appointed, in 1858, member of the royal commission, to report on the state of popular education in England; in 1858 was presented by his college to the living of Huntspill, Somerset; was appointed, by the bishop of London, preacher at the Chapel Royal of Whitehall, and was made prebendary of Wells. In 1868 he was again member of the royal commission on military education, and on August 9, 1869, was appointed to the deanery of Durham by Mr. Gladstone. On June 2, 1881, he married Miss Katharine Gladstone, niece of the premier.

LAMAR, LUCIUS QUINTUS CININNATUS, was born in Putnam county, Ga., September 17, 1825. He graduated at Emory College in 1845; studied law, and was admitted to the Georgia bar in 1847. He moved to Mississippi in 1849; was elected a representative in Congress in 1856, and reelected in 1858. When the State of Mississippi passed the ordinance of secession, in 1861, he resigned his seat, and became a colonel in the Confederate army, but was soon sent (1863) on a mission to Russia. After the close of the Civil war he was made professor of political economy and social science in the University of Mississippi, 1866, and in the following year was transferred to the professorship of law. His civil disabilities having been removed, he was, in 1872, elected to congress from Mississippi, and was reelected in 1874. In 1876 he was elected United States senator from Mississippi, and reelected in 1882. He resigned his seat in 1885 to accept the position of secretary of the interior in President Cleveland's cabinet. In 1887 he was appointed associate justice of the United States Supreme Court. He died January 23, 1893.

LAMAR, MIRABEAU B., born in Georgia, August 16, 1798; conducted the *Inquirer* newspaper at Columbus, Ga., and in 1835 removed to Texas, where he became a major-general in the Texan army; in 1836 was made vice-president, and in 1838 president of the Republic of Texas. He fought at Monterey and elsewhere during the Mexican war; and in 1858 became United States minister to Nicaragua and to Costa Rica. He died in Texas, December 19, 1859.

LAMB, MARTHA J. (born Nash), was born in Plainfield, Mass., August 13, 1829; helped establish the Home for the Friendless and Half Orphan Asylum in Chicago, became editor of the *Magazine of American History* in New York in 1883, and wrote *The History of the City of New York, Wall Street in History* and other works. She died January 2, 1893.

LAMBDIN, GEORGE C., artist, born in Pittsburg, Pa., January 6, 1832; studied in Munich, Paris, and

Rome, and became well known by his portraits and flower-pieces. He is a National Academician.

LAMBER, JULIETTE (MME. EDMOND ADAM), was born at Verberie in 1836, recorded her experiences in *Le Siège de Paris: Journal d'une Parisienne* (1873,) published a number of works on political and social subjects, especially on the condition of women, among them *Laide* (1878), and *La Patrie Hongroise: Souvenirs* (third edition, 1884), and in 1879 started the *Nouvelle Revue*, which she continues to conduct with great ability.

LAMONT, DANIEL S., born in New York in 1851, entered upon a newspaper career, formed the acquaintance of political leaders of the democratic party in New York, became President Cleveland's private secretary in 1885, as such exhibiting tact and personal qualifications of a high order, and in 1893 accepted the portfolio of the war department under President Cleveland's second administration.

LANDER, FREDERICK WILLIAM, born in Salem, Mass., December 18, 1821; died in Pawpaw, Va., March 2, 1862. He made two surveys for a railway to the Pacific Ocean; from the second of which he alone of his party returned home alive, and while constructing the overland wagon route, in 1858, his party was attacked by the Indians. In 1861 he served as a volunteer aide on the staff of General McClellan, and was made brigadier-general. At Ball's Bluff he was wounded in the leg, and later, at Hancock, repelled a superior Confederate force. Increasing sickness and debility compelled him to retire and he died suddenly of congestion of the brain. He was the author of several patriotic lyrics.

LANDRY, AUGUST CHARLES, born in Quebec, January 15, 1846; a prominent author; has been a member of the Quebec assembly and the Dominion parliament. He is a member of the Canadian Entomological Society and president of the Quebec Conservative Association.

LANDRY, PIERRE ARMAND, born in New Brunswick, May 1, 1846; sat in the assembly of that province and held various government offices. In 1883 he was elected to the Dominion parliament, and was reelected in 1887.

LANE, JAMES HENRY, born at Lawrenceburg, Ind., June 22, 1814; enlisted in the Mexican war and commanded a brigade at Buena Vista. In 1849 he was lieutenant-governor of Indiana, and in 1853 was elected to congress. In 1855 he went to Kansas and presided over the Topeka and Leavenworth constitutional convention. He took an active part on the side of the Free-Soilers during the border troubles, was indicted for murder by the pro-slavery government, but was acquitted, and in 1861 was elected United States senator. During the Civil war he was a brigadier-general of volunteers. He died by his own hand at Leavenworth, Kan., July 11, 1866.

LANE, JOSEPH, born in Buncombe county, N. C., December 14, 1801; removed to Indiana and served in the legislature of that State from 1822 to 1846. He enlisted as a private of Indiana volunteers in the Mexican war; was wounded at Buena Vista, and commissioned major-general for gallantry. He was appointed territorial governor of Oregon by President Polk; was elected to congress as delegate 1851-57, and on the admission of Oregon as a state was chosen United States senator in 1859. In 1860 he was nominated for vice-president on the ticket with John C. Breckenridge, and after his defeat retired from public life. He died in Oregon, April 19, 1881.

LANG, ANDREW, M.A., LL.D., was born at Selkirk, March 31, 1844, and educated at the Edinburgh



Academy, St. Andrews University, and Balliol College, Oxford, where he gained first classes in classical moderations and the final schools. In 1868 he was elected a fellow of Merton College, Oxford. He has published, in verse, *Ballades in Blue China* (1881); *Rhymes à la Mode* (1884); and *Helen of Troy* (1882); and, in prose, *Custom and Myth* (1844); and *The Mark of Cain* (a novel 1866). He has also published a prose translation of the *Odyssey* (with Professor Butcher), and of the *Iliad* (with Messrs. E. Myers and Walter Leaf), and of *Theocritus*. He has published numerous other delightful works on a wide range of subjects.

LANGÉVIN, THE HON. SIR HECTOR LOUIS, K.C.M.G., C.B., born in Quebec, August 25, 1820; was educated at the seminary in his native city, studied law at Montreal, and was called to the bar in 1850. He was created Q.C., March 30, 1864. He was for some time chief editor of the *Mélanges Religieux*, a newspaper devoted to politics and theology, and published in Montreal; was afterward one of the editors of *Le Courrier du Canada*, a daily paper published in Quebec, and wrote *Droit Administratif des Paroisses, or Parochial Laws and Customs of Lower Canada*, 1862. Mr. Langevin, elected mayor of Quebec in December, 1857, was reelected in 1858 and 1859, has filled the chair of the Institut Canadien, and has been president of the St. Jean Baptiste Society of Quebec. He was elected January 2, 1858, member of the Provincial Parliament, by the county of Dorchester, and has always supported the Conservative party. In March, 1864, Mr. Langevin became solicitor-general for Lower Canada, with a seat in the cabinet in Sir E. P. Tache's administration, and exchanged the former post for the postmaster-generalship in November, 1866. He was one of the Canadian delegates to the conference at Prince Edward Island, on the question of the Confederation of the British North American Provinces in the summer of 1866, and afterward to the Quebec Conference, and repaired to London with other commissioners toward the end of that year, in order to complete the arrangements. On the reorganization of the Dominion Cabinet, in 1867, Mr. Langevin was transferred to the position of secretary of state of Canada, superintendent-general of Indian Affairs, and registrar-general; and in November, 1869, exchanged this office for that of minister of public works, which he retained until the fall of the Macdonald government in 1873. At the general elections of 1878 he was returned for Three Rivers, and was sworn in as postmaster-general in the Liberal-Conservative government of that year. This portfolio he resigned, in May, 1879, for that of the ministry of public works. He was made a C.B. when in London, completing the arrangements for the organization of the Dominion Government, and, in 1881, had the order of K.C.M.G. conferred upon him.

LANGLEY, SAMUEL P., LL.D., born at Roxbury, Mass., August 22, 1834; studied at Harvard Observatory, and in 1867 became director of the observatory at Alleghany City, Penn. He published numerous scientific papers, especially in reference to solar physics, and has been awarded the Draper medal and both the Rumford medals. In 1887 he became secretary of the Smithsonian Institution.

LANGTRY, LILLIE, actress, is the daughter of the Rev. W. C. Le Breton, dean of Jersey, and was born in 1852. In 1874 she was married to Mr. Langtry, a native of Belfast, and about 1881, after having been for some years extremely well known in London society, determined to go on the stage. Mrs. Langtry made her first public performance on December 15, 1881, at the Haymarket theater, London, in *She Stoops to Conquer*, in aid of the Royal General Theatrical Fund. In Janu-

ary of the following year Mr. and Mrs. Bancroft engaged Mrs. Langtry to play at the Haymarket theater, and she appeared, on January 19, 1882, in Robertson's play of *Ours*, and in the character of "Blanche Haye." She appeared as Rosalind in *As You Like It*, at the Imperial theater, London, on September 23, 1882, and since then made several tours in America, where her success was moderate.

LANIER, SIDNEY, poet, born in Macon, Ga., February 3, 1842; died in Lynn, N. C., September 7, 1881. He was graduated at Oglethorpe College, Georgia, in 1860, and served in the Confederate army during the war. Toward its termination he was captured and held prisoner for five months at Point Lookout, Fla. From 1865 to 1867 he was a clerk in Montgomery, Ala., had a school in Prattville, Ala., and from 1868 to 1872 practiced law in company with his father at Macon. In 1876 he prepared an ode for the centennial exhibition at Philadelphia, and in October, 1877, settled in Baltimore, where he delivered lectures on English literature. In 1879 he was appointed lecturer on English literature at Johns Hopkins University. In the summer of 1880, enfeebled by the progress of consumption, he sought relief in the mountains of North Carolina, where he died. His two notable books are his *Science of English Verse*, and his *Poems*. The former is an ingenious, well worked out theory, treated somewhat in accordance with the musical system of Marx. None of his versions have become particularly noted; but they contain elevated passages that mark the truly endowed poet.

LANIGAN, GEORGE THOMAS, born at St. Charles, Can., December 10, 1845; died in Philadelphia in 1886. He was a clever and versatile journalist and the author of various ballads, *Fables Out of the World*, sketches and essays.

LANKESTER, EDWIN, F.R.S., born in Suffolk, England, in 1814; graduated at Heidelberg, and was for many years professor of natural history at New College, London. He edited the *Journal of Microscopical Science*, contributed to the scientific reviews, and lectured on natural history at the Royal Institution. In 1845 he became a fellow of the Royal Society. He died October 30, 1874.

LANKESTER, EDWIN RAY, M.A., LL.D., F.R.S., son of the foregoing, was born May 15, 1847, in London, and educated at St. Paul's School, London, and Christ Church, Oxford. He was appointed fellow and lecturer of Exeter College, Oxford, in 1872, and professor of zoölogy and comparative anatomy in University College, London, in 1874. He is an honorary LL.D. of the University of St. Andrews (1885), and examiner in the Universities of Cambridge, London, and New Zealand. Professor Lankester was elected a fellow of the Royal Society in 1875. He has published more than a hundred scientific memoirs (dating from 1865), mostly on comparative anatomy and palæontology. Besides these he has published numerous shorter memoirs, and has constantly contributed reviews and articles to the pages of the *Athenæum*, the *Academy*, and *Nature*. Since 1869, when he joined his father, the late Dr. Edwin Lankester, in that work, he has been chief editor of the *Quarterly Journal of Microscopical Science*. During the years 1870-74, he was one of the sectional secretaries of the British Association for the advancement of science, and organized the annual museum which has become a feature of the meetings of that body. In 1883 he was president of the biological section of the association.

LANMAN, CHARLES, was born in Monroe county, Michigan, June 14, 1819. He received an academical education at Plainfield, Conn., and became successively

a clerk in a mercantile house in New York, a journalist, traveler, private secretary to Daniel Webster, and librarian to the House of Representatives. From 1871 to 1882 he was secretary of the Japanese legation at Washington, and since then has devoted himself to landscape painting, and writing a large number of books, of which the most important was his *Dictionary of Congress*, of which a number of editions were issued, until it was superseded, in 1876, by *Biographical Annals of the Civil Government of the United States*. He is an associate of the National Academy of Design, New York. He died March 4, 1895.

LANDSLOWNE (MARQUIS OF), THE RIGHT HON. HENRY CHARLES KEITH FITZ-MAURICE, eldest son of the fourth Marquis of Lansdowne, K.G., was born in 1845. He was educated at Eton and at Balliol College, Oxford, and succeeded his father in the marquise and other titles in 1866. Lord Lansdowne was a lord of the treasury from 1868 to 1872, and under-secretary for war from the latter date till 1874. He was appointed under-secretary for India when Mr. Gladstone took office again in 1880, but retired two months afterward (July 8th) owing to a disagreement with the government on the subject of the Compensation for Disturbance (Ireland) Bill. In May, 1883, the queen approved the appointment of Lord Lansdowne as governor-general of Canada, in succession to the marquis of Lorne, who was to retire in October of that year, on the completion of the period for which he was appointed. In 1888 Lord Lansdowne was made governor-general of India, serving until December, 1893. He is now (1902) Foreign Secretary.

LANSING, JOHN, born in Albany, N. Y., January 30, 1754; died in New York city, December 12, 1829. He studied law, and in 1776-77 was military secretary to Gen. Philip Schuyler. On February 3, 1784, he was elected a member of the lower house of congress. On September 29, 1786, he was appointed mayor of Albany. On January 26, 1787, he was again a delegated member of congress, and on March 6th of that year he was appointed one of the New York delegates to the Philadelphia convention which assembled to frame the constitution of the United States. In 1790 he was appointed a justice of the Supreme Court of the State of New York, and on February 15, 1798, became chief justice. In 1801 he became chancellor, and held this office until 1814. His manner of death was never accounted for. He was in New York and left his hotel to dispatch a letter by the steamboat going to Albany. At this time he was seventy-five years of age, and it was supposed that he was either robbed and murdered or accidentally drowned.

LARCOM, LUCY, author, born in Beverly, Mass., in 1826. When she was twelve years old her father died, and her mother established a factory boarding-house in Lowell. After spending about three years at school she became a factory "hand" in a cotton-mill. During that time she contributed to the *Lowell Offering* a series of parables. At the age of twenty she went to Illinois, where for three years she studied in Monticello Female Seminary. On her return to Massachusetts she was employed six years in the Norton Female Seminary, and later taught classes in the Boston schools. She was for a time editor of *Our Young Folks*, a Boston magazine. Her publications are *Ships in the Mist* (Boston, 1859); *Poems* (1868); *An Idyl of Work* (1875); *Childhood Songs* (1877); *Wild Roses of Cape Ann*, poems (1880); *New England Girlhood* (1884); *As It Is in Heaven* (1891), and *The Unseen Friend* (1892). She also edited several collections of poetry. She died April 13, 1893.

LASKER, EDUARD, born in Prussian Poland, of Jewish parentage, October 14, 1829; studied law at

Berlin and Breslau, and became successively a member of the Prussian, North German and imperial diets. He was an earnest Liberal and probably the most influential as he was the most uncompromising opponent of the policy of Bismarck. He died in New York, June 5, 1884.

LASSELL, WILLIAM, F.R.S., LL.D., born in Lancashire, England, June 18, 1799; died October 5, 1880. He was engaged in trade but devoted all his leisure to astronomy, and with telescopes of his own construction discovered two satellites of the planet Uranus and one of Neptune.

LATHAM, ROBERT GORDON, M.D. F.R.S., born in Lincolnshire, England, in 1812, was educated at Eton, and proceeded to King's College, Cambridge, where he graduated B.A. in 1832, being duly elected fellow. He afterward studied medicine, and became assistant physician to Middlesex hospital, where he lectured on forensic medicine and materia medica. His name, however, is best known to the world by his ethnological researches, and his writings on that subject and on philology. His first works were *Norway and the Norwegians*, a translation from the Swedish of Tegner's *Frithiof Saga*, and *Axel*, published in 1840; *The Varieties of Man*, and *The Ethnology of Europe*, in 1852; *The English Language*, in 1855; *Descriptive Ethnology*, in 1859; *Nationalities of Europe*, in 1863; a work on *Comparative Philology*; several papers on *Logic*; a new edition of *Johnson's Dictionary*, of which the thirty-sixth and last number was published January 1, 1870; *Outlines of General or Developmental Philology*, 1878; and *Russian and Turk from a Geographical, Ethnological, and Historical Point of View*, 1878. He died March 9, 1888.

LATHROP, GEORGE PARSONS, born in Honolulu, August 25, 1851, was educated in Germany and married, in 1871, Rose Hawthorne, youngest daughter of NATHANIEL HAWTHORNE (q.v.), who has distinguished herself as a magazine writer. Mr. Lathrop was assistant editor of the *Atlantic Monthly*, 1875-77, and afterward edited the *Boston Courier*. He has published poems and sketches. Died April 19, 1898.

LATROBE, BENJAMIN HENRY, born in Yorkshire, England, May 1, 1764; died in New Orleans, La., September 3, 1820. In 1785 he entered the Prussian army in a regiment of hussars, and was twice wounded in battle. Returning to England, he studied architecture, and in 1788 was made manager of the public offices of London. In 1796 he came to the United States, when he was made engineer of the James river and Appomattox canal, and superintended the building of the penitentiary in Richmond. In 1798 he settled in Philadelphia, where he designed the bank of Pennsylvania, the old academy of art, and the bank of the United States. In 1811 he completed the capitol at Washington, and after its destruction by the British in 1814, superintended its reconstruction.

LAUBE, HEINRICH, born in Silesia in 1806; died in Vienna, August 1, 1884. He wrote some poems and a number of tales, romances, and dramas, as well as the *History of the First German Parliament* (1849).

LAURENT, CORNELIUS BALDRAN, born in Dordrecht, Holland, in the latter part of the seventeenth century; died about 1710. He began his career at sea among the Spaniards. Captured by the buccaneers, he was induced to join their ranks, and eventually became one of their leaders. In 1683 about 1,300 pirates, gathered under the leaderships of Laurent and Van de Horn, struck terror in the Spanish-American colonies. Each captain, with a frigate of fifty guns, sailed for Vera Cruz, which they surprised by night, took the principal inhabitants prisoners, and held them for ran-



som. On the arrival of Spanish forces from the interior, the buccaneers retired with about 1,000 captives, and booty to the amount of a million dollars. Soon dissensions arose between the two leaders about the division of spoils, and Horn and Laurent fought a duel, in which the former was wounded. After a division of booty and prisoners, they set sail, in company with a number of captured smaller vessels, for the west coast of Hayti. Laurent resumed his buccaneering in 1684 by capturing two frigates and a sloop off Carthagea on December 23d, and later became engaged in other naval enterprises. The king of France made him governor of Avache Island, and he also received orders to drive away the pirates who infested the southern part of Hayti. In 1691 the Spaniards threatened the French colony of that island, and Laurent gathered 2,000 followers for its defense. In 1694, when Jamaica was attacked, Laurent's skill and bravery were instrumental in obtaining a victory for the French. Later, as lieutenant of the king of France, he was intrusted with the defense of Fort du Paix, Santa Domingo. At that time the British and Spanish forces combined to attack the place, and the French were vanquished. On this occasion Laurent's wife was taken prisoner by the Spaniards, who kept her in durance for many years. Later he was retired from military command, appointed captain of a frigate, and became employed in piloting fleets in the Gulf of Mexico and among the Antilles.

LAURIER, SIR WILFRID, born in Quebec, Nov. 20, 1841; became a lawyer, and served in the Quebec assembly, 1871-74. In the last-named year he entered the Dominion parliament, and in 1877-78 was minister of inland revenue in the Mackenzie government. He led the Liberal opposition in parliament after the retirement of Edward Blake in 1887. Knighted, 1897.

LAUZUN, ARMAND LOUIS DE GONTAUT, DUC DE, French soldier, born in Paris, April 15, 1747; died there December 31, 1793. He fought in the American cause in the Revolution, commanded 500 cavalry, known as "Lauzun's legion," and was engaged at Yorktown and at New York city; became duc de Biron in 1788, and in 1792 was made commander-in-chief of the army of France on the Rhine. He was cited before the revolutionary tribunal in 1793, for alleged conspiracy against the republic, and was condemned to death, without a hearing.

LAVAL-MONTMORENCY, FRANÇOIS XAVIER DE, was born at Laval, France, in 1623, was the first bishop of the Church of Rome in Canada, a man of great ability and high character, who, from his arrival in 1659 to his death in Quebec, in 1708, did much for the infant colony. He founded and endowed the Seminary of the Holy Family, 1675.

LAVELEYE, EMILE LOUIS VICTOR, DE, BARON, born at Bruges, Belgium, April 5, 1822; studied law at Ghent, and devoted himself to economics. In 1864 he became professor of political economy in the University of Liège, and wrote much on economics and politics. He died January 3, 1891.

LAVERGIERE, CHARLES ALLEMAND, CARDINAL, born in Bayonne, France, 1825, a missionary in Syria, a prelate of the Pope, was made a cardinal in 1882, and both before and afterward was active in establishing and supporting Christian missions in London, Tunis, Tripoli, East Africa and Algeria, and his energetic opposition to the slave trade brought about the Brussels Anti-Slavery Conference of 1889. He died Nov. 26, 1892.

LAWES, SIR JOHN BENNET, BART., F.R.S., LL.D., was born at Rothamsted, England, December 28, 1814, and died August 31, 1900. He studied, in a practical manner, the science of chemistry, and in 1834 started regular experiments in agriculture at Rothamsted, and

from that date has unceasingly engaged in solving questions affecting practical agriculture, among them the effect of bones as manure on land, endowing his agricultural station with \$500,000.

LAWRENCE, GEORGE ALFRED, an English novelist, born in 1827; died in 1876. His best-known works are *Guy Livingstone*, *Sword and Gown*, and *Barren Honor*.

LAWRENCE, JAMES, captain in the United States navy, was born at Burlington, N. J., October 1, 1781, and entered the navy as a midshipman in 1798. He commanded the *Hornet* in the capture of the *Peacock*, February 24, 1813. Placed in command of the frigate *Chesapeake*, he accepted the challenge of Captain Broke of the *Shannon* to a single battle, off Boston harbor. The *Chesapeake* was captured, and Lawrence, mortally wounded, died June 6, 1813. (See Irving's *Spanish Papers*, vol. ii.)

LAWSON, JAMES ANTONY, LL.D., born at Waterford, in 1817; was educated at Trinity College, Dublin, where he took the usual degrees and was professor of political economy. He was called to the Irish bar in 1840. He became a Q.C. in 1857; was appointed law adviser of the crown in Ireland, and on the formation of Lord Palmerston's second administration, in 1859, solicitor-general for Ireland, succeeding Mr. O'Hagan as attorney-general in 1865, from which office he retired on the fall of Lord Russell's second administration, in July, 1866. He was an unsuccessful candidate in the Liberal interest for the University of Dublin in April, 1857, and was first returned for Portarlington at the general election in July, 1866. Mr. Lawson was appointed a justice of the court of common pleas in Ireland, in 1868. On the disestablishment of the Irish church in 1871 he was appointed commissioner, with Lord Monck and the late Mr. G. A. Hamilton, to carry into effect the provisions of the act. In 1882 he was transferred to the queen's bench, and became the senior puisne judge in Ireland. He died August 9, 1887.

LAWSON, SIR WILFRID, BART., M. P., was born September 4, 1829, and succeeded to the title and estates on his father's death in 1867. From an early age he has been an enthusiastic advocate of the temperance movement, and he is now the leader of the United Kingdom Alliance, and its spokesman in parliament. At the general election of 1859 he stood, in conjunction with his uncle, the late Sir James Graham, as a candidate for the representation of Carlisle, and succeeded by a narrow majority over his opponent, Mr. Hodgson. In March, 1864, he first moved for leave to introduce the measure now so well known as the permissive bill, the main principle of which is the giving to two-thirds of the inhabitants of any parish or township an absolute veto upon all licenses for the sale of intoxicating liquors granted within their districts. It was supported by forty members. In 1865 he was displaced at the general election by his former opponent, Mr. Hodgson; but at the general election of 1868, on appealing to the enlarged constituency as a supporter of Mr. Gladstone, he was returned at the head of the poll. Sir Wilfrid Lawson succeeded, on June 18, 1880, in carrying his "Local Option" resolution by a majority of twenty-six. In 1885 he stood for the new Cocker-mouth division of Cumberland, but was defeated by a Conservative majority of ten. In 1886 and 1892, as a Gladstonian Liberal, he gained the seat by a large majority. He is an advanced Radical and is in favor of the disestablishment of the church, and of the abolition of the House of Lords and standing armies.

LAYARD, THE RIGHT HON. SIR AUSTEN HENRY, G.C.B., was born in Paris, March 5, 1817. After studying law for a time, he, in 1839, set out with a



friend on a course of travel; visited various points in northern Europe, and proceeded through Albania and Roumelia, to Constantinople, where, at one period, he acted as a correspondent of a London newspaper, and afterward traveled through various parts of Asia, and learned the Arabic and Persian languages. In his wanderings he made it a special point to explore those spots believed to have been the sites of ancient cities; and when at Mosul, near the mound of Nimroud, he examined carefully the spot to which history and tradition point as the "birthplace of the wisdom of the West." On hearing that M. Botta, a Frenchman, had been carrying out excavations at the cost of his government, and had found a great number of curious marbles, Mr. Layard longed for the opportunity of making similar discoveries. Returning to Constantinople, he laid his views before Sir Stratford Canning, who, in 1845, generously offered to share the cost of excavations at Nimroud, and in the autumn Mr. Layard set off for Mosul, and began his labors on a spot previously undisturbed. Here he ultimately succeeded in exhuming some of the numerous wonderful specimens of Assyrian art which enrich the British Museum. The government, however, for a time failed to appreciate the value of Mr. Layard's researches. He was appointed attaché to the embassy at Constantinople, April 5, 1849, and under-secretary of state for foreign affairs in Lord Russell's first administration for a few weeks in 1852.

In 1853 he was presented with the freedom of the city of London, in consideration of his discoveries among the ruins of Nineveh, and went to Constantinople with Lord Stratford de Redcliffe. In the House of Commons he became the advocate of a more decided course of action on the Eastern question, and delivered several energetic and impressive speeches on that important subject. He was returned as one of the members in the Liberal interest for Aylesbury in July, 1852; was defeated at the general election in March, 1857; was an unsuccessful candidate at York in April, 1859, and was returned one of the members for Southwark in December, 1860. In 1848-9 he published *Nineveh and its Remains*, and, in 1853, a second part of the work. His *Monuments of Nineveh* appeared in 1849-53, and an abridged edition of *Nineveh and its Remains* in 1851. Mr. Layard, who had been elected lord rector of Aberdeen University in 1855 and 1856, became under-secretary of state for foreign affairs in Lord Palmerston's second administration, in July, 1861, and retired on the fall of Lord Russell's second administration, in July, 1866. He was appointed a trustee of the National Gallery in February, 1866. He was chief commissioner of works in Mr. Gladstone's administration from December, 1868, at which time he was added to the privy council, until November, 1869, when he retired from parliament on being appointed envoy extraordinary and minister plenipotentiary at Madrid. In April, 1877, he was sent as ambassador to Constantinople in succession to Sir Henry Elliot. On the re-establishment of ordinary diplomatic relations with the Sublime Porte, Mr. Layard was chosen by Lord Beaconsfield to be ambassador. He arrived at Constantinople, April 24, 1877. The Order of the Grand Cross of the Bath was conferred on him in June, 1878, just before the assembling of the Congress of the Great Powers at Berlin. In April, 1880, when Mr. Gladstone returned to power, Sir A. H. Layard received leave of absence from his post at Constantinople, and his place was soon afterward taken by Mr. Goschen. He died July 5, 1894.

LAZARUS, EMMA, author, born in New York city, July 22, 1849; died there November 19, 1887. Her parents were Hebrews. She was carefully educated, and

as she advanced to womanhood contributed articles to *Scribner's Monthly* and other periodicals. She was a good German and Hebrew linguist, and from these languages made sundry translations. Miss Lazarus led a quiet, uneventful life, living in sympathy with her race, and died of lingering consumption. Her publications include *Poems and Ballads of Heine* (New York, 1881), and *Songs of a Semite*, poems (1882). Her last writings, a series of prose-poems, appeared in 1887.

LEADER, BENJAMIN WILLIAMS, A.R.A., was born at Worcester, England, March 12, 1831. He received his earliest instruction in art at the School of Design in his native city. In 1854 he was admitted a student in the Royal Academy, and in the same year exhibited his first picture, *Cottage Children Blowing Bubbles*, which was bought for \$250 by an American gentleman. Since then he has become one of the most popular delineators of mountain scenery, Wales and Switzerland being his favorite sketching-grounds. He was elected an associate of the Royal Academy January 16, 1883, and has exhibited pictures in the Royal Academy since 1856.

LECLERC, VICTOR EMMANUEL, born in Pontoise, March 17, 1779; died in Tortugas, West Indies, December 2, 1802. He began his military career in 1790 as a private in the French army, in 1793 became captain, and in 1796 was made major-general. In 1797 he married Pauline, the sister of Napoleon, and in 1799 was promoted to lieutenant-general. In December, 1801, he was appointed commander-in-chief of the expedition to Santo Domingo, sent to quell the negro rising under Toussaint l'Ouverture. A fleet of eighty sail, having on board 33,000 soldiers, was assembled at Rochefort, and Madame Leclerc joined her husband on the voyage. On February 6, 1802, the forces were landed. The general at once issued proclamation to the inhabitants, was joined by many negroes, and for three months devastated the country. Following this measure he defeated Toussaint, and on May 9th the negro chieftain signed a treaty, in which he acknowledged the government of France over the entire island. Notwithstanding this treaty Toussaint was arrested a few days later, and sent a prisoner to France. Thereafter the French general assumed the office of governor-general, and began to reenslave the negroes. This precipitate measure caused a new rising in the interior, in which distressing barbarities were committed on both sides. Yellow fever and want of food bore heavily on the French soldiers; the blacks became more successful in the contest, and Leclerc retired to the island of Tortugas, where he died of yellow fever.

LECKY, WILLIAM EDWARD HARTPOLE, M.A., was born in Dublin, March 26, 1838, and educated at Trinity College, Dublin, where he graduated B.A. in 1859, and M.A. in 1863. Devoting himself to literature, he soon gained great distinction as an author. His acknowledged works are: *The Leaders of Public Opinion in Ireland*, published anonymously in 1861, and republished in 1871-2; *History of the Rise and Influence of the Spirit of Rationalism in Europe*, 2 vols. 1865, 5th ed. 1872; *History of European Morals from Augustine to Charlemagne* (2 vols., 1869); and a *History of England in the Eighteenth Century*, in eight volumes, of which the first appeared in 1878 and the last in 1890. All these works have been translated into German, and some of them into other languages.

LE CONTE, JOSEPH, M.D., born in Liberty county, Ga., February 26, 1823, graduated at Franklin College in 1841, and the New York College of Physicians and Surgeons in 1845, and practiced his profession at Macon, Ga. In 1850 he went to Cambridge, Mass., where he studied under Agassiz. He subsequently held



several professorships, and since 1869 has been professor of geology and natural history in the University of California. He has published several essays on education and the fine arts, a work on *The Mutual Relations of Religion and Science*, 1874; *Elements of Geology*, 1878; *Sight*, 1881; and *A Compend of Geology*, 1884. Among his strictly scientific publications are papers on *The Agency of the Gulf Stream in the Formation of the Peninsula of Florida*; *On the Correlation of Vital Force with Chemical and Physical Forces*; *On the Phenomena of Binocular Vision*; *A Theory of the Formation of the Great Features of the Earth's Surface*; *On Some of the Ancient Glaciers of the Sierras*; *On the Great Lava Flood of the Northwest*; and *On the Structure and Age of the Cascade Mountains*.

LECONTE DE LISLÉ, CHARLES MARIE RENÉ, a French poet, was born October 23, 1818, at St. Paul (Réunion Isle). After making several tours in France he established himself in Paris in 1847. He first came before the public in 1853, when his *Poèmes Antiques* were published. This work and *Poèmes et Poésies*, 1885, gave him a leading position among the younger poets. In 1873 he was appointed sub-librarian at the Luxembourg, and in the same year offered himself as a candidate at the Academy for the chair of the Aboé Gratey. In 1877 he again presented himself in opposition to MM. Sardou and D'Audiffret-Pasquier, but was only supported by Victor Hugo and Aug. Barbier. His tragedy *Erynnies* was produced at the Odéon in January, 1873, and he has contributed to the *Revue Européenne*, *Nain Jaune*, etc. In August, 1870, he was decorated with the Legion of Honor. In 1886 he was admitted to the French Academy in succession to Victor Hugo (q. v.). He died July 18, 1894.

LEDOCHOWSKI, MIECISLAS, cardinal of the Roman Church, archbishop of Gnesen and Posen, and primate of Poland, was born at Gork, of an illustrious Polish family, October 29, 1822. He began his theological studies under the Lazarists in the college of St. John, Warsaw, and at the age of eighteen received the ecclesiastical tonsure and habit from the bishop of Sandomir. After some studies at Vienna he proceeded to Rome, where he joined the *Academia Ecclesiastica*, founded by Pius IX. to impart a special training to young ecclesiastics distinguished by their acquirements. His holiness named Ledochowski domestic prelate and prothonotary apostolic, and also sent him on a diplomatic mission to Madrid and as auditor of the nunciature to Lisbon, Rio de Janeiro, and Santiago de Chili. He was nominated archbishop of Thebes, in *partibus infidelium*, on his appointment, September 30, 1861, to the nunciature of Brussels, where he remained four years. In January, 1866, he was translated to the archbishopric of Gnesen and Posen, and as the occupant of that see he possessed the title of primate of Poland. In consequence of his resistance to the laws enacted in Prussia against the church, he was, in 1874, cast into prison, and he was actually incarcerated in the dungeons of Ostrowo when he was proclaimed a cardinal by the Pope in a secret consistory held in Rome, March 15, 1875. He was released from captivity February 3, 1876. Being banished from his diocese he proceeded to Rome, where he took possession of his "title," the church of Santa Maria in Ara Celi (May 11). He resigned his see in 1885. Died July, 1894.

LEE, ANN, founder of the Shaker sect; born in Manchester, England, February 29, 1736; died in Watervliet, N. Y., September 8, 1784. Her father was a poor blacksmith and she was successively employed as an operative in a cotton factory and a cook in a public institution, and was married to William Stanley, a blacksmith. By him she had four children all of whom

died in their infancy. In 1758 she joined the Manchester Society of Friends, and preached against lustful gratification. In 1770 she had become a favorite preacher of new doctrines among her people, and, being imprisoned for creating religious disturbance among the lower orders, after her release was deemed by many their spiritual mother in Christ. She then claimed to have had direct revelation from Christ, declared the wrath of the Almighty against marriage, and was eventually incarcerated in a mad-house. Thereafter she declared she had a special revelation to go to the United States, and, with a number of her followers, arrived in New York city in May, 1774. After some vicissitudes she left her husband, and founded a settlement at Watervliet, near Albany, N. Y. Here she was accused of witchcraft, and later, on a charge of high treason, was arrested and imprisoned in Albany during the summer of 1776. In 1780 her society began to increase, and during a religious revival at New Lebanon many persons united with her followers. In 1781, in company with several of her elders, she visited the New England States, preaching at many places, and founded a new society at Harvard, Mass.

LEE, CHARLES, soldier, born in Dernhall, England, in 1731; died in Philadelphia, Penn., October 2, 1782. His father was General John Lee. He studied in the schools of his native place and in Switzerland, acquiring a knowledge of Latin, Greek, and French, and later added a proficiency in Spanish, Italian, and German. After rambling for some time, on the continent he studied military tactics, and in 1751, after his father's death, became lieutenant in a regiment of which his father had been colonel. In 1754 this regiment was ordered to America to take part in Braddock's western expedition. Lee served in later campaigns as captain of grenadiers, and was present at several conferences of Sir William Johnson with the Indians. His relations with the Mohawks became so friendly that he was adopted as one of their tribe. In 1758 he was wounded in the assault on Ticonderoga, and was present at the capture of Fort Niagara. In 1760 he returned to England, and was promoted major; in 1762 he served under General Burgoyne in Portugal, with the rank of lieutenant-colonel. In 1764 he visited Poland, and was employed on the staff of the king. After some adventures in Russia and Austria, in 1770 he went to Italy, where he lost two fingers in a duel with an officer, whom he killed. He arrived in New York city, November 10, 1773, and journeyed through the colonies from Massachusetts to Virginia, where he made the acquaintance of many leaders of the Revolution. In 1775 he bought a handsome estate in Berkeley county, Va., and on June 17th of the same year, congress appointed him second major-general in the Continental army, General Ward being the first. In July, 1775, Lee joined the army at Cambridge, and was placed in command of the left wing. In November he went to Newport, R. I., to erect works of defense, and in March, 1776, visited Virginia to check the movements of Sir Henry Clinton. On October 14th Lee arrived in New York city and took command of the right wing of Washington's army, on Harlem Heights. At the fall of Fort Washington, the commander-in-chief had placed half his army on the west side of the Hudson river, to oppose any movement of the British toward Philadelphia, leaving the other half, 7,000 men, in Westchester county, N. Y., to await his orders. While separated from his forces, on December 13th, General Lee was surprised and captured at Basking Ridge, N. J., by a party of dragoons. In May, 1778, he was exchanged for General Prescott, and joined the American army at Valley Forge. On June 28th Lee overtook the enemy,



who were retreating from Philadelphia to New York, at Monmouth, N. J. When Washington arrived for his support, he was astonished to find his division in disorderly retreat, pursued by the British. It was then the commander-in-chief lost his temper, and in round terms swore at Lee in the hearing of his soldiers. Rallying his forces, he soon repelled the enemy and sent Lee to the rear. Afterward Lee was tried for insubordination, and ordered to be suspended from command for a year. For his disrespect to Washington, he was challenged by Col. John Laurens, Washington's aide-de-camp, and in the subsequent duel was shot in the arm. Thereafter he wrote an offensive letter to congress, for which he was dismissed from the army. He retired to his estate in the Shenandoah Valley.

LEE, FRANCIS LIGHTFOOT, born in Westmoreland county, Va., October 14, 1734; died in Richmond, Va., April 3, 1797. After serving in the Virginia house of burgesses from Loudon and Richmond counties, he was, in August, 1775, elected to the Continental congress, in which he served until 1779. He signed the Declaration of Independence, and assisted in drawing up the Articles of Confederation.

LEE, GEORGE W. C., eldest son of General Robert E. Lee, born at Arlington, Va., September 16, 1832; graduated at West Point in 1854, became an engineer officer, and in May, 1861, resigned to enter the Confederate service. He rose to a major-general's commission, and commanded a division of the army of Northern Virginia. In February, 1871, he succeeded his father as president of Washington College, Va., (now Washington and Lee University).

LEE, HENRY, soldier, born in Virginia, January 29, 1756; died on Cumberland Island, Ga., March 25, 1818. He was graduated at Princeton in 1774, and later was appointed a captain of Virginia cavalry under Col. Theodor Bland. In 1777 Captain Lee, with his company, joined the American army in Pennsylvania; in 1778 became major, and was placed in command of an independent partisan corps. At that time he received the name of "Light-horse Harry." In July, 1779, he surprised the British garrison at Paulus Hook, N. J., for which he was made lieutenant-colonel. In 1780 he joined the Southern army under General Greene, had a number of skirmishes with Colonel Tarleton's British cavalry, assisted at the capture of Augusta, Ga., and at the battle of Eutaw Springs. In October of that year he joined the American army at Yorktown. In 1788 he was a member of the Virginia convention that ratified the constitution, in 1792 became governor of Virginia, and in 1794 was called to the command of a military force to quell the whisky insurrection. In 1801 he retired to private life. In 1812 he was in Baltimore at the time of a riot, when he received bodily injuries from which he never recovered. For the improvement of his health, General Lee sailed for the West Indies, but died soon after his return to the United States. He was the father of Gen. Robert E. LEE, (q.v.)

LEE, RICHARD HENRY, born in Westmoreland county, Va., January 20, 1732; died June 19, 1794; was educated in England, and from 1764 to 1788 was a member of the Virginia house of burgesses. In August, 1774, he was elected a delegate to the continental congress, and served in several subsequent congresses, being president of that of 1784. On June 7, 1776, he presented his famous resolution (seconded by John Adams), "That these united colonies are, and of right ought to be, free and independent States; and all political connection between them and the state of Great Britain is, and ought to be, totally dissolved." It was upon this resolution that the DECLARATION OF INDEPENDENCE (q.v.) was based.

LEE, ROBERT EDWARD, commander-in-chief of the Confederate armies, was born in Stratford, in Westmoreland county, Va., January 19, 1807. He was the son of "Light Horse Harry Lee," a distinguished general of the Revolutionary war; was graduated from West Point in 1829, and assigned to the engineer corps of the regular army, with the rank of second lieutenant. In the Mexican war, during which he served as chief engineer of the army, evidences of his military skill steadily accumulated, and his possession of military ability of the highest order was made the subject of commendatory comment by the generals commanding. The capture of Vera Cruz and his successful assault upon Chapultepec earned for Lee not only the acknowledgments of General Scott, but the title of colonel by brevet. In 1852 he was placed in command of the military academy at West Point, where he remained for three years. In 1855 he was appointed lieutenant-colonel of the second cavalry and ordered to Texas, where he remained until the breaking out of the Civil war, except for a brief period, about the time of John Brown's raid on Harper's Ferry, when he was ordered to Washington, and took command of the troops sent in pursuit. In March, 1861, he was promoted colonel of the first cavalry, but resigned his commission a month later (three days after Virginia had adopted the ordinance of secession), declaring, in his letter to General Scott, that his "resignation would have been presented at once but for the struggle it has cost me to separate myself from a service to which I have devoted all the best years of my life."

At this time General Lee was temporarily sojourning at Arlington, an estate on the Potomac river near Washington which he acquired upon his marriage in June, 1831, with Mary Randolph Custis, daughter of George Washington Parke Custis, grandson of Martha Washington.

He repaired to Richmond when he was appointed a major-general in command of the State troops, and in July following was designated as one of the brigadier-generals of the Confederate army. His earliest service was in West Virginia. That portion of the country was then in possession of the Union forces commanded by General W. S. Rosecrans, the successor of General McClellan upon the latter's promotion to command the army of the Potomac. General Rosecrans defeated General John B. Floyd at Carnifex Ferry in September, 1861, and his efforts were thereafter successfully directed against the investment of any portion of the territory included within his jurisdiction by the army under Lee. The fall of 1861 was passed by the latter in designing and completing the coast defenses of South Carolina, but early in the succeeding spring he was summoned to Richmond upon "special service"—upon a service, in fact, that subsequent events developed into the Peninsular campaign of 1862.

As will be remembered, General McClellan was called to Washington in July, 1861, and made commander-in-chief of the Union armies during the month succeeding. His reorganization of the army followed, and about March 17, 1862, he embarked his forces at Alexandria, Va., for Fortress Monroe, the government fort on Old Point Comfort, seventy-two miles southeast of Richmond. Meanwhile, the Confederates had established themselves to the south of the Rappahannock river, and, when General McClellan began his advance upon Richmond by way of the Peninsula, Gen. Joseph E. Johnston, commanding the Confederates, was encamped at Williamsburg, General Buell commanded the line of defense along the Rappahannock and General Jackson held the Shenandoah Valley. Early in May, General Magruder, after confronting McClellan's forces for nearly a month, evacuated Yorktown. Gen-



eral Franklin's command of the Union army was thereupon moved in the direction of the White House at the head of navigation on the Pamunkey river, while General McClellan undertook the pursuit of Johnston's army on its retreat to Richmond, whither it arrived after contesting for the occupation of Williamsburg. McClellan continued his pursuit, and, during the last week in May, was established on the Chickahominy, with the White House, protected by Franklin's division, as his base of operations. The Chickahominy river was at this time unusually high, overflowing the surrounding country, and rendering the position of McClellan critical. On the night of May 30th his left wing was attacked by Johnston. The battle of Seven Pines or Fair Oaks, by which name it has since been known, was fought the next day, during which Johnston was severely wounded, and General Lee succeeded to the command of the army of Northern Virginia.

Thus promoted to a position of such conspicuous importance General Lee determined to adopt that offensive defense which was always his favorite method, and instead of awaiting McClellan's attack, he resolved to defend Richmond by dislodging the foe that threatened it. In pursuance of this policy Lee inaugurated a movement under Jackson, the Hills, and Longstreet, with the object of turning the enemy's flank, and by menacing their communications compel them either to fight or retreat. The movement was conducted in accordance with the plan proposed, and, on the evening of June 25th, the environment of General McClellan was such as to import disastrous consequences. The battle of Mechanicsville was fought on the afternoon of the next day, followed by Gaines' Mill, Savages' Station, Frazier's Farm, and Malvern Hills, in all of which both armies suffered severely (see PENINSULAR CAMPAIGN). The Union armies arrived at Harrison's Landing, July 2d; on August 3d they evacuated the Peninsula. Gen. John Pope had meanwhile been placed in command of the army of Virginia, consisting of the corps of Banks, Frémont, and McDowell.

During July, Gen. Thomas J. Jackson, acting under Lee's orders, proceeded to Gordonsville, moving thence with his own and Ewell's divisions to Orange Court House where he formed a junction with A. P. Hill's division, and, crossing the Rapidan, fought the battle of Cedar Mountain August 9th, in which a division of the army of Virginia under the command of Banks was defeated. On August 14th General Lee, having meanwhile strengthened the army of Northern Virginia by reinforcements, took command on the Rapidan, and personally directed operations, while General Pope, who had also received reinforcements from the army of the Potomac, and had become aware of his danger, was strongly intrenched to prevent the crossing of the Rappahannock river by the enemy. Both armies moved up the river to a point in Fauquier county near Warrenton Springs, where General Lee made a feint to cross, while General Jackson executed such a movement eight miles above, and, marching through Thoroughfare Gap, gained the enemy's rear at Manassas. Three days later, or on August 29th, Longstreet joined Jackson, and on the afternoon of the same day the second battle of Bull Run was commenced. It was continued through August 30th, and concluded with the retreat of the Union forces to Centerville, whence they retired within the fortifications of Washington, and on September 2d General Pope resigned his command.

Lee now determined to change his base of operations, and on September 5th, cutting loose from his sources of supply, crossed the Potomac, intending either to attack Washington or Baltimore, or to invade Pennsylvania. His army consisted of between 45,000 and 50,000 men,

opposed to whom were the combined armies of Virginia and the Potomac, again commanded by General McClellan. The presence of a strong force of Union soldiers at Harper's Ferry, under the command of General Miles, is said to have somewhat disarranged Lee's plans, and accordingly he ordered Jackson to move in the direction of that stronghold, and at the same time so dispose of his remaining forces as to be prepared for battle should the same occur before Harper's Ferry surrendered or was captured. These places, however, came into McClellan's possession, and hastened his advance. He encountered Hill's corps at Sharpsburg, a point on Antietam creek seven miles north of Harper's Ferry, where he arrived and placed his army in position about September 16th, Lee having preceded him thither, and there received news of the surrender of Harper's Ferry. The battle of Sharpsburg or Antietam was inaugurated at daylight on the morning of September 17th, and lasted all day. Hostilities were not resumed on the 18th, and on that night Lee recrossed the Potomac and established himself near Winchester.

General Burnside took command of the Union army during the fall of 1862, and planned a campaign against Richmond by way of Fredericksburg. His army, estimated at 122,000 men, reached Falmouth, across the Rappahannock from Fredericksburg, on November 17th. To confront him, Lee placed a portion of his army among the hills which environ the city, under the command of Longstreet, with the divisions of Jackson and Hill so disposed of as to protect the wings if his army was attacked. On December 12th Burnside crossed the river at two points, but reserved his attack until the following morning, when the right and left of Lee's army were made the objective points. The contest raged all day. As the Union forces advanced, their ranks were swept with shot and shell from the artillery placed on Mary's Heights, and by the withering fire of muskets from soldiers occupying a sunken road opposite the Union lines. Darkness finally put a period to further carnage, and, on December 15th, Burnside recrossed the Rappahannock, and hostilities were suspended until spring.

During the winter Burnside was in turn succeeded by Gen. Joseph Hooker, who delayed operations until April. In the latter part of that month General Sedgwick crossed the Rappahannock below Fredericksburg with a large force, while Hooker crossed above the city with the remainder of the army. His design was to flank Lee. The latter, however, met him at Chancellorsville, May 1st, and checked his advance, while Jackson, with a force of 36,000 men, marched to attack Hooker's rear. The attack was made on the afternoon of May 2d, and the fighting lasted far into the night. On the same night General Jackson received a wound from some of his own men, from the effects of which he died at Gunia Station four days later. The next morning the attack upon Hooker's army was renewed, the advance being led by Lee in person, and the enemy was driven from the field with great loss. Meanwhile Lee succeeded in permanently obstructing Sedgwick's operations, and the latter, having recrossed the Rappahannock, was joined by Hooker about September 6th, and a period of inactivity followed.

After the battle of Chancellorsville, Lee decided to once more change his field of operations to Pennsylvania. His army was composed of three corps severally commanded by Longstreet, Ewell, and A. P. Hill, and aggregated less than 100,000 men. A movement in the direction of Pennsylvania began early in June, the army being led by Lee. His forces moved thither by way of the Shenandoah Valley, crossed the Potomac at Sharps-



burg, June 24th, and three days later were distributed at Chambersburg, Carlisle, and York. The army of the Potomac took up a line extending from Washington to Baltimore, hoping and expecting that Lee would again give battle in Maryland. When Lee's intention of transferring his field of operations to Pennsylvania became apparent, Hooker put his army in motion, marching in a northerly direction, and on a line parallel with that pursued by the invading Confederates. At this juncture Hooker was relieved, and on the night of June 27th Gen. George G. Meade, of the fifth corps, succeeded to his command, numbering at that date, a total of 107,320 men. The battle of Gettysburg followed, commencing on the afternoon of July 1st, and terminating with the charge led by Pickett against the Union forces between Little Round Top and Ziegler's Grove, made on the afternoon of July 3d (see GETTYSBURG). Lee retreated into Virginia, followed by Meade, but no further active operations took place during the year.

In May, 1864, hostilities were renewed. Lee's army was about 66,000, while that of General Grant, who had meantime been appointed commander-in-chief, has been variously estimated at from 120,000 to 150,000. During the months of May and June some of the most hotly contested battles of the war were fought between the opposing forces, notably the Wilderness, Spottsylvania, North Anna, Cold Harbor, and engagements of minor importance (see WILDERNESS, CAMPAIGN OF THE), until the middle of June, when the siege of Petersburg was begun. It was maintained through succeeding months, until April, 1865, when the city was evacuated. Prior to this occurrence it is said to have been the desire of Lee to abandon the defense of Richmond and proceed further south, where he might be able to effect a junction with the armies operating in that portion of the country, and, by concentrating his forces, contracting his lines, and other methods, attempt to gain advantage over his foe. He was unsupported in this desire, however, and the surrender at Appomattox followed.

With the final close of hostilities General Lee retired to the private walks of life, accepting the results of the war with a candor and dignity characteristic of that type of elevated manhood he so truly exemplified, and exerting an influence irresistible and widely extended to bind up the wounds between the two sections, caused by the Civil war. He accepted the presidency of Washington College, now known as Washington and Lee University, at Lexington, Va., and as a public educator passed the closing years of his life. He died at Lexington, October 12, 1870, and was buried three days later beneath the chapel of the university. Since his death monuments have been erected to his memory in many portions of the South, that in Lee Circle, St. Charles street, New Orleans, La., and the equestrian statue occupying a site at the head of Broad street, Richmond, Va., where it was unveiled in June, 1890, being specially noted. Mary Randolph Custis Lee, widow of General Lee, died November 6, 1873, also at Lexington; of his sons surviving, G. W. C. Lee succeeded to the presidency of Washington and Lee University, while W. H. F. Lee was a planter in Virginia.

LEE, WILLIAM HENRY FITZHUGH, second son of ROBERT E. LEE (*q. v.*), was born at Arlington, Va., May 31, 1837; was appointed lieutenant United States army in 1857 and served in the Utah campaign. In 1861 he joined the Confederate forces, became a brigadier-general in October, 1862, was captured and exchanged, and in April, 1864, was promoted major-general of cavalry and led his division from the Rapidan to Appomattox. In 1886 he was elected to congress and reelected in 1888 as a Democrat. He died in 1891.

LEFEVRE, JULES JOSEPH, a French painter, born at Tournan in 1836; was a pupil of Léon Cogniet. He gained the Grand Prix de Rome in 1861 for *The Death of Priam*, and in 1870 exhibited at the Salon *Truth* and a portrait. These were followed by *The Grasshopper*, 1872; a portrait of the Prince Imperial, 1874; *Mary Magdalene*, 1876; *Pandora*, 1877; a portrait of M. Pelpel, 1880; *Fiammetta and Ondine*, 1881; *La Fiancée*, 1882. M. Lefevre has obtained three medals, in 1865, 1868, and 1870, and a first-class medal at the Paris Exhibition of 1878. He was decorated with the Legion of Honor in 1870, and made an officer in 1878. He is one of the leading painters of his school and style, an excellent example of which is the beautiful *Psyche* exhibited in London, and engraved by François.

LEFEVRE, GEORGE JOHN SHAW, M. P., was born in England in 1832, and received his education at Eton and at Trinity College, Cambridge. He was called to the bar at the Inner Temple in 1856. In 1863 he was first elected member of parliament for Reading, in the Liberal interest, and he continued to be one of the representatives of that borough down to 1885, when he was defeated by Mr. Murdock. He was a lord of the Admiralty from May to July, 1866; secretary to the Board of Trade from December, 1868, to January, 1871; secretary to the Admiralty from the last date to February, 1874, and again from April, 1880, to the following November, when he was appointed first commissioner of works and buildings. As first commissioner Mr. Shaw-Lefevre introduced great improvements into the streets of London. On the death of Mr. Fawcett he was appointed postmaster-general (November, 1884), and his tenure of this office was marked by the introduction of sixpenny telegrams. Mr. Shaw-Lefevre was elected a bencher of the Inner Temple in November, 1882. He is the author of an important article on *Public Works in London*, in the *Nineteenth Century* (November, 1882). After his defeat at Reading in November, 1885, he was without a seat until, at a bye-election, April, 1886, he successfully stood for Bradford, vacant by the death of the Right Hon. W. E. Forster. At the general elections of 1886 and 1892 he was again elected as a Gladstonian Liberal, and in 1892 he again became commissioner of works. He has published several useful works, some of a statistical kind, on the English and Irish land question.

LEGARÉ, HUGH SWINTON, born in Charleston, S. C., January 2, 1789; was of French Huguenot descent. In 1814 he was graduated at the College of South Carolina, studied law for three years, and for two more years traveled and studied abroad. He returned to Charleston in 1820, and became engaged in planting cotton on John's Island; later he opened a law office, but had little success. In 1830 he was elected attorney-general of the State, and in the days of nullification supported the cause of the Union. In 1827 he had become co-editor of the *Southern Review*, a quarterly magazine. In 1832 he was appointed *chargé d'affaires* at Brussels. He returned home in 1836 and was elected to congress as a Union Democrat. He returned to the practice of his profession, in which he soon became eminent. In the presidential canvass of 1840 he favored the election of General Harrison, and in 1841 President Tyler appointed him attorney-general of the United States. In July, 1843, he visited Boston, to take part in the Bunker Hill celebration, and died suddenly.

LEGGE, JAMES, was born at Huntly, Aberdeenshire, in 1815, and died November 29, 1897. He was educated at the grammar schools of Aberdeen. He entered King's College and University in 1831; graduated M. A. in 1835; studied subsequently at Highbury Theological College, London, and received from the



University of Aberdeen the degree of LL.D. in 1870; and the same degree again at the tercentenary of the University of Edinburgh in 1884. He was appointed a missionary to the Chinese in connection with the London Missionary Society, in 1839, and arrived at Malacca in that capacity in December of the same year. In 1840 he took charge of the Anglo-Chinese College, founded there by the Rev. Dr. R. Morrison in 1825. In 1842 he received the degree of D.D. from the University of New York. In 1843 he removed to Hong Kong, where he continued till 1873 in the discharge of missionary duties. In 1875 several gentlemen connected with the China trade formed themselves into a committee to promote the establishment of a chair of the Chinese language and literature at Oxford, to be occupied in the first place by Doctor Legge. The university liberally responded to the proposal, and the chair was constituted in March, 1876. Corpus Christi College was forward in aiding the foundation, and Doctor Legge is now a fellow and M.A. of it.

LEGOUVÉ, ERNEST WILFRID, a French dramatist, the son of Gabriel Legouvé, author of *Merite des Femmes*, was born in Paris, February 14, 1807. At an early age he wrote novels, plays, and poems, and his lectures on *L'Histoire Morale des Femmes* were published in 1848. In 1849, in conjunction with Scribe, he produced *Adrienne Lecouvreur*, which gained great popularity through the personation of the heroine by Rachel. She, however, paid a fine of 5,000 francs rather than perform in his *Médée*, a play which in Montanelli's Italian version was in 1856 very successful with Ristori. In 1856 he succeeded Ancelot as a member of the academy.

LEHMANN, RUDOLF, artist, was born August 19, 1819, at Ottensen, near Hamburg, and educated at Hamburg. His art education he received at Paris, Munich, and Rome. He obtained three gold medals, at three Paris exhibitions, and was created a knight of the Order of the Falcon by the grand duke of Saxe-Weimar. M. Lehmann's chief pictures are: *Sixtus V. Blessing the Pontine Marshes*, bought by the French Government for the museum in Lille; a *Madonna*, and a *St. Sebastian*, ordered by the French Government for two churches in France; *Grazielle*, from Lamartine's *Confidences*; *Early Dawn in the Pontine Marshes*; numerous pictures of modern life and costumes in Italy; numerous portraits of distinguished persons in England, among whom are Lord Houghton, Mr. Browning, Mr. James Payn, Sir Wm. Ferguson, the duke and duchess of Leinster, etc.

LEIDY, JOSEPH, born in Philadelphia, September 9, 1823; graduated in medicine at the University of Pennsylvania in 1844. He held chairs of anatomy in several Pennsylvania colleges; was an army surgeon during the Civil war, and, in 1871, became professor of natural history in Swarthmore College. He was a member of numerous scientific societies, including the National Academy of Sciences, and was president of the Philadelphia Academy of Natural Sciences. Harvard made him LL.D. in 1886. He wrote hundreds of papers on biology and kindred subjects. He died April 30, 1891.

LEIGHTON, LORD FREDERICK, P.R.A., was born at Scarborough, December 3, 1830, and died January 25, 1896. His first instruction in drawing was received at Rome in 1842-43 from a painter named Filippo Meli. In 1843-44 he entered, as a student, the royal academy of Berlin. Some drawings of the young student were submitted to the celebrated American sculptor, Hiram Powers. The estimate formed by Powers of the drawings being highly favorable, the youthful Leighton was permitted from that day forward to devote the whole of his time to painting. Part of

the time, from 1846 to 1848, he studied in the Academy of Frankfort-on-the-Main. The winter of 1848-49 he passed in Brussels, painting his first finished picture, which represented the story of Cimabue finding Giotto drawing in the fields. The succeeding year or so he spent in Paris, copying in the Louvre, and attending the life school. Thence he returned to Frankfort, and became a pupil of E. Steinfeld of Vienna, professor of historical painting at the academy of that city. More or less of three winter seasons were next passed at Rome in diligent study and in painting a large picture of *Cimabue*. The exhibition of this work by Mr. Leighton at the Royal Academy in 1855 was a great surprise to the London public, coming as it did from an artist unknown in England. It was at once purchased by the queen, and it was reëxhibited at the Manchester art-treasures and the international exhibitions. During four years after this early and great success, the artist resided in Paris, aided by the counsel of Ary Scheffer, Robert Fleury, and other French painters. Subsequently he resided in London, and in 1856 he contributed to the academy exhibition a picture entitled *The Triumph of Music*, Orpheus rescuing his wife, Eurydice, from Hades. He was elected president of the Royal Academy, knighted and nominated an officer of the Legion of Honor in 1878. He was chairman of the British Committee on Fine Arts for the World's Fair at Chicago, in 1893, when his *Garden of the Hesperides*, *Perseus and Andromeda* and *Hercules Wrestling with Death for the Body of Alceste* were exhibited, besides two pieces of statuary, *Needless Alarm* and *The Sluggard*.

LEIGHTON, JOHN, F.S.A., artist, was born in London, September 15, 1822, and became a pupil of Mr. Howard, R.A. His first published work, a series of outlines, came out in 1844, but he had previously contributed to cartoon exhibitions. In 1848-50 he published several serio-comic brochures, satires on certain art principles, under the name of *Luke Limner*. In 1851 he published a series of twenty-four outlines, entitled *Money*, and at the same time a book on design, enlarged in 1881. He has lectured on *Libraries and Books*, *Oriental Art*, and *Binocular Perspective*, and has also traveled in Russia, Caucasus, and Georgia, for the purpose of studying the Byzantine art of the Greek church. In 1871 he edited, with illustrations, *Paris under the Commune*. Mr. Leighton served on the commissions of the exhibitions of 1851 and 1862; also at Paris, 1855, 1867; and Philadelphia, 1867. In June, 1885, he assisted at Victor Hugo's funeral at Paris.

LEISLER, JACOB, born in Frankfort-on-the-Main, Germany, about 1640; died in New York city, May 16, 1691. He came to New York in 1660 as a soldier in the service of the Holland West India Company. He traded with the Indians, and for a time lived in Albany as a magistrate. In 1678 he went to Europe, where he was captured by Moorish pirates, and was compelled to pay a heavy ransom. In New York he lived in the first brick house built in that city, and became endeared to the people by several acts of liberality. In 1683 he was appointed a commissioner of the court of admiralty. In 1689 the military force of the city consisted of a regiment of five companies, of one of which Leisler was captain. When news was received of the accession of William III. to the throne of Great Britain, Lieutenant-Governor Nicholson left the province at a time when war with France was imminent. When it became the duty of Leisler's company, in its turn, to occupy the fort, he called together all the citizens for defense. Four hundred citizens agreed to hold the fort for the Protestant government that reigned in England; a committee of ten assumed the power of a provisional government, with Leisler at their head, commissioned as "captain of



the fort." Nicholson and Mayor Van Cortlandt in vain endeavored to prevent the uprising, the governor sailed for England, and the mayor retired to Albany. Eventually Leisler assumed the functions of acting governor of the province, dissolved the committee of safety, and swore in a council. He entered on his administration with great energy. In 1690 he extended his authority over Albany, moved against the French, and dispatched a fleet of armed vessels to Quebec. In March, 1691, the newly appointed royal governor, Henry Sloughter, arrived, to whom Leisler, after some delay, made over his command. Sloughter arrested him and nine of his friends, but only he and his son-in-law were held, charged with treason and murder, tried, condemned, and executed. The judges were the personal and political enemies of the prisoners. In 1698 the earl of Bellamont, then governor of the province, caused an indemnity to be voted to the heirs of Leisler for the loss of his estates.

LEITNER, GOTTLIEB WILLIAM, M.A., Ph.D., born at Pesth, capital of Hungary, October 14, 1830. He was educated at Constantinople, Brussa, Malta, and King's College, London; was lecturer in Arabic, Turkish, and Modern Greek at King's College, London, in 1859; and Professor of Arabic with Muhammadan Law at the same institution in 1861, when he founded the Oriental section. The degrees of M.A. and Ph.D. were conferred upon him by the University of Freiburg in 1862. He has founded over seventy institutions, including the Punjab University College, a number of schools of various grades, literary societies, and free public libraries in India and elsewhere; and has started six journals in English, Arabic, Urdu, etc. Doctor Leitner discovered the languages and races of Dardistan in 1866; and he has since incorporated other languages besides Kabul, Kashmir, and Badakhshar in his researches. He excavated Græco-Buddhistic sculptures in 1870, and established a link between Greece at the time of Alexander the Great and Buddhist art and religion. Doctor Leitner also caused considerable excavations to be made by his retainers in Swat, which yielded numerous Græco-Buddhistic sculptures, and proved that Greek art had once influenced that now inhospitable region. He is also the president of an important body which he founded in 1864, namely, the Punjab Association, or Anjuman-i-Punjab, an institution for social, political, and educational reforms. Doctor Leitner died March 24, 1899.

LE JEUNE, HENRY, A.R.A. (retired), of Flemish extraction, was born in 1819. In early life he was sent to study at the British Museum, and in 1841 he obtained the gold medal of the Royal Academy, for a picture of *Samson Bursting His Bonds*. He was head master of the Government School of Design from 1845 to 1848, when he became curator of the painting school at the Royal Academy, retiring from this post in 1864. He has been a frequent exhibitor since 1841, was chosen an A.R.A. in 1863, and retired in 1886.

LELAND, CHARLES GODFREY, was born at Philadelphia, August 15, 1824. He graduated at Princeton College in 1846, and subsequently studied at the Universities of Heidelberg, Munich, and Paris. He was admitted to the bar in 1851, but soon relinquished law for literature, and contributed largely to periodicals. For several years he resided in Europe, but returned to the United States in 1880, and is now conducting an experiment in industrial art education in the public schools of Philadelphia. His works, many of which are of a humorous or burlesque character, include, *The Poetry and Mystery of Dreams*, 1855; *Meister Karl's Sketch Book*, 1855; *Pictures of Travel*, a translation of Heine's *Reisebilder*, 1856; *Sunshine in Thought*, 1862;

*Legends of Birds*, 1864; *Hans Breitmann's Ballads*, 1867-70; *The Music Lessons of Confucius, and other Poems*, 1870; *Gaudeamus*, a translation of the humorous poems of Scheffel, 1871; *Egyptian Sketch Book*, 1873; *The English Gipsies and Their Language*, 1873; *Fu-Sang; or, the Discovery of America by Chinese Buddhist Priests in the Fifth Century*, 1875; *English Gipsy Songs*, 1875; *Johnnykin and the Goblins*, 1876; *Pidgin-English Sing-Song*, 1876; *Abraham Lincoln*, 1879; *The Minor Arts*, 1880; *The Gipsies*, 1882; and *The Algonquin Legends of New England*, 1884; and *Memoirs*, 1893. He also edited a series of *Art Work Manuals*, published in 1885.

LEMMON, JOHN GILL, born in Lima, Mich., June 2, 1832; has made many discoveries in botany and entomology, and has published *Ferns of the Pacific* and other works. His wife, SARAH ALLEN PLUMMER, is also eminent as a botanist, and has written papers on ferns and silk culture.

LEMOINNE, JOHN ÉMILE, publicist, born in London, of French parents, October 17, 1815, began his studies in England, and finished them in France. In 1840 the director of the *Journal des Débats* intrusted him with the supervision of the English correspondence of that journal. He has contributed to the *Revue des Deux Mondes* numerous articles, for the most part relating to political history, England, and biography. Several of these articles were published in a separate form, under the title of *Etudes Critiques et Biographiques*, in 1862. He was elected a member of the French Academy in succession to Jules Janin, May 13, 1875, and his reception was on March 2, 1876. His keen and often hostile criticism of English policy is always read with interest by the more serious portion of Frenchmen, and is not disregarded in England; and it may be said that it is chiefly by his exertions as a journalist that he obtained admission to the French Academy; but he is the author of a number of able articles in the *Revue des Deux Mondes*, which have deservedly obtained a European reputation. M. Lemoinne has written no continuous book. On February 6, 1880, he was definitively chosen by the Left Center for the life senatorship, and in April of the same year he was appointed French minister at Brussels, but he declined the appointment. He died Dec. 14, 1892.

LENBACH, FRANZ, a distinguished German portrait-painter, was born at Schrobenuhausen in Bavaria, December 13, 1836. In 1856 he entered the Munich Academy to study painting, and afterward was a pupil of Gräfe and Piloty. He first confined himself to genre-painting, and his *Peasant Family in a Storm* excited much interest. In 1858 he went with Piloty to Rome, and there painted a picture of the forum, which by its realism and color created a great sensation in Munich. He then turned to portrait-painting, taking the old masters, especially Rembrandt, as his models. In 1860 he received an appointment at the School of Art at Weimar, but left it soon in order to pursue further studies at Rome. In 1867 he exhibited a masterly portrait of the artist, Von Hagn, and after further travels in Italy and Spain he returned to Munich, and soon became renowned for his portraits. For two years he worked in Vienna, but in 1874 settled again in Munich, where he has since resided. Among his most celebrated pictures are portraits of Paul Heyse, Franz Lachner, Moltke, Bismarck, Doctor Döllinger, Wagner, Liszt, and the late king of Bavaria.

LEO XIII., Pope, the 258th Roman pontiff, and 257th successor of St. Peter, is the son of Count Ludovico Pecci, by his wife Anna Prosperi. He was born at Carpineto, in the diocese of Anagni, in the State of the Church, March 2, 1810, and was baptized by the



names of Vincenzo and Gioacchino. In 1818 his father sent him, along with his elder brother, Giuseppe, to the Jesuit College of Viterbo. There he was taught grammar and humanities under Father Leonardo Giribaldi, a man of great learning, until the year 1824, when he was sent to Rome to the care of an uncle, and took up his residence in an apartment in the palace of the Marchese Muti. In November, 1824; he entered the schools of the Collegio Romano, then restored to the Jesuits. Three years later he began to study mathematics. He had for instructors Father Giovanbattista Pianciani, nephew of Leo XII., and Father Andrea Carafa, a mathematician of renown. Young Pecci signalized himself by his assiduity and talent, and in 1828 got the first premium in physico-chemistry, and the first *accessit* in mathematics. While studying philosophy Pecci was intrusted, despite his youth, to give repetitions in philosophy to the pupils of the German College. In his third year of philosophy he sustained a public disputation, and obtained the first premium (1830). The following year, being then but twenty one years old, he obtained the *laurea* in philosophy. Even in Viterbo young Pecci was noticed for his ability and for his perfect propriety of conduct. In Rome he seemed entirely devoted to study, and took no part in entertainments, conversations, amusements, or plays. At the age of twelve or thirteen he wrote Latin, prose or verse, with facility; and it may be mentioned that since he became Pope a volume of his verses, chiefly Latin, has been printed at Udine. Having entered the College of Noble Ecclesiastics, the Abbate Pecci frequented the schools of the Roman University to learn canon and civil law. Pecci and Duke Sisto Riario Sforza (afterward cardinal archbishop of Naples) were the two brilliant youths who eclipsed all the rest of their companions in study. Cardinal Antonio Sala took much interest in Pecci, and assisted him with advice and instruction. Becoming a doctor in laws, he was made by Pope Gregory XVI. a domestic prelate and referendary of the Segnatura, March 16, 1837. Cardinal Carlo Odescalchi gave Pecci holy orders in the chapel of St. Stanislaus Kostka, in S. Andrea al Quirinale, and on December 23, 1837, conferred the priesthood upon him in the chapel of the vicariate. Gregory XVI. bestowed upon him the title of prothonotary apostolic, and appointed him apostolic delegate at Benevento, Perugia, and Spoleto in succession. In these important posts he ruled with firmness and prudence, and while at Benevento he, by his energy, put a stop to the brigandage which had before infested that district. In 1843 he was again promoted by Pope Gregory XVI., being sent as nuncio to Belgium, and on January 17th, in that year, he was created archbishop of Damietta, *in partibus infidelium*, to qualify him for his office of nuncio. He remained at Brussels for three years, and was then nominated bishop of Perugia on January 19, 1846, about four months previous to the death of Gregory XVI. The assertion that that pontiff created Pecci a cardinal *in pectore* before he died, and that Pius IX. allowed seven years to elapse before he gave effect to the nomination made by his predecessor *in pectore*, has been often made, but the statement has no foundation in fact. He was created and proclaimed a cardinal by Pius IX. in the consistory of December 19, 1853. He was a member of several of the congregations of cardinals—among them those of the Council of Rites and of Bishops and Regulars. In September, 1877, he was selected by Pope Pius IX. to fill the important office of cardinal camerlengo of the Holy Roman Church, which post had become vacant by the death of Cardinal De Angelis. In that capacity, after the death of the late Pope (February 7, 1878), he acted

as head of the church in temporal matters, made the arrangements for the last solemn obsequies of the pontiff, received the Catholic ambassadors, and superintended the preparations for the conclave. Sixty-two cardinals attended the conclave, which was closed in the Vatican on Monday, February 18, 1878. In the first scrutiny, made on the following morning, Pecci had nineteen votes, the others being scattered among various cardinals, such as Franchi, Bilio, De Luca, Martinelli, and Ferrieri. In the second scrutiny, on the evening of Tuesday, Cardinal Pecci's votes rose to thirty-four, and in the scrutiny on Wednesday (February 20) morning to forty-four. The election was then at an end, and the cardinal camerlengo was made Pope by the acclamation of all. The news was officially proclaimed to the outside world from the gallery of St. Peter's, when it was announced that his Holiness had assumed the name of Leo XIII. On March 3d he was crowned in the Sistine Chapel, all the ancient ceremonies being observed, save the benediction *Urbi et Orbi*, from the *loggia* of St. Peter's. The history of the Pope since his election is the history of the papacy, and as such it would occupy too much space to tell it here at the length that it might be thought to deserve. Suffice it to say that Leo XIII. has throughout behaved with perfect consistency as a pontiff willing to act with modern governments, but determined to abate no jot of his rights as head of the church, and as the despoiled sovereign of Rome. He has never quitted the Vatican, but has religiously kept up the fiction of his being held there a prisoner. He refused the income voted to him, as his predecessor, by the Italian parliament, and has never recognized the Law of Guarantees. In his relations with foreign powers he has always been moderate and dexterous. He checkmated Bismarck's attempt to hamper Catholic worship and instruction in Germany, through the "Kulturkampf" movement and made tolerable terms for the clergy in France. His encyclical on "Labor," 1891, and his celebration in 1893 of his Golden Jubilee as Bishop, were important events in the church.

LEONCAVALLO, RUGGIERO, musical composer, born in Naples, March 8, 1858, taught music in Paris and has composed songs, fugitive pieces, and the successful operas, *Pagliacci* (1892) and *Medici* (1893).

LEOPOLD II. (LEOPOLD-LOUIS-PHILIPPE-MARIE-VICTOR), king of the Belgians, who succeeded his father December 10, 1865, was born at Brussels, April 9, 1835; and married, August 22, 1853, the Archduchess Maria of Austria. In 1855, while duke of Brabant, in company with his wife, he made an extended tour through Europe, Egypt, and Asia Minor. As duke of Brabant, he took a prominent part in several important discussions in the Senate, especially on the establishment of a maritime service between Antwerp and the Levant. He has been prominent in carrying out the work of exploring Africa, the Congo Free State, founded, and is now its president.

LEPSIUS, KARL RICHARD, born in Germany, December 23, 1810; studied at Leipsic, Berlin, and Göttingen. He devoted himself to Egyptian research, and made important discoveries in both Upper and Lower Egypt. In 1874 he was made chief of the Prussian state library at Berlin, and he died in July, 1884.

LERDO DE TEJADA, SEBASTIAN, born in Jalapa, Mexico, April 25, 1825; died in New York, April 21, 1889. In 1855 he became a judge of the Supreme Court of Mexico, and in 1857 was made foreign minister under President Comonfort. He was a Liberal in politics, and after the rise of the Church party, joined Juarez, with whom he acted until 1867. In December of that year he became chief justice of the Supreme



Court, and on July 18, 1872, by virtue of his office, succeeded to the presidency on the death of Juarez. He was elected in December of the same year, and reelected in 1876, but a revolution followed, and Lerdo fled to the United States.

LESLEY, JOHN PETER, an American geologist, born at Philadelphia in 1819, graduated at the University of Pennsylvania in 1838, was assistant on the geological survey of Pennsylvania until 1841, and then studied theology and preached until 1850, when he settled in Philadelphia as an expert geologist. In 1872 he became professor of geology and mining, and dean of the scientific faculty, in the University of Pennsylvania. He has made numerous examinations of coal oil and iron fields, and in 1874 became chief geologist of Pennsylvania, with charge of a complete re-survey of the State. Besides 70 volumes of reports, he published a *Manual of Coal and Its Topography*; and *Men's Origin and Destiny as Seen from the Platform of the Sciences*.

LESLIE, GEORGE DUNLOP, an English artist, was born at London, July 2, 1835, exhibited his first picture, *Hope*, in 1857, and became a Royal Academician June 29, 1876. His *Hen and Chickens*, *Home, Sweet Home*, and *The Monks of Abingdon*, were exhibited in Chicago in 1893.

LESLIE, HENRY DAVID, musical composer, born in London, June 18, 1822; founded the choral society known by his name, in 1856, and is principal of the College of Music, founded in 1864. He has composed *Te Deum and Jubilate in D* (1841); *Orchestral Symphony in F* (1847); festival anthem, *Let God Arise* (1849); oratorio, *Immanuel* (1853); operetta, *Romance, or Bold Dick Turpin*, and oratorio, *Judith* (1857); cantata, *Holyrood* (1860); wedding cantata, *The Daughter of the Isles* (1861), besides seventy songs. Died, 1896.

LESSAR, PAUL, was born in 1851, and comes of a Montenegrin family. He was educated at the École des Ingénieurs, in St. Petersburg, and was selected to accompany General Skobeleff into Asia to survey for railways. In 1880 he joined General Komaroff in surveying and exploring the Turcoman country between the Caspian and Afghanistan. He established himself at Askobod, and in November, 1881, he penetrated beyond Sarakhs, across the African frontier, to within a few miles of Herat. In the course of two years he rode a distance of nearly 6,000 miles, exploring the whole of the ground of the Russo-Persian and Russo-Afghan frontier. In 1885 he was sent on a special mission to London as geographical expert to assist the Russian ambassador in the negotiations which accompanied the dispatch of the Afghan boundary commission.

LESSEPS, VICOMTE FERDINAND DE, diplomatist and engineer, born at Versailles, November 19, 1805, was appointed, in 1828, attaché to the French consulate at Lisbon, and after holding various consular offices in Europe and the East, was made consul at Barcelona in 1842. His fame rests chiefly on his scheme to pierce the Isthmus of Suez by means of a canal, and in successfully carrying it out he showed much zeal and indefatigable energy. It was in 1854, when in Egypt on a visit to Mehemet Said, that he opened the project to Said Pasha, who, seeing the advantage that might be expected to accrue from its execution, invited him to draw up a memorial on the subject. This was done with full details, under the title of *Perçement de l'Isthme de Suez exposé et Documents Officiels*. M. de Lesseps received a firman sanctioning the enterprise in 1854, and a letter of concession was granted by the viceroy of Egypt in January, 1856. Eminent English engineers (and among them the late G. Stephenson) questioned its practicability, which, however, has since been clearly

demonstrated. The works were begun soon after the company was constituted, in 1859; large sums were subsequently expended, and the late pasha of Egypt was induced to take a large number of shares in the undertaking, besides permitting M. de Lesseps to employ native laborers. This ingenious scheme was at first favored by a portion of the commercial body in England; but a belief soon gained ground that the project was virtually a political one, and it received no encouragement from the British Government. On the death of the pasha of Egypt in 1863, the question of the sanction of the Ottoman Porte was more actively discussed, and the right of the sultan to grant it formally insisted upon. The result was the withdrawal of the permission to the company to hold any portion of Egyptian territory—the supposed covert design of the project; and after much dispute between M. de Lesseps and the Egyptian Government, the claim for compensation to the company he represented was left to the arbitration of the emperor of the French, who imposed certain conditions on both parties, and allowed the works to be continued. A canal, with sufficient water to admit of the passage of steamboats, was opened August 15, 1865. By degrees, owing to the employment of gigantic dredges and a novel system of machines for raising and carrying away the sand, the bed of the canal was enlarged, so that small ships and schooners were enabled to pass through in March, 1867. At length the waters of the Mediterranean mingled with those of the Red Sea in the Bitter Lakes, August 15, 1869, an event which was commemorated by grand fêtes at Suez; and on November 17th the canal was formally opened at Port Saïd amid a series of festivities, participated in by the empress of the French, the emperor of Austria, the crown prince of Prussia, Prince William of Orange, the English and Russian ambassadors at Constantinople, and a large number of English and continental merchants and journalists. A grand processional fleet, composed of forty vessels, then set out from Port Saïd in the direction of Ismailia. A few days after the inauguration, M. de Lesseps married Mlle. Autard de Bragard, a very young creole of English extraction. In February, 1870, the Paris Société de Géographie awarded the empress' new prize of 10,000 francs to M. de Lesseps, who gave the money as a contribution to the society's projected expedition to equatorial Africa. He was appointed to the rank of grand cross of the Legion of Honor, November 19, 1869; received the cordon of the Italian Order of St. Maurice in December, 1869; and was nominated by Queen Victoria an honorary knight grand commander of the order of the Star of India, August 19, 1870. The honorary freedom of the city of London was publicly presented to him, July 30, 1870. In July, 1873, the Paris Academy of Sciences chose M. de Lesseps a free member in the place of M. de Verneuil, deceased. In 1875 he published *Lettres, journal et documents pour servir à l'histoire du canal du Suez*. For this work the French academy awarded to him the Marcelin Guérin prize of 5,000 francs (May, 1876). On June 21, 1881, he was elected president of the French Geographical Society, in the place of Admiral de la Roncière-le-Noury. During the Egyptian expedition of 1882 M. de Lesseps violently opposed the policy pursued by Great Britain, and regarded Arabi Pasha as a noble patriot. In the following year M. de Lesseps entered into a preliminary agreement with the British government for the cutting of a second Suez Canal; but, as the arrangement did not receive the sanction of the House of Commons, the negotiations were abandoned. The broad ribbon of the Persian Order of the Lion and the Sun was presented to M. de Lesseps, July 25, 1883. He entered



upon the Panama canal enterprise in 1873, had surveys made in 1876 and secured the concession in 1879. The Inter Oceanic Canal Company was organized January 31, 1881, and work begun in October. The original estimate of the entire cost of the work was soon exceeded with little to show for it, and an investigation begun in 1890 by the French government revealed a tremendous scandal. Several hundred million dollars had been subscribed but evidences of actual outlay at Panama could not be produced for over \$80,000,000. The rest had been stolen or used in bribery to deceive the public. Deputies and officials had undoubtedly been bribed, and amid a storm of public excitement De Lesseps, his son Charles and others were tried for manipulating the great fraud. Being 88 years old and feeble in mind and body the elder De Lesseps was not brought into court, but was sentenced to five years' imprisonment and a fine. No attempt was made to imprison him as he was considered innocent of guilty knowledge, and he died November 7, 1894.

LE SUEUR, born in Canada about 1675, became an explorer and soldier and acquired influence with the Indians. In 1700 he established a trading post at the falls of the Mississippi, built a fort and opened a copper mine, from which he extracted 30,000 pounds of ore. In 1730 he led 700 Choctaws against the Natchez, defeated them, and liberated 200 French captives. Later he went to France, and, while returning to Canada, died at sea in 1740.

LEVI, LEONE, F.S.A., born at Ancona, Italy, July 6, 1821, became a British subject, 1847, was called to the bar, wrote many valuable treatises on economical subjects and on international and commercial law and statistical science, and was a fellow of many scientific societies. He died May 9, 1888.

LEVY, EMILE, a French painter, born at Paris, August 29, 1826, gained the prize of Rome in 1854, and sent from Rome to the universal exposition of Paris, 1855, his picture of *Noah Cursing Ham*, which was purchased by the State. He died August 3, 1890.

LEWALD, FANNY, German novelist, born of Hebrew parents at Königsberg, March 24, 1811, died at Dresden, August 5, 1889. She lived in Berlin, married Adolph Stahr (1805-76), the literary critic, in 1855, and wrote books on Italy (1847) and Great Britain (1852), the outcome of extended travels, besides many brilliant novels, most of them with the distinct purpose of emancipating her sex. All her works have been translated into English.

LEWIS, JOHN TRAVERS, D.D., LL.D., archbishop of Ontario, born June 20, 1825, was educated at Trinity College, Dublin, ordained in 1848, came to Canada in 1850, was appointed to the pastoral charges of Hawkesbury and Brookville, and consecrated first bishop of Ontario in 1862 and archbishop in September, 1892.

LEWIS, RICHARD, D.D., born about 1822; was educated at Worcester College, Oxford, and became rector of Lampeter-Velfry, 1851; archdeacon of St. David's, 1875, and bishop of Llandaff on April 25, 1883.

LEWIS, THOMAS HAYTER, F.S.A., born in London, July 9, 1818, became a student of the Royal Academy, obtained the silver medal for architectural drawing in 1839, and became a prominent architect, professor of architecture at University College, and, in 1871, dean of the Faculty of Arts. Died Dec. 10, 1899.

LEWIS, WILLIAM JAMES, M.A., born near Newtown, Wales, January 16, 1847; was a scholar of Jesus College, Oxford, 1865, and fellow of Oriel College, 1869; was a member of the total eclipse expeditions (English) of 1870 and 1871, and in February, 1881, was elected professor of mineralogy at Cambridge.

LICK, JAMES, founder of the great Lick observatory,

was born in Fredericksburg, Pa., August 25, 1796, and died in San Francisco, October 1, 1876. After spending many years in South America he settled in California in 1847, and there amassed an immense fortune. At his death he bequeathed large sums for public purposes: \$60,000 for a monument to Francis Scott Key; \$150,000 for public baths in San Francisco; \$500,000 for a school of mechanical arts, and \$700,000 for the construction of an observatory, which was built at Mount Hamilton, and under the foundations of which his body is buried.

LIDDON, HENRY PARRY, canon of St. Paul's Cathedral, London; was born in England in 1829; graduated in 1850 at Christ's Church, Oxford, was professor of exegesis at Oxford, and wrote several theological works. He was a leading pulpit orator of the Church of England. He died September 9, 1890.

LIEBKNECHT, WILHELM, German Socialist and journalist, was born at Giessen in 1832. He took part in the French revolution of 1848. Returning to Germany he fought for the cause, was imprisoned and exiled, but returned and was elected to the Reichstag in 1867. In company with Bebel, he was in 1872 condemned to two years' imprisonment. As editor of *Vorwärts* and legislator he works incessantly for the socialist cause. Died Aug. 6, 1900.

LI HI, king of Corea, succeeded to the throne in 1884, the twenty-ninth ruler in succession since the foundation of the present dynasty in 1392, and achieved an incidental importance in the war between China and Japan in 1894-5, begun by Japan for the ostensible object of establishing the independence of Corea from China, of which it was a vassal state.

LI HUNG CHANG, Chinese statesman, was born in 1823 in the province of Anhui. When the Taiping rebels invaded Anhui, 1850, he joined Tseng Kuo Fan's army as secretary. He was appointed provincial judge of Chékiang, and in 1861 governor of Kiangsu. In conjunction with General Gordon he recovered Suchow in 1863, and drove the rebels entirely out of Kiangsu. For his services he received the yellow jacket and peacock's feather, and was created an hereditary noble of the third class. Two years later he was appointed governor-general of the Liang Kiang Provinces, and subsequently commanded against the Nienfei and Mohammedan rebels. In 1872 he was appointed governor-general of Chihli, the metropolitan province. He was also Senior Grand Secretary—the highest distinction to which a Chinese official can aspire. He is a friend to foreigners and to European culture and industry. A member of the Board of Admiralty, he originated the Chinese navy, and he was the chief promoter of the China Merchants' Steam Navigation Co., the only native steamship line. He was also Imperial Commissioner of trade for the Northern ports. In 1894 the emperor of China appointed him commander in chief of the Chinese forces, both naval and military, which were engaged in the war with Japan, but early in the war marked his displeasure by depriving him of the yellow jacket and the peacock's feather, and later superceded him in the chief command. In 1895 the emperor restored Li Hung Chang to favor and sent him as peace commissioner with full power to treat with Japan. While conferring with the Japanese premier, Count Ito, at Shimonoseki, March 24, he was shot in the face by a young Japanese monomaniac on the subject of patriotism, Koyama, and seriously hurt. He recovered sufficiently, however, to be able to resume the peace negotiations in a few days. Died Nov., 1901.

LILIUKOKALANI, ex-queen of Hawaii, eldest sister of King Kalakaua, was born September 2, 1838, married John O. Dominis, governor of Oahu (who died Au-



gust 27, 1891), succeeded to the throne, January 20, 1891, on the death of Kalakaua, and was deposed by a revolution, January 13, 1893, because of her alleged violations of the constitution. A provisional government was established, and annexation to the United States advocated. President Harrison approved the idea and a treaty providing for annexation was receiving favorable consideration in the senate, when President Cleveland, immediately on his inauguration, recalled the treaty, recalled U. S. Minister Stevens, who had aided in the revolution, and withdrew the American protectorate. In 1894 President Cleveland attempted to restore the queen to the throne but the provisional government refused to abdicate, the United States senate decided on a policy of non-interference and a republic was established, and Sanford B. Dole, elected president, July 4. On January 6, 1895, occurred a royalist uprising for the purpose of seating Queen Liliuokalani on the throne again but it was promptly suppressed. The ex-queen was arrested with others and her trial for treason begun before a military commission, February 5. She was sentenced to five years' imprisonment and to pay a fine, but on her formally abdicating her claims to the throne her sentence was commuted to three months' imprisonment and four years and nine months under surveillance.

LINCOLN, ROBERT TODD, son of Abraham Lincoln, was born at Springfield, Ill., August 1, 1843, and was educated at Phillips Exeter College and at Harvard. During the latter years of the Civil war he served as a captain on the staff of General Grant. After the war he practiced law in Chicago until 1881, when he became secretary of war in Garfield's cabinet. This office he retained until the close of President Arthur's administration, when he returned to his law practice in Chicago. In 1889 President Harrison appointed him minister to England, where he remained until 1893.

LIND, JENNY. See GOLDSCHMIDT MME., Vol. X, page 6560.

LINDAU, PAUL, was born June 3, 1839, at Magdeburg, became a journalist in Paris, returned to Germany in 1863, and has since founded and edited *Die Gegenwart* and *Nord und Süd*. He has written books of travel, critical sketches in a satirical and humorous manner, and literary criticisms, including *Molière* (1871) and *Alfred de Musset* (1877), but is best known as a writer of popular plays and novels of modern life. Of his plays the most successful was *Maria und Magdalena*; of his novels, *Herr und Frau Bewer*, *Toggenburg*, *Mayo*, a romance cycle, *Berlin* (1886-87) and *Im Fieber* (1889).

LINDSAY, WILLIAM, born in Rocklodge, Ky., September 4, 1835, served in the Confederate army as colonel, became judge of the Appellate Court in 1870, and chief justice 1876-78; was World's Fair Commissioner at large, 1890-93, and was appointed United States senator in 1893, and elected in 1895.

LINTON, ELIZA LYNN, born in Keswick, England, in 1822, has written popular novels and numerous articles in the magazines. Died July 14, 1898.

LINTON, WILLIAM JAMES, was born in London, December 11, 1812, became prominent as a wood engraver and writer on art, married the preceding in 1858, and separated from her in 1867, coming to the United States. Died Dec. 29, 1897.

LISTER, LORD JOSEPH, an English surgeon, born in 1827; became surgeon extraordinary to the Queen and in 1880 received the royal medal of the Royal Society, and in 1881 the prize of the Academy of Paris for his invaluable discoveries in antiseptic treatment in surgery known as "Listerism."

LISZT, FRANZ, pianist, composer, and author,

born at Raiding, Hungary, 1811, died at Baireuth, Bavaria, 1886. At the age of nine years he displayed so much musical talent that several Hungarian noblemen offered the means for his education at Vienna, where he studied under the best masters, and in 1822 played before enthusiastic audiences. He continued his studies in Paris and played there with success, and in other continental cities. In 1827 his father died and for a time, until 1831, he morbidly withdrew from the world; but the violin playing of Paganini roused him to emulation and he became for years the foremost figure in the musical world and the idol of music lovers. In 1847 he was appointed Kapellmeister at Weimar, and honors were showered upon him. In 1861 he resigned this appointment, and in 1865, took minor orders in the Church of Rome, to which he was devoted, and was known as Abbé Liszt. After 1871 he resided principally at Pesth. In 1875 he was made director of the Hungarian Academy of Music. Among Liszt's compositions are: *Fantasias*; *Poems Symphoniques*; the grand symphonies *Faust* and the *Divina Commedia*; the two oratorios, *Die Heilige Elizabeth* and *Christus* and several Grand Masses. He also published a *Life of Chopin*. Died July 11, 1886.

LITTLE CROW, hereditary chief of the Sioux Indians, born near St. Paul, Minn., instigated and led a massacre along the frontier line of the Sioux reservations in Northern Minnesota, August 18, 1862, in which the Indians slew 1,000 men, women and children. On September 23, 1862, the United States forces, under General Sibley, met and defeated the Indians, took 2,000 prisoners, and released 120 white women from captivity. Little Crow escaped until 1863 when he was discovered by a raiding party near Hutchinson, Minn., and shot.

LITTLEJOHN, ABRAM NEWKIRK, D.D., LL.D., born in Florida, N. Y., December 13, 1824; was for many years a Protestant Episcopal minister in Connecticut and New York, and in 1869 became first bishop of Long Island. He wrote several theological works.

LIVINGSTON, HENRY BROCKHOLST, born at New York in 1757, studied law, left college to serve as aide to Gen. Philip Schuyler, and in 1777 was major and aide to Benedict Arnold, when the latter captured Burgoyne's army. After the war he became one of the most eminent attorneys of New York city. In 1802 he became judge of the Supreme Court of New York, and in 1806, associate justice of the United States Supreme Court. He died March 19, 1823.

LIVINGSTON, JOHN HENRY, born at Poughkeepsie, N. Y., in 1746, died in 1825. He studied theology at Utrecht, Holland, became pastor of Dutch churches in New York, Albany, Kingston, and Poughkeepsie, and in 1807 became professor of theology and president of Queen's College (now Rutgers), New Brunswick, N. J. He was styled "the father of the Dutch Reformed Church in America."

LIVINGSTON, PHILIP, one of the signers of the Declaration of Independence, born in Albany, N. Y., January 16, 1716; died in York, Penn., June 12, 1778. He was an alderman of New York city and a member of the provincial assembly, opposed the stamp act, and sat in all continental congresses of 1774-78.

LIVINGSTON, WILLIAM, born in Albany, N. Y., November 30, 1723; died in Elizabethtown, N. J., July 25, 1790. In July, 1774, he was elected a deputy to the first continental congress, and reelected twice thereafter. In 1776 he became commander-in-chief of the New Jersey militia and governor of New Jersey; in 1786 he freed his slaves, and in 1787 he was a delegate to the constitutional convention.

LLOYD, DAVID E., an American journalist and



dramatist, born in New York, September 1, 1851, died September 4, 1889. Several of his plays still keep the stage: *For Congress* (1882); *The Woman Hater* (1885); *The Dominie's Daughter* (1886), and *The Senator* (1889).

LOCKE, DAVID ROSS, born in New York State, in 1833; became a journalist, and achieved considerable notoriety by his political satires, signed "Petroleum V. Nasby." He died February 15, 1888.

LOCKWOOD, JAMES BOOTH, explorer, born in Annapolis, Md., October 9, 1852, was commissioned lieutenant of United States infantry, in 1873. He volunteered for duty as second in command under Lieut. A. W. GREELY (*q. v.*) in the Lady Franklin expedition, and on April 3, 1882, led an overland journey, by dog sledge, which reached the most northerly point, by 28 miles, which had yet been attained by Arctic explorers, Lockwood Island, in 83° 24' N. latitude, 40° 46' W. longitude, 350 miles from the pole, and added 125 miles of established coast line to Greenland. In the disasters that overtook the Greely expedition, Lieutenant Lockwood perished at Cape Sabine, April 9, 1884.

LOCKYER, SIR J. NORMAN, astronomer, born at Rugby, May 17, 1836, was appointed secretary to the Royal Commission on Scientific Instruction in 1870, and sent out to Sicily in 1870 and to India in 1871 as head of the eclipse expeditions, and was elected Rede lecturer at Cambridge, 1871. He discovered a new method of observing the sun; and in 1874 gained the Rumford medal of the Royal Society, and was appointed editor of *Nature*. He wrote, among other works, *Elementary Lessons in Astronomy* (1868), *The Spectroscope and Its Applications* (1873), *Chemistry of the Sun* (1887), *The Meteoritic Hypothesis* (1890), and *The Dawn of Astronomy* (1894).

LODGE, HENRY CABOT, born in Boston, May 12, 1850; graduated at Harvard, became lecturer on American history there, edited the *North American Review* (1873-76), the *International Review* (1879-81), and the works of Alexander Hamilton, and wrote lives of *George Cabot*, *Alexander Hamilton* and of *George Washington* (1890). He served in the Massachusetts legislature, 1880-81, as a Republican; served in congress 1887-93, and in 1893 was elected United States senator.

LOEWE, LOUIS, Orientalist, was born at Zülz, in Prussian Silesia, in 1809, studied theology and Oriental languages and taught them, became principal and director of Sir Moses Montefiore's Theological College at Ramsgate in 1868, traveled extensively and wrote *The Origin of the Egyptian Language, Observations on a Unique Cufic Gold Coin, a Dictionary of the Circassian language, a Life of Sir Moses Montefiore* (1889), and other works. He died in 1889.

LOFTIE, WILLIAM JOHN, F.S.A., was born in the county Armagh, Ireland, in 1839. Mr. Loftie was educated at Trinity College, Dublin, where he took the degree of B.A. in 1864. He was ordained to a curacy at Corsham, Wiltshire, in 1865. In 1868 he turned to literature, writing first on antiquarian subjects in the *People's Magazine*, of which he became editor in 1872. Elected F.S.A. in 1872, he published a *Century of Bibles*, and in 1873 *The Latin Year*, a collection of hymns. After holding temporary church appointments he became assistant minister of the Chapel Royal Savoy, 1871, and in 1879 published *Memorials of the Savoy*; meanwhile, having spent some winters on the Nile, he wrote *A Ride in Egypt*, and has since published *An Essay of Scarabs*, and written papers in the *Archæological Journal on Egyptology*. He became connected with the *Guardian* in 1870, and was a weekly contributor for six years. In 1874 he joined the staff of the *Saturday Review*, and he has written on art and archæology in the *Portfolio*, the *Magazine of Art*, and many other periodicals.

LOFTUS, AUGUSTUS WILLIAM FREDERICK SPENCER, G.C.B., commonly called LORD AUGUSTUS LOFTUS, the fourth son of the second marquis of Ely, was born in 1817, and educated at Trinity College, Cambridge, where he took the degree of M.A. Entering the diplomatic service, he was appointed attaché at Berlin in 1837, and paid attaché at Stuttgart in 1844. He accompanied Sir Stratford Canning (afterward Viscount Stratford de Redcliffe) on his special mission to the courts of Berlin, Vienna, Munich, and Athens, in March, 1848. He was appointed secretary of the legation at Stuttgart in 1852; and at Berlin in 1853; and envoy extraordinary and minister plenipotentiary at Vienna in March, 1858. In December, 1860, he was transferred to Berlin. On the elevation of the mission at Berlin to the rank of an embassy, he was transferred, October 28, 1862, to Munich, which was on that occasion raised to the rank of a first-class mission. He was created a K.C.B., December 12, 1862; was promoted to be ambassador extraordinary and plenipotentiary to the king of Prussia, January 19, 1866; and was made a G.C.B., July 6, 1866. He was appointed ambassador extraordinary and plenipotentiary to the North German Confederation, February 24, 1868; was sworn a privy counselor, November 11, 1868; and was appointed ambassador extraordinary and plenipotentiary to the emperor of Russia, October 16, 1871. The latter post he held till February, 1879, when he was appointed governor of New South Wales, which office he held for several years.

LOGAN, BENJAMIN, born in Augusta county, Va., in 1752; died in Shelby county, Ky., December 11, 1802. His parents removed from Virginia to Pennsylvania; the father died when Benjamin had attained the age of fourteen. The son went westward, bought a farm, and was married. He was sergeant in the expedition of Col. Henry Bouquet against the Indians in 1774, became engaged in the Dunmore war, and, in 1775, joined the party of adventurers under Daniel Boone. Arrived in Kentucky, he built a stockade, called Logan's fort, near Stanford, and in 1776 removed thither with his family. On May 20, 1777, the fort was attacked by the Indians. For defense it had mounted ten or eleven guns; its garrison consisted of about thirty-five persons, men, women, and children. The siege lasted many weeks. Meanwhile, Logan, with two others, at night crept out, and made his way through the forest to a settlement, distant about 150 miles, for succor. Returning in September with 100 armed men and supplies, they raised the siege. Logan became a professed Indian hunter, and pursued the red men as he would wild game. During one of his raids his arm was shattered by a musket-ball. Logan, a little later, joined Col. John Bowman in an expedition against the Shawnees; united in the pursuit of Simon Girty, the Indian chief, and made sundry important raids on the villages of the savages. Retiring from military life, he went to his farm, and, in after years, served as a member of the Kentucky legislature. He was of gigantic stature, and on several occasions displayed great personal courage.

LOGAN, JAMES, born in Ireland, October 20, 1674; died near Germantown, Penn., October 31, 1751. He was of Scottish descent, belonged to the Quakers, and was thoroughly educated. In 1699 he became secretary to William Penn, whom he followed to Philadelphia. After Penn's return to England he became provincial secretary, and acted as the business agent of the Penn family. From 1704 until 1711 he was embroiled in disputes with the assembly, who, in the latter year, ordered his detention in the county jail. However, he escaped the penalty, sailed for England, and returned in 1712.



In the following year he became presiding judge of the common pleas, and in 1723 served as mayor of Philadelphia. From 1731 until 1739 he was chief justice of the supreme court, and after Governor Gordon's death, in 1736, acted as governor for two years. He was one of the founders of the University of Pennsylvania. Logan's library of 2,000 volumes, consisting mostly of the classics, was given to the city of Philadelphia, and in 1792 became annexed to the library established by Benjamin Franklin.

LOGAN, JOHN, Indian chief, born about 1725; died near Lake Erie in 1780. He came of the Cayuga tribe, and his English name was adopted in honor of James Logan, the friend of the Indians, and secretary to William Penn. Logan dwelt near the Moravian settlement at Shamokin creek, on friendly terms with his neighbors. Later he lived near Reedsville, Penn., where he was chosen chief of the Mingo tribe, and in 1770 retired to the banks of the Ohio river. In 1774 his entire family was massacred by settlers on the Ohio river. Logan suspected that the deed was done at the instigation of Michael Cresap, and during several months his tribe perpetrated many barbarities on the whites. Personally he took thirty scalps. This state of things was terminated by the defeat of the Indians at the mouth of the Great Kanawha river. At that time he would not appear among those who sued for peace, but instead led the emissary of Governor Dinsmore into the woods, and told the story of his wrongs, made famous by Jefferson in his *Notes on Virginia*. In his declining years Logan became a drunkard, and in one of his frenzies killed his wife. While traversing the wilderness between Sandusky, Ohio, and Detroit, Mich., he was overtaken by a party of Indians and killed.

LOGAN, JOHN ALEXANDER, born in Jackson county, Ill., February 9, 1826; died in Washington, D. C., December 26, 1886. His father was an Irish physician, who settled in Illinois. In 1840 the son attended Shiloh College. When war was declared with Mexico he volunteered as private, and became a lieutenant. After the war he studied law, in 1851 was graduated at Louisville University, and admitted to practice in 1852. In 1858 he was elected to Congress as a Democrat, and was reelected in 1860. In August, 1861, he resigned his seat, raised an Illinois regiment of volunteers, was commissioned colonel, and joined General Grant at Cairo. He was engaged in the attack on Fort Henry, and at Fort Donelson in February, 1862, where he was wounded. He was advanced to brigadier-general, served in northern Mississippi, and in November became major-general of volunteers. In 1864, in front of Atlanta, for a short time he commanded the army of the Tennessee. In May of that year he joined Sherman's army at Savannah, remained with it during its "march to the sea," and until the surrender of Gen. Joseph E. Johnston, April 26, 1865. He served several terms in congress, and in 1871 was chosen United States senator, which office he again filled in 1879. In 1884 he was nominated for the vice-presidency of the United States on the ticket with James G. Blaine, but failed to be elected. In May, 1885, he was again chosen to represent his State in the United States Senate.

LOGAN, SIR WILLIAM EDMOND, Canadian geologist, born in Montreal, April 20, 1798; died in Wales, June 22, 1875. In 1817 he was graduated at the University of Edinburgh, and engaged in mercantile pursuits in London. In 1829 he managed a coal-mining and copper-smelting enterprise at Swansea, Wales, and investigated the geology of that neighborhood. In 1841 he visited the coal-fields of North America, and communicated the results of his observation to the geological society of London. From 1842 until 1870 he was at

the head of the geological survey of Canada, and within that time prepared an elaborate map of northeastern America. At Paris, 1855, he was made a knight of the Legion of Honor, and was knighted in 1856. He endowed the chair of geology of McGill College, in Montreal. Many of his scientific papers are among the publications of the geological society of London, and in the *American Journal of Science and Arts*, the *Annual Reports of the Progress of the Canadian Survey*, and the *Proceedings of the British Association*.

LONDONDERRY, MARQUIS OF (THE RIGHT HON. CHARLES STEWART VANE-TEMPEST STEWART), son of the fifth marquis, was born in 1852, and educated at Eton and at Christ Church, Oxford. As Viscount Castlereagh, he unsuccessfully contested South Kensington in 1874, and Montgomery district in 1877, and sat for county Down from 1878 to 1884. On the death of his father in 1884 he succeeded to the title, and on the formation of Lord Salisbury's second administration in 1886, was appointed lord lieutenant of Ireland. He married the eldest daughter of the earl of Shrewsbury, and is the owner of extensive collieries in Durham.

LONG, CHARLES CHAILLÉ, born in Maryland July 2, 1842; enlisted in the volunteer service in 1862 and rose to rank of captain. He became attached to the Egyptian army under General LORING (*q.v.*), and in 1874 was assigned as chief of staff to General CHARLES GORDON, (*q.v.*) In this capacity he made two journeys into Equatorial Africa, and was promoted colonel and bey. In September, 1877, he resigned and returned to New York, and in 1882 again went to Egypt, where he practiced law in Alexandria. During the massacres in that city at the time of Arabi Pasha's insurrection Colonel Long reestablished the American consulate and protected the refugees. He afterward removed to Paris, and in 1887 became United States consul-general in Corea.

LONG, CRAWFORD W., born in Georgia November 1, 1815; died June 16, 1878. He graduated at the medical department of the University of Pennsylvania in 1839 and practiced medicine in his native State. It is claimed on his behalf that he was the first to use ether for the purpose of producing anæsthesia in surgical operations.

LONG, STEPHEN H., born in New Hampshire December 30, 1784; died in Alton, Ill., September 4, 1864. He entered the engineer corps in 1814 and made topographical surveys of the Rocky Mountains, and Long's Peak was named in his honor. Later he engaged in railroad surveying, and in 1861 became chief of the corps of topographical engineers. He was the author of a *Railroad Manual* and of other works.

LONGFELLOW, HENRY WADSWORTH, was born February 27, 1807, at Portland, Me. He was of English descent, his earliest known ancestor, William Longfellow, coming to America from Hampshire, England, in 1678. The poet was the son of Stephen Longfellow, a congressman; and on his mother's side he was descended from John Alden. His boyhood was spent in his native town, and at the age of fourteen he entered Bowdoin College. Among his class-mates there were Hawthorne, Franklin Pierce, J. S. C. Abbott, and others who afterward attained fame. He graduated with honors in 1825, but remained some time in the college in the capacity of tutor. He intended to have become a lawyer, and studied in his father's office, but the work was not suited to him, and he speedily abandoned it. Being offered a professorship at Bowdoin College he spent three years in Europe, where he acquired a knowledge of the language and history of many countries. In 1829 he returned, and began his duties at Bowdoin, where he remained for six years.



in 1831 he married, and two years later published his first poetical work, a small volume of translations from the Spanish. In 1835 he was chosen to succeed George Ticknor, as professor of modern languages at Harvard, and made another visit of about a year to Europe, this time devoting his attention to the Scandinavian countries. His wife died at Rotterdam in 1835, and on his return to Harvard in the following year he took up his residence at Cambridge, where he practically spent the rest of his life. In 1835 he published *Outre Mer: A Pilgrimage Beyond the Sea*, followed in 1839 by *Hyperion, a Romance*, said to be an account of his own experiences in Europe, though veiled in poetical images and elegant diction. Besides these his only pretentious prose work was *Kavanagh, a Tale* (1857). In 1839 appeared also *Voices of the Night*, his first volume of original poetry, which contained many of his best minor poems, particularly the *Psalms of Life* and the *Footsteps of the Angels*. In 1841 he issued a volume of ballads and other poems. Among these were the *Wreck of the Hesperus*, *The Village Blacksmith*, *Excelsior*, *The Bridge*, and the *Skeleton in Armor*. Longfellow was an abolitionist by conviction and by surroundings, and about this time he wrote his first poems on slavery, which he dedicated to Channing.

In 1843 he married again, this time a sister of Thomas G. Appleton. He purchased the old house which at one time was occupied by George Washington as his headquarters, and this historical mansion formed his residence until his death. At this time he began to lecture and met with much success. In 1844 appeared *The Spanish Student*, which was also well received, and the next year he published *The Belfry of Bruges* and other poems. In 1847 he produced the work, by which his name will probably be best known to posterity, namely, *Evangeline, a Tale of Acadie*. *The Seaside and the Fireside* appeared in 1849, a collection containing many of his best smaller works. In 1851 appeared the *Golden Legend*, and in 1854 *The Song of Hiawatha*, perhaps the best of all his works. In 1858 he published *The Courtship of Miles Standish*, a story based on an incident in the early history of Plymouth colony. He also published a small volume of minor poems under the title of *Birds of Passage*.

In 1861 a dreadful calamity occurred, which had much to do with the future of Longfellow's life. His wife was accidentally burned to death, and it was long before he recovered from the shock. He was left with five children, and his home life is beautifully told in one of his poems, entitled *The Children's Hour*. In 1863 he wrote *Tales of a Wayside Inn*, the best known of which is the *Ride of Paul Revere*. Meantime he had spent several months in the translation of Dante's *Divina Commedia*, and he gave to the world the best literal translation of Dante yet known. This was followed by the *New England Tragedy* (1868) and the *Divine Tragedy* (1871). Longfellow revisited Europe in 1868-69, and was received with the honor due to his exalted character. After this the most noticeable of his works are: *The Hanging of the Crane*, and *Mortuori Salutamus*. Among his later works are *Keramos and Other Poems*, *Ultima Thule*, and *Hermes Trismegistus*. On March 24, 1882, he died. He was LL.D. of Bowdoin College, of Harvard, and of Cambridge, England; and D.C.L. of Oxford, England. He was also a member of the Russian Academy of Science, and of the Spanish Academy.

LONGSTREET, AUGUSTUS BALDWIN, author, born in Augusta, Ga., September 22, 1790; died in Oxford, Miss., September 9, 1870. His father, William, invented a steamboat, unlike Fulton's in

construction; in 1807 it was propelled at the rate of five miles an hour on the Savannah river. Augustus was graduated at Yale in 1813, read law in Connecticut and was admitted to the bar in Georgia. In 1822 he was made circuit judge. Removing to Augusta, Ga., he established the *Augusta Sentinel*, and in 1838 became a minister of the Methodist Episcopal Church. From 1839 to 1848 he was president of Emory College at Oxford, Ga., and later occupied similar positions in the University of Mississippi and Centenary College, Louisiana. In 1857 he was elected to the presidency of South Carolina College, and thereafter returned to his former post at the University of Mississippi.

LONGSTREET, JAMES, was born in South Carolina, January 8, 1821. He graduated at the military academy at West Point in 1842, and was on duty on the Mexican frontier till 1846; took part in the Mexican war, 1846-48, where he was wounded; attained the rank of captain and a major's brevet; served subsequently in Texas and as paymaster in the United States army, being promoted major on the staff in 1858. He resigned his commission to take part with the South in the Civil war, June 1, 1861; was appointed to the command of the fourth brigade of General Beauregard's first corps, near Centerville, and was present at the battle of Bull Run, July 21, 1861. During the early part of 1862 he was made major-general, and won reputation under General Lee in the campaigns against McClellan, Pope, Burnside, and Meade. After the battle of Fredericksburg, December 13, 1862, Longstreet was promoted to the command of a corps, with the rank of lieutenant-general. He took an active part in the battle of Gettysburg, July 1-3. He was also conspicuous for his military ability in the campaign of the Wilderness, May 1-6, 1864, and was severely wounded on May 6th, but recovered in time to take command of his corps during the siege of Petersburg. He surrendered with General Lee in April, 1865. After the war General Longstreet acted zealously for the restoration of harmony between the two sections. He made New Orleans his residence, and, having been amnestied by President Johnson, he was so cordial toward the administration that President Grant appointed him surveyor of the port of New Orleans. In 1875 he took up his residence in Georgia, and in 1880 was sent as minister to Turkey, where he remained until 1881. He was subsequently United States marshal for the Northern District of Georgia, but at present holds no official position. He resides at Gainesville, Ga.

LOOMIS, ELIAS, LL.D., born in Connecticut, August 7, 1811, graduated from Yale College in 1830, and was tutor there from 1833 to 1836. In 1836 he was appointed professor of mathematics and natural philosophy in Western Reserve College in Ohio, with permission to spend a year in Europe in scientific studies. During his residence in Ohio he devoted a large amount of time to astronomical, magnetic, and meteorological observations, and to researches connected with these observations. In 1844 he became professor in the University of the City of New York, and while there devoted considerable time to telegraphic comparisons for longitude in concert with Mr. Sears C. Walker. These observations afforded the first determination of the velocity of the electric current through telegraph wire. In 1850 he was appointed professor of natural philosophy and astronomy in Yale College. He published a series of text books embracing the whole range of mathematics, natural philosophy, astronomy and meteorology. These books have attained an aggregate circulation of over half a million of copies. His *Treatise on Analytical Geometry and Calculus* has been translated into the Chinese language, and his



*Treatise on Meteorology into Arabic.* His scientific papers embrace the various departments of meteorology, the phenomena of auroral exhibitions and atmospheric electricity, territorial magnetism, astronomical observations, shooting-stars, solar spots, etc. These papers are nearly a hundred in number, amounting to over twelve hundred pages. His entire publications aggregate more than nine thousand pages. Professor Loomis was a member of the principal scientific societies of the United States and also of several scientific academies of Europe. He died August 15, 1889.

LOPES, HENRY CHARLES, LORD, lord justice of the court of appeal, was born at Davenport, England, October 3, 1828, and received his education at Winchester School, and at Balliol College, Oxford (B.A., 1850). He was called to the bar of the Inner Temple, June 7, 1852, and for some time he practiced as an equity draftsman and a conveyancer. In 1857 he joined the western circuit. Mr. Lopes was made recorder of Exeter in 1867. In April, 1868, he was returned to the House of Commons, in the Conservative interest, as member for Launceston. He was reelected in December, 1868, and continued to sit for that borough till January, 1874. He represented Frome from 1875 until his elevation to the judicial bench. Mr. Lopes was a frequent speaker in the House of Commons, and he succeeded in carrying through that house a Jury bill. On November 3, 1876, Mr. Lopes accepted the vacant judgeship in the court of common pleas, in succession to the late Mr. Justice Archibald, and shortly afterward received the honor of knighthood. On December 1, 1885, he was appointed lord justice of appeal, and subsequently sworn of the privy council.

LORAIN, LORENZO, born in Philipsburg, Penn., August 3, 1831; died in Baltimore, March 6, 1882. He graduated at West Point in 1856, and served on the frontier. He was wounded in the early part of the Civil war, and retired from active service to become professor of geology and chemistry at West Point. In 1875 he held the chair of physics at Lehigh University, and was afterward instructor in gunnery at Fortress Monroe.

LORIMER, JAMES, M.A., LL.D., professor of public law, and of the law of nature and nations in the University of Edinburgh, was born at Aberdalgie, near Perth, Scotland, November 4, 1818. Mr. Lorimer was educated at the university of Edinburgh, and subsequently studied at the academy of Geneva and at the universities of Berlin and Bonn. In 1845 he became a member of the Scotch bar, and in 1862 professor of public law. He was one of the founders of the institute of international law, 1873; and with its members and earlier continental friends has always maintained intimate relations. He was a member of the academy of jurisprudence of Madrid, and of the universities of St. Petersburg and Moscow, a fellow of the Royal Society of Edinburgh, etc. In earlier life he was a frequent contributor to the *Edinburgh, North British*, and other reviews, and to *Chambers' Encyclopaedia*, and he has published many pamphlets, introductory lectures, and the like. He died in Scotland February 13, 1890.

LORING, WILLIAM WING, born in Wilmington, N. C., December 4, 1818; died in New York city, December 30, 1886. As a lad he joined a volunteer company to act against the Seminole Indians in Florida; was engaged in several battles, and won promotion to a second lieutenancy. In 1846 he became captain of mounted riflemen and served in the Mexican war. He was promoted major, and lost his left arm by a cannon-shot. On March 5, 1848, he became lieutenant-colonel, and in 1851 served against the Indians in Texas, as

colonel in a newly organized regiment. In 1859 he visited Europe, Egypt and Palestine. Returning home, he commanded the department of New Mexico until May, 1861, when he resigned and joined the Confederate army as brigadier-general; later he was made major-general, and commanded a division of General Johnston's army in the attempt to relieve Vicksburg in 1863. At the close of the war he went abroad, and in 1869 became inspector-general of the Egyptian army, had command of the coast of Egypt, and in the expedition to Abyssinia, in 1875-76, was second in command and chief of staff. In 1879, together with other American officers, he was mustered out of the Egyptian service and returned to the United States. General Loring published *A Confederate Soldier in Egypt*.

LORNE, JOHN GEORGE EDWARD HENRY DOUGLAS (now Duke of Argyll), called by courtesy the MARQUIS OF LORNE, eldest son of the duke of Argyll, was born at Stafford House, London, in 1845. He was elected member of parliament for Argyleshire, in the liberal interest, in February, 1868, and in December of the same year he became private secretary to his father at the India office. The chief event of his life was his marriage with the Princess Louise, fourth daughter of Queen Victoria, on March 21, 1871, on which occasion he was created a knight of the Thistle. A trifling work by the marquis of Lorne, entitled *A Trip to the Tropics, and Home Through America*, was published in 1867. It was followed by *Guido and Lila: a Tale of the Riviera*, a poem, 1865; and *The Psalms Literally Rendered in Verse*, 1877. In July, 1878, he accepted the post of governor-general of the Dominion of Canada, in succession to Lord Dufferin. He was soon afterward created a knight grand cross of the Order of St. Michael and George. Accompanied by the Princess Louise, he proceeded to Canada (November, 1878) where he had a most enthusiastic reception. His term of office (during which he traveled very extensively throughout the Dominion) expired in 1883, when he was succeeded by the marquis of Lansdowne. At the general election in 1885, Lord Lorne contested Hamstead, as a Liberal, and stood unsuccessfully for Central Bradford, 1892.

LOSADA, MANUEL, Mexican freebooter, born in Santa Teresa about 1825; died in Tepic, July 19, 1873. He was a mongrel, part mulatto and part Indian, bred among Indians. Gathering a large band of followers, he became formidable to the land holders, and levied contributions of horses, cattle, arms and provisions. During the strife between the Liberal and Conservative parties of Mexico, he united with the latter, ruled the mountain country, and gathered tribute in all directions. General Miramon decorated him with medals, and in 1860 the returning Liberal government left him undisturbed. When the French troops withdrew from the country, his self-styled grade of general was recognized by the national government and Maximilian sent him a costly sword and his picture in a frame adorned with diamonds. Until 1872 Losada completely ruled the mountain lands among which he resided, and formed the plan to organize an Indian empire. In 1873 he gathered 25,000 armed Indians at San Luis, divided them into three bodies, sending one against Zacatecas, another against Sinaloa, and on January 17th himself marched on Jalisco, with 10,000 men. At the same time General Corona with 600 government troops approached Guadalajara and defended it from being plundered, and a battle was fought at Moyonera, in which the forces of Losada were routed with a loss of about 3,000 men. Their chief was wounded, and the remainder fled for shelter to the mountains. Thereafter he was defeated in several



encounters, and his followers abandoned the losing side. At last Losada was hunted down, surrounded in the manner of Mexican warfare, and was summarily shot.

LOSSING, BENSON JOHN, LL.D., born at Beekman, N. Y., February 12, 1813. After working some years at watchmaking, he became, in 1835, joint owner and editor of the *Poughkeepsie Telegraph*. He soon added to this a semi-monthly literary journal called the *Poughkeepsie Casket*, and studied wood-engraving and drawing, to be able to illustrate it. About 1838 he settled in New York as a wood-engraver, publishing also the *Family Magazine*. In 1841 he published *An Outline History of the Fine Arts*. In 1847 he published *Seventeen Hundred and Seventy-Six*, and in 1848, *Lives of the Signers of the Declaration of Independence*, and *Pictorial Field Book of the Revolution*, and a large number of other popular historical works. Besides these, he contributed to *Harper's Magazine*, and other periodicals a number of papers, and was a most industrious collector of documents relating to American history. He wrote *The Two Spies*, *Nathan Hale and John Andre*, and *A Cyclopadia of Universal History*. In 1872 he received the degree of LL.D. from the University of Michigan. He died at Chestnut Ridge, N. Y., June 5, 1891.

LOTT, PIERRE (LIEUT. JULIEN VIAUD), naval officer, was elected a member of the French Academy in 1892, and is one of the most distinguished literary Frenchmen of the day. His best works are *Pêcheur d'Islande*, *Mon Frère Yves*, *Madame Chrysanthème*, and *Le Livre de la Pitié et de la Mort*. His dramatization of *Pêcheur d'Islande*, produced in 1893, was a brilliant success.

LOUDOUN, JOHN CAMPBELL, EARL OF, born in Scotland 1705; died there 1782. He became commander of the British forces in North America in 1756, imposed an embargo on commerce, impressed 400 men in New York into government service, committed other arbitrary acts, and went to Halifax, Nova Scotia, where he had an army of 10,000 men, and a fleet of sixteen vessels, but although the French were gaining ground in all directions, made no attempts, either by sea or land, to stay their encroachments.

LOUIS I., late King of Portugal, second son of Donna Maria II., Queen of Portugal, and Dom Fernando, Prince of Saxe-Coburg, born October, 1838; succeeded to the throne on the death of his brother, King Pedro V., November 11, 1861. He married, October 6, 1862, Pia, youngest daughter of Victor Emmanuel, King of Italy, by whom he had two sons: Carlos, born September 28, 1863, and Alfonso, born July 31, 1865. He published in 1877 a translation into Portuguese of Shakespeare's *Hamlet*. It was followed in 1880 by a translation of the *Merchant of Venice*. In that year also he completed his translation into Portuguese of Shakespeare's *Richard III.* A second edition of the king's translation of *Hamlet* was issued in 1880. The first edition was limited to 1,000 copies. King Louis died at Lisbon, October 18, 1889.

LOUIS IV. (FREDERICK WILLIAM LOUIS CHARLES), K. G., Grand Duke of Hesse-Darmstadt, eldest son of Prince Charles William Louis of Hesse-Darmstadt, born September 12, 1837, is a captain in the first regiment of the Prussian guard, and colonel of a regiment of hussars. He married the Princess Alice, second daughter of Queen Victoria, July 1, 1862. He succeeded to the grand-dukedom on the death of his uncle, Louis III., June 13, 1877, and was left a widower on December 14, 1878. Some years later hemorganatically married Madame de Kolomine, but after a short time divorced her. Died Mar. 13, 1892.

LOVEJOY, ELIJAH PARISH, born in Maine, November 9, 1802; murdered in Alton, Ill., November 7, 1837.

He became a Presbyterian minister and edited the *St. Louis Observer*, and other abolitionist papers. A mob of ruffians attacked his office at Alton, and shot at him through the door, inflicting wounds from the effects of which he died.

LOVEJOY, OWEN, brother of the foregoing, born in Albion, Me., January 6, 1811; died in Brooklyn, N. Y., March 25, 1864. He was pastor of a Congregational church in Illinois; was present when his brother was murdered, and was often fined for holding anti-slavery meetings. He served in the Illinois legislature, and from 1856 until his death sat in congress as a Republican from that State.

LOVELL, JOHN, born November 20, 1835, at Farnham, Surrey, England, began his journalistic career in 1856, at the small town of Guildford, in Surrey. Thence he went north, where he became connected with several of the leading provincial journals, and at the same time contributed to the periodical literature of the day. He was appointed editor of *Cassell's Magazine*, in succession to Mr. Moy Thomas, in 1868, but relinquished that post in 1869 to take the management of the Press Association. Having successfully launched and carried on this undertaking, he in 1880 retired to take the editorship in chief and general management of the *Liverpool Mercury*. In addition to contributing largely to periodical literature Mr. Lovell edited the *Nouveau Robinson Suisse*. He died in 1890.

LOVELL, MANSFIELD, born in Washington, D. C., October 20, 1822; graduated at West Point, in 1842, and served in Texas and Mexico. He resigned to enter the Confederate service, and in October, 1861, was commissioned major-general, and given command of the defenses of New Orleans. He withdrew his troops when the forts were captured, afterward commanded a division at Corinth, and succeeded Gen. L. Polk in 1864. He died in New York, June 1, 1884.

LOW, EDWARD, English buccaneer, born in London, England, about 1675; died at Martinique in 1724. He is first heard of in Boston, Mass., whence he set sail for the gulf of Honduras. On arrival he left the vessel with part of the crew, in a long-boat, captured a small ship, and entered on a voyage of piracy. In 1722 he commanded several ships, with which he ravaged the coast of New England and the West India Islands. In June, 1723, his vessels came to an engagement with a ship-of-war, in which one was captured and taken to Rhode Island, where most of the crew were hanged. In July, 1723 he captured a large vessel, of which he took command, with the title of admiral, and hoisted on the main-mast a black flag with a death's-head in red. In January, 1724, while his fleet was in the Caribbean sea, he quarreled about an enterprise with his lieutenant; Low silenced his opposition by having him murdered in his sleep. Thereupon the crew seized their leader, with several of his partisans, lowered them in a boat and abandoned them to their fate. They were picked up by a vessel from Martinique and taken to that island, where they were recognized and executed.

LOWE, EDWARD CLARKE, D.D., born near Liverpool, England, December 15, 1823; was educated in Liverpool at a private school, and afterward at Oxford, where he entered under Rev. W. Jacobson, afterward bishop of Chester, at Magdalen Hall in 1842, whence he was elected to the bible clerkship at Lincoln College in June, 1844, where he was a pupil of the late Mark Pattison. He graduated B.A. in 1846, and was ordained deacon in September of the same year, and priest in September following. In January, 1850, he opened, as head master at Hurstpierpoint, a middle school, and remained in that office till the end of 1872, when he was appointed provost of the Midland district of St. Nicho-



las' College. In September, 1873, he was preferred to a canonry in Ely Cathedral.

LOWE, EDWARD JOSEPH, F.R.S., was born at Highfield, November 11, 1825; and in 1840 began his valuable series of daily meteorological observations which were continued to April, 1882. In 1846 he published *A Treatise on Atmospheric Phenomena*. About 1848 he assisted the late Professor Baden Powell in the meteor observations for the British Association, and was the first to point out the convergence of meteors to a point in the heavens. *Prognostications of the Weather*, a small work by him, appeared in 1849. In 1850 he became a member of the Meteorological Society, of which he was one of the founders. In 1853 he wrote two valuable local works entitled *The Climate of Nottinghamshire* and *The Conchology of Nottinghamshire*. In the same year he likewise assisted the late Professor Edward Forbes in the compilation of his work on *British Mollusca*, and issued the first parts of the well-known *Natural History of British and Exotic Ferns*. His next work, on *British Grasses*, appeared in 1858, and he subsequently wrote two other botanical works on *Beautiful-leaved Plants and New and Rare Ferns*, in 1861 and 1862; and *Our Native Ferns*, in 1865. In 1866 he was local secretary to the British Association. In 1868 he was president of the Nottinghamshire literary and philosophical society. Besides being the author of the works enumerated, Mr. Lowe has contributed many papers on scientific subjects to various learned societies, and to the British Association.

LOWE, MAJOR-GENERAL SIR DRURY CURZON DRURY, K.C.B., was born in 1830, in England. He entered the army in 1854, and became a full colonel in 1871. He served with the 17th Lancers in the Crimea, and also in the Indian mutiny. He commanded his regiment in the Zulu war, and led the charge at the conclusion of the battle of Ulundi. He went out to South Africa again in 1881 to command the cavalry there, but did not arrive in the country in time to see active service. In the Egyptian expedition of 1882 he commanded the cavalry brigade, and for his services he was created K.C.B., and received the thanks of parliament and also the second class of the Osmanieh.

LOWELL, JAMES RUSSELL, LL.D., D.C.L., born at Cambridge, Mass., February 22, 1819. He graduated at Harvard College in 1838, and studied law, but soon abandoned it for literature. Before leaving college he published a class poem. A volume of miscellaneous poems, entitled *A Year's Life*, appeared in 1841; a new collection containing *A Legend of Brittany*, *Prometheus*, and others, in 1844; *Conversations on Some of the Old Poets*, containing a series of well-studied criticisms, both in prose and verse, giving indications of Mr. Lowell's interest in the various political and philanthropic questions of the day, and of his attachment to those principles of which he was afterward the champion, in 1845; a third collection of poems, and *The Vision of Sir Launfal*, founded on a legend of the search for the San Graal, in 1848; *A Fable for Critics*, in which he satirically passed in review the literati of the United States, and his most remarkable work, *The Biglow Papers*, a collection of humorous poems on political subjects, written in the Yankee dialect, in 1848. *Fireside Travels*, including graphic papers on Cambridge in old times, and the second series of the *Biglow Papers* appeared in 1864. In 1869 he published *Under the Willows, and Other Poems*, and near the close of the same year, *The Cathedral*, an epic poem; in 1870, a collected volume of essays, entitled *Among My Books*; and in 1871 *My Study Windows*. *Three Memorial Poems* appeared in 1876; and in 1881 a new edition of his complete works

in five volumes was issued. In 1855 he succeeded Longfellow as professor of modern languages and belles-lettres in Harvard College. The degree of D.C.L. was conferred upon him in 1873, by the English University of Oxford, and that of LL.D. by Cambridge in 1874. From 1857 to 1862 he was editor of the *Atlantic Monthly*, and he had previously been connected editorially or otherwise with *The Pioneer*, a magazine of high character, the *Anti-Slavery Standard and Putnam's Monthly*. From 1863 to 1872 he was editor of the *North American Review*. He was also a lecturer before the Lowell Institute, in Boston, on the British poets. Toward the close of 1874 he was offered the post of minister to Russia, which he declined; but in 1877 accepted that of minister to Spain; from which he was transferred in January, 1880, to that of minister to Great Britain. On the change of administration in 1885 he resigned this position and returned to the United States. The speeches which he delivered in England have been republished. Mr. Lowell died August 11, 1891.

LOWTHER, THE RIGHT HON. JAMES, M.P., was born near Leeds, England, in 1840, and educated at Westminster School and at Trinity College, Cambridge (B.A., 1862; M.A., 1866). He was called to the bar at the Inner Temple in 1864. The next year he was elected member of parliament for York in the Conservative interest, and continued to sit for that city until 1880. He unsuccessfully contested East Cumberland in February, 1881, and in September of the same year was elected member for North Lincolnshire, which constituency he represented until November, 1885. He was parliamentary secretary to the Poor Law Board from August to December, 1868, and under secretary of state for the colonies from February, 1874, till February, 1878, when he was appointed chief-secretary of Ireland, which office he held until the resignation of Lord Beaconsfield's government in May, 1880. He unsuccessfully contested the East Lindsay division of Lincolnshire, November, 1885, and was defeated in North Cumberland in 1886, but has sat for Kent, Thanet division, since 1888.

LOYSON, CHARLES, known as FATHER HYACINTHE, was born at Orleans, France, in 1827; finished his studies at the Academy of Pau, and at an early age composed some remarkable poetry. In 1835 he entered St. Sulpice, was ordained priest after four years of theological study, taught philosophy at the great seminary at Avignon, and theology at that of Nantes, and officiated in his ecclesiastical capacity at St. Sulpice. He afterward spent two years in the convent of the Carmelites at Lyons, entered that order, and attracted much attention by his preaching at the Lycée of that city. He delivered the course of sermons in Advent at Bordeaux, a course for Lent at Périgueux, in 1864, and repaired to Paris, where his Advent sermons at the Madeleine and at Notre Dame attracted much attention (1865-69). Gradually, however, a suspicion grew up that the eloquent pulpit orator was not altogether orthodox in his views, and in 1869 M. Louis Veuillot denounced him to Rome, but he succeeded this time in clearing himself from the charge of heresy. In June, of the same year, however, Father Hyacinthe delivered before the International League of Peace an address, in which he spoke of the Hebrew religion, the Catholic religion, and the Protestant religion, as being "the three great religions of civilized people." This expression elicited severe censures from the Catholic press. The doubt now generally entertained as to the reverend father's orthodoxy was changed into certainty by his famous letter addressed, on September 20th of the same year, to the general of the Barefooted Carmelites at Rome, in which he protested against the "sacri-



legious perversion of the gospel," and went on to say: "It is my profound conviction that if France in particular and the Latin races in general are given up to social, moral, and religious anarchy, the principal cause is not Catholicism itself, but the manner in which Catholicism has for a long time been understood and practiced." This manifesto against the alleged abuses in the church created intense excitement, not only in France, but throughout the civilized world, and the young monk was hailed as a powerful ally by all the opponents of the papacy. Soon after this Father Hyacinthe left France for America, landing in New York, October 18, 1869. He was warmly welcomed by the leading members of the various Protestant sects in the United States, but, though he fraternized with them to a certain extent, he constantly declared that he had no intention of quitting the fold of the Catholic Church. The Pope, after frequent solicitations on the subject, at last consented, in February, 1870, to relieve Father Hyacinthe from his monastic vows, and he accordingly became a secular priest under the title of the Abbé Loyson. As was natural to be expected, M. Loyson energetically protested against the dogma of the Pope's infallibility; and soon after the seizure of Rome by King Victor Emmanuel's troops, he paid a visit to the Eternal City, where he delivered a series of discourses. In September, 1871, he attended the congress of the "Old Catholics" at Munich. On September 2, 1872, he was married in London, to Emily Jane, daughter of Mr. Amory Butterfield, and widow of Mr. Edwin Ruthven Meriman, of the United States. The Abbé Loyson was elected curé of the Geneva, but he resigned this post in 1874, on the ground "that the spirit which prevailed in the Liberal Catholic movement in Geneva was neither liberal in politics nor catholic in religion." He has since preached in Paris.

LUARD, HENRY RICHARDS, D. D., born in 1825; was educated at Trinity College, Cambridge, where he graduated B.A. in 1847, M.A. in 1850, B.D. in 1875, and D.D. in 1878, and became fellow and assistant tutor of his college, 1855-65, registrar of the university in 1862, and vicar of St. Mary the Great, Cambridge, 1860-86. He has written *The Life of Porson*, in the *Cambridge Essays* for 1857; *Catalogue of the MSS. in the Cambridge University Library*—the theological portion, and the general index.

LUBBOCK, SIR JOHN (Lord Avebury), was born at London, April 30, 1834. His father took him, when but fourteen years of age, into his bank in Lombard street, a business with which the family has been connected for several generations. He became a partner in this establishment in 1856. Among the improvements which he introduced in banking affairs were the *Country Clearing* and the publication of the clearing-house returns. He was chosen honorary secretary to the Association of London Bankers, an association numbering nearly 2,000 members, and was nominated by the crown to serve on the International Coinage Commission. He was also a member of the Public School Commission and of the Advancement of Science Commission. It is, however, by his works on the ancient vestiges and remains of man that Sir John Lubbock has most distinguished himself. He has written *Prehistoric Times, as Illustrated by Ancient Remains and the Manners and Customs of Modern Savages*, 1865, fourth edition 1878; *The Origin of Civilization and the Primitive Condition of Man*, 1870, which has also passed through four editions, and which, like the preceding work, has been translated into all the principal languages; *The Origin and Metamorphoses of Insects*, 1874; *On British Wild Flowers, considered in relation to Insects*, 1875; *Monograph of the Thysanura and Collembola*; two

volumes of lectures and addresses; and lastly a work on *Ants, Bees, and Wasps*, which in less than a year ran through five editions; and nearly a hundred separate memoirs on zoological, physiological, and archæological subjects in the *Transactions of the Royal Society*, the *Society of the Antiquaries*, the *Linnean*, *Ethnological*, *Geological*, and *Entomological Societies*, and the *British Association*. He was chosen as president of the *British Association* for the "Jubilee" year (1881), and presided over the meeting held at York. Later he became president of the *Linnæan Society*. He has been president of the *Ethnological and Entomological Societies*, and of the *Anthropological Institute*, vice-president of the *British Association*, and of the *Royal Society*. Sir John Lubbock has been twice chosen to represent Maidstone in parliament. In February, 1870, after he had been defeated as a Liberal candidate for West Kent by only fifty votes, he was triumphantly returned for the county town, an honor which was renewed at the general election of 1874; in 1880, however, he lost his seat, but was immediately returned by the University of London, for which he now sits. In the House of Commons he has spoken principally on financial and educational subjects. He has been so fortunate as to succeed in carrying no fewer than twenty important public measures, including the Bank Holidays Act (1871) by which four new statute holidays were added to the two previously in existence. In March, 1878, he was appointed a trustee of the British Museum, in the place of the late Sir William Stirling Maxwell. In the same year the University of Dublin conferred upon him the honorary degree of LL.D. He is also a D.C.L. of Oxford, and M.D. of Würzburg. He was vice-chancellor of the University of London, but resigned the office on his election to represent the university in parliament. He is a Liberal Unionist and in 1894 advocated the Shop Hours Bill for a shorter working day. He was elected a member and vice-chairman of the London County Council, 1889. His *Pleasures of Life*, a volume of essays of a popular character, has gone through thirty-three editions.

LUCA, ANTONINO SAVERIO DE, Cardinal-Bishop of the Holy Roman Church, was born at Bronte, Sicily, October 28, 1805. In 1820 De Luca went to Rome to complete his studies, and in 1830 published his first essay in literature. In 1833 he was appointed secretary to Cardinal Weld, and retained that office till the Cardinal's death in 1837. From 1835 to 1845 he was editor of the *Annale delle Scienze Religiose*. De Luca became in Rome a member of the *Accademia Tiberina*, of the *Arcadia*, and of the *Archæological Academy*. He was made censor of the *Accademia of the Catholic Religion*, and he took part in the revival of the *Accademia Liturgica*, which was founded by Benedict XIV., but had fallen into decay by reason of the revolution. In the consistory of November 24, 1845, Mgr. De Luca was promoted by Gregory XVI. to the bishopric of Aversa, near Naples, and he received episcopal consecration on December 8th following from Cardinal Frasnosi. In 1853 he was advanced to the archbishopric of Tarsus, in *partibus infidelium*, and was sent as apostolic nuncio to the court of Bavaria, where he remained from May, 1854, till October, 1856. From Bavaria he was transferred to a still more important office, that, namely, of nuncio to the emperor of Austria, to whom he presented his credentials, dated November 1, 1856. The new nuncio had a difficult task to accomplish. In August, 1855, a concordat had been concluded between the emperor and the pope, but by recent laws passed by Francis Joseph II. the jurisdiction, rights, properties, and privileges of the church had been injuriously affected. It was the endeavor of the nuncio to bring

back everything to a state conformable to the tenor of the concordat, and especially to restore the jurisdiction of the ecclesiastical tribunals of the archbishops and bishops of the Austrian empire, and to regulate all appeals according to the rules of the canon law. Cases affecting ecclesiastical persons and properties, and matrimonial causes, were restored to the sole jurisdiction of the ecclesiastical courts. In 1858 Mgr. De Luca executed a special charge committed to him by the sovereign pontiff, and went on a delegation to the orthodox Roumanians in Hungary and Transylvania. Pius IX. created Mgr. De Luca a cardinal in the consistory of March 16, 1863, and he received the beretta from the emperor of Austria on May 13th following, and was also decorated with the grand cross of St. Stephen of Hungary. Cardinal De Luca, as pro-nuncio, represented the holy see at Vienna till September 10, 1863. Returning to Rome at the end of that month, he received the hat from the hands of Pius IX., and the presbyteral title of the church of St. Quattro Coronati. At the end of the year he became prefect of the Congregation of the Index. In the vatican council Cardinal De Luca was second in order of seniority of the five presidents of the council, and was in constant communication with the Austrian, Bavarian, French, and Italian bishops. In the consistory of July 15, 1878, he was declared bishop of Palestrina, and vice-chancellor of the Holy Roman Church, and sommist of apostolic letters. On the same day the cardinal received in *commendam* the church of St. Lorenzo in Damaso. He died December 28, 1883.

LUCAS, SEYMOUR, A.R.A., was born in London on December 21, 1849. Leaving school at the age of fifteen, he spent three months in the studio of a sculptor, and a further term of nine months with Gerard Robinson, the wood-carver, from whom he received his first notions of composition. His uncle, John Lucas, the painter, then articulated him to his son, John Templeton Lucas, who was to teach him the art of painting. During the term of his apprenticeship Mr. Lucas attended the evening classes of the St. Martin's school of art, in connection with South Kensington; and in 1871 he became a student of the Royal Academy, exhibiting his first picture there in 1872. It was not until 1875, however, that Mr. Lucas contributed to the annual exhibition at Burlington House a work of any mark; this was entitled *By Hook or Crook*. The following year he sent two pictures, *Fleeced*, and *For the King and the Cause*, and in 1877 *Intercepted Dispatches*. *An Ambuscade*, *Edge Hill*, appeared in 1878. The technical excellence of all this artist's work is of a high order, and is especially noticeable in *The Gordon Riots*, which was exhibited in 1879. In 1877 he was elected full member of the Institute of Painters in Water Colors, and in 1886 was elected A.R.A. His recent works are *The Armada in Sight*, 1880; *Charles before Gloucester*, 1881; *The Favorite*, 1882; *A Whip for Van Trompe*, 1883; *After Culloden*, 1884; *From the Field of Sedgemoor*, 1885; and *Peter the Great at Deptford*, 1886.

LUCAN (EARL OF) THE RIGHT HON. GEORGE CHARLES BINGHAM, G.C.B., elder son of the second earl, whom he succeeded, June 30, 1839, born April 16, 1800, was educated at Westminster, entered the army at the usual age, and served as a volunteer with the Russian army under General Diebitsch, in the Turkish campaign in 1828. He was one of the representatives of the county of Mayo, in the Conservative interest, from 1826 to 1830, and was chosen one of the representative peers for Ireland in 1840. He served in the Crimea in 1854-55, in command of a division of cavalry, and took part in the battles of the Alma, September 20, *Balaklava*, October 25, and Inkermann, November 5,

1854. Owing to some misapprehension of Lord Raglan's orders, that heroic but fatal charge of the Light Brigade, in which so many lives were lost, was made in the battle of *Balaklava*. Lord Lucan was colonel of the eighth hussars till February 22, 1865, when he became colonel of the first regiment of life guards, was made a lieutenant-general in 1858, and general August 28, 1865; was nominated a K.C.B. for his Crimean services, and G.C.B. in 1869; was commander of the Legion of Honor, knight first-class of the Medjidie, and a knight second-class of St. Anne of Russia. He died in 1888.

LUCY, HENRY W., born at Crosby, near Liverpool, December 5, 1845; was apprenticed to a Liverpool merchant; joined the staff of the *Shrewsbury Chronicle* as chief reporter in 1864; in 1869 went to Paris to attend lectures at the Sorbonne; in January, 1870, returned to London to join the staff of the morning edition of the *Pall Mall Gazette*, and in October, 1873, joined the *Daily News* as special correspondent, chief of the gallery staff and writer of the parliamentary summary. Mr. Lucy is author of *A Handbook of Parliamentary Procedure*, and *Men and Manners in Parliament*. He is a frequent contributor to London and American periodical literature. In 1882 his first novel, *Gideon Fleyce*, was published. In January, 1886, Mr. Lucy accepted the editorship of the *Daily News*.

LUCCA, PAULINE, was born at Vienna, of Jewish parentage, in 1842, and in 1859 made her first appearance in opera at Olmutz. From 1861 to 1872 she was court singer at Berlin. She sang with great success in England and at various continental cities, and in 1872 visited the United States. In 1865 she married Count von Rahden, from whom she obtained a divorce shortly afterward.

LUDLAM, REUBEN, born in Camden, N. J., October 7, 1831; graduated in medicine at the University of Pennsylvania in 1852, and for nearly forty years practiced homeopathic medicine in Chicago. He was connected with Hahnemann College and Hospital from its organization in 1860; was president of the American Institute of Homeopathy and of the Chicago Academy of Medicine, and for ten years a member of the Illinois State Board of Health.

LUDLOW, FITZ-HUGH, author, born in New York city, September 11, 1836; died in Geneva, Switzerland, September 12, 1870. He was graduated at Union in 1856, after which he began literary life. At college he wrote some popular student-songs, and thereafter contributed to *Putnam's Monthly*. From 1858 to 1860 he read law, while editing *Vanity Fair*, a comic weekly on the style of the London *Punch*. Later he wrote for several New York newspapers on travels, the drama, and fine arts. In 1863 he journeyed overland to California and Oregon, and after a variety of literary occupations went to Europe in June, 1870, to seek relief from slowly wasting consumption. Many of his verses were floated by the newspapers, and he made a hobby of writing on the hasheesh and opium habits. His published volumes are *The Opium Habit* (New York, 1868); *Little Brother* (Boston, 1867); and *The Heart of the Continent* (New York, 1870).

LUGARD, GENERAL, THE RIGHT HON. SIR EDWARD, G.C.B., born at Chelsea, England, in 1810, was educated at the military college, Sandhurst, and, having entered the army in 1828, proceeded to India, where he served with distinction for many years. During the Afghan war of 1842, he was brigade-major of the 4th brigade; and during the Sikh war of 1845-46, assistant adjutant-general of the first division. Throughout the Punjaub campaigns of 1848-49, he was adjutant-general to the queen's forces. He was made K.C.B. for his services as chief of the staff in the Persian expedition of



1856-57, and was appointed adjutant-general in India at the close of 1857. At the capture of Lucknow, and the subsequent operations against the rebels, he commanded, as brigadier-general, the second division of infantry, and was promoted to the rank of major-general in 1858. He was sworn of the privy council November 3, 1871. He attained the rank of general in November, 1872, and died in 1888.

LUITPOLD, PRINCE CHARLES JOSEPH WILLIAM, regent of Bavaria, was born at Würzburg, March 12, 1821. He is general and inspector-general of the Bavarian army, chief of the regiment of Bavarian artillery, and proprietor of the 1st regiment of Austrian artillery. He married April 15, 1844, the Princess Augusta, archduchess of Austria. On the death of Louis II., king of Bavaria, in June, 1886, he was appointed regent on account of the mental derangement of Prince Otto, the succeeding titular king.

LUMSDEN, MAJOR-GENERAL SIR PETER STARK, G.C.B., C.S.I., was born at Aberdeen, Scotland, in 1829. He entered the Indian army in 1847, and has risen to his present rank by constant and active service, principally on the northwest frontier of India. In 1857 he was employed in a difficult mission to Afghanistan, at the crisis of the Indian mutiny, and discharged his arduous and perilous duties with infinite credit. He accompanied the expedition to China in 1860, and was present in all the actions there, including the assault and capture of the Takee forts. He was adjutant-general to the commander-in-chief, Sir F. P. Haines, during the last Afghan war, and was appointed commissioner for the demarcation of the northwestern boundary of Afghanistan, July 16, 1884. After the Penjdeh "incident," Sir Peter Lumsden returned home to report on the state of things to the British Government, and his place was taken by Colonel (now Sir West) Ridgway. Sir Peter Lumsden is a member of the Council of India, and was made a G.C.B., July 3, 1885.

LUNT, GEORGE, born in Newburyport, Mass., December 31, 1803; died in Boston, May 17, 1885. He graduated at Harvard in 1824; served in the State Legislature, and was United States District Attorney under President Taylor. He wrote several volumes of poems and prose essays.

LUSSAN, RAVENEAU DE, French buccaneer, born in Paris in 1663; died in France about 1710. He was of good family, and at the age of fourteen entered on a military career. In 1679 he went to Santo Domingo in quest of adventure, and joined the buccaneers under Cornelius Laurent. In the following year he formed a band of his own to act against the Spaniards, and pillaged the town of Redlejo, in Guatemala. In 1686 his band set fire to Grenada. Later, in unison with English pirates, he took part in the capture of Guayaquil. Thereafter his band of about 300 men captured Tehuantepec. At Nueva Legoria his men, having made a journey overland, were surrounded and hemmed in by the Spaniards, but, favored by fog, they found their way to the rear of the entrenched Spaniards, and put them to flight. After much suffering and frequent hazards, Lussan reached France, and published his *Journal du voyage fait à la mer du Sud avec les filibustiers de l'Amérique* (Paris, 1688). It was dedicated to the minister of the navy, and by him and the nation at large was well received.

LYALL, SIR ALFRED COMYN, K.C.B., was born at Coulston, Surrey, England, in 1835, and educated at Eton. He was appointed home secretary in India in 1873, foreign secretary in 1878, and lieutenant-governor of the Northwest Provinces in 1882, having in the previous year been created a K.C.B. He was formerly secretary to the Order of the Star of India and the

Order of the Indian Empire. Sir Alfred Lyall, who is no less distinguished in literature than in the public service, is the author of *Asiatic Studies, Religious and Social* (1882).

LYMAN, HENRY MUNSON, American physician, was born in Hilo, in the Hawaiian Islands, at which place his parents were missionaries, November 26, 1835. He was graduated at Williams College in 1858 and took his M.D. degree at the New York College of Physicians and Surgeons in 1861. Immediately on his graduation he entered the Federal army as surgeon, serving in this capacity till 1863, when he resigned and settled in Chicago, where he has since remained. Doctor Lyman has given his attention mostly to diseases of the nervous system, and is regarded as an eminent authority on these and kindred affections. For five years he was professor of chemistry in Rush Medical College, and since 1875 has occupied the chair of physiology and nervous diseases in that school. He also occupies the chair of theory and practice of medicine in the Chicago Woman's Medical College. He is a most accomplished lecturer, and his writings are characterized by both literary and professional excellence. He is a member of various professional and learned societies.

LYMAN, PHINEAS, born in Durham, Conn., in 1716; died near Natchez, Miss., September 10, 1774. He was at first apprenticed to a weaver, but later studied for college, and in 1738 was graduated at Yale. For three years afterward he served there as tutor, at the same time reading law. Admitted to practice, he settled in Sheffield, then belonging to Massachusetts, but later ceded to Connecticut, and for seven years served in the legislature. In March, 1755, he became commander-in-chief of the Connecticut forces sent against Crown Point. In the battle at the head of Lake George, when Sir William Johnson was wounded, the command fell to General Lyman. In 1758 he was at the head of about 5,000 New England troops, shared in General Abercrombie's repulse, and was with Lord Howe when he fell. In 1759 he was for the second time commissioned major-general, and with 4,000 Connecticut soldiers supported General Amherst in the conquest of Ticonderoga and Crown Point. He was present at the reduction of Fort Louis at Oswego, and the capture of Montreal.

LYMAN, THEODORE, born in Waltham, Mass., August 23, 1833; graduated at Harvard in 1855, and at the Lawrence Scientific School in 1858. He served on General Meade's staff during the Civil war, and from 1865 until 1882 was fish commissioner of Massachusetts. From 1883 to March, 1885, he served in congress as an independent Republican. He is a member of many scientific societies, and has written extensively on zoölogy and natural history. Died Sept. 10, 1897.

LYON, MARY, born in Buckland, Mass., February 28, 1797; died March 5, 1849. She was educated at a district school, and in 1814 began teaching at Shelburne Falls. Soon afterward she studied some of the higher branches, and in 1824 went to Amherst to qualify herself for giving instruction in chemistry. From 1824 until 1834 she taught successively at Londonderry and Ipswich, Mass. In November, 1837, she founded Mount Holyoke Female Seminary, at South Hadley, Mass., and from that time until her death was its principal. Miss Lyon taught more than 3,000 pupils, many of whom became missionaries. In 1840 she published a pamphlet entitled *Tendencies of the Principles embraced and the Systems adopted in the Mount Holyoke Seminary*, and also *The Missionary Offering* (Boston, 1843).

LYON, NATHANIEL, born in Ashford, Conn., July 14, 1818; died near Wilson's Creek. He was graduated



at the United States Military Academy in 1841, was assigned duty as lieutenant of infantry, and served in Florida at the end of the Seminole war. In the Mexican war he was present at the siege of Vera Cruz, and brevetted captain; at the assault on the Mexican capital he was wounded. At the close of that war he was ordered to California, where in 1851 he was promoted captain. Returning to the east in 1853, he sympathized with the Free State party. He was on duty in Kansas in 1859, and with Gen. William S. Harney in December, 1860, when the governor sent a brigade of militia to coöperate with the national troops in arresting James Montgomery, the Free State leader. In February he was ordered to St. Louis, Mo. There he began to drill and organize the home-guards, and had charge of the arsenal, where his ability and vigilance did much for the Union cause. The home-guards were nearly all German recruits, as the native population and the Irishmen were mostly secessionists. On June 10, 1861, at the head of a body of these German troops, he took possession of Camp Jackson, a secessionist rendezvous. A week later he was promoted to brigadier-general of volunteers, and soon afterward was placed in command of the department. He next dispersed the Confederate force at Potosi, and on June 17th defeated a body of Governor Jackson's State militia. On August 2d he defeated General McCulloch at Dry Springs, and eight days later attacked a formidable force under Generals McCulloch and Price at Wilson's Creek, when he was defeated. Here, in the ardor of action, he was twice wounded; nevertheless, keeping his saddle, he led his men to renewed attacks, until his horse was killed and himself shot in the breast by a minie rifle-ball. His death was deeply lamented throughout the Union.

**LYONS, VISCOUNT (THE RIGHT HON. RICHARD BICKERTON PEMELL LYONS, G.C.B., G.C.M.G.),** last surviving son of the first Lord Lyons (who commanded the British fleet in the Black Sea in 1855-6), was born at Lymington, April 26, 1817, and succeeded to his father's title, November 23, 1858. Having been educated at Winchester and Christ Church, Oxford, he was appointed unpaid attaché at Athens in 1839, and paid attaché in 1844, at Dresden in 1852, at Florence (residing at Rome) in 1853, secretary of legation there (residing at Rome) in 1856, and envoy to Tuscany in 1858. He was accredited as envoy extraordinary to the United States in December, 1858, returned to England on account of ill health in February, 1865, was appointed ambassador at Constantinople in August, 1865, and was transferred to Paris in July, 1867. That post he held uninterruptedly until his death, December 5, 1887. He was made a K.C.B. in 1860, a G.C.B. in 1862; was sworn of the privy council, March 9, 1865; and made an honorary D.C.L. at Oxford, June 21, 1865. In November, 1881, he was created Viscount Lyons, of Christ Church. He died December 5, 1887.

**LYNE, THE REV. JOSEPH LEYCESTER,** called "Father Ignatius," was born November 23, 1837, in London. He was ordained, in 1860, to the curacy of St. Peters, Plymouth; but left to begin the attempt of restoring monasticism in the Church of England, in 1862. He is the author of many published sermons, poems and hymns; the *Tales of Llanthony*; *Brother Placidus*; *Leonard Morris*, and *Tales of the Monastery*. He and his monks claim to follow the ancient rule of St. Benedict, and use the Benedictine Breviary for choir office and the Sarum Missal of the ante-Reformation Church of England. They wear the old English Benedictine dress. Mr. Lyne's monastic name is "Ignatius of Jesus."

**LYTTON, EARL OF (THE RIGHT HON. EDWARD ROBERT BULWER-LYTTON, G.C.B., G.C.S.I.),** poet

and diplomatist, only son of the celebrated novelist, poet, dramatist, orator, and statesman, was born November 18, 1831. He was educated first at Harrow, and under private tutors, and afterward at Bonn, where he devoted himself especially to the study of modern languages. When nearly eighteen years of age he entered the diplomatic service of the crown, being appointed October 12, 1849, attaché at Washington, where his uncle, Sir Henry Bulwer, afterward Lord Dalling and Bulwer, was minister. To Sir Henry he acted at the time as private secretary. On February 5, 1852, he was transferred as attaché to Florence, and on August 12, 1854, was removed to the embassy at Paris. He was thence promoted, shortly after the peace of 1856, to be paid attaché at the Hague. Two years afterward, on April 1, 1858, he was appointed first paid attaché at St. Petersburg, and a little more than two months later, was gazetted first paid attaché at Constantinople. From that embassy he was, on January 6, 1859, transferred to the one at Vienna. He was on October 1, 1862, gazetted second secretary of her majesty's diplomatic service, being employed in that capacity at Vienna. Shortly afterward he was promoted on January 6, 1863, to be secretary of legation at Copenhagen. There, during two intervals, from February 27 to March 18, 1863, and again from April 14 to May 24, 1864, he held the position of *chargé d'affaires*. A week before the date last mentioned (on May 18, 1864), he was gazetted as secretary of legation at Athens, whence, on April 21, 1865, he was transferred to Lisbon. Upon three several occasions he there also discharged the office of *chargé d'affaires* from May 30th to October, 1865, from April 29th to November 18, 1886, and from September 14, 1867, to March 19, 1868. In little more than a month from the last named date, on February 29, 1868, when he successfully concluded the negotiation of a commercial treaty between Great Britain and Portugal, he was transferred to Madrid. Six months later he was promoted to the secretaryship of embassy at Vienna. There he acted once more, from October 30th to December 29, 1869, as *chargé d'affaires*, and was thence transferred on October 5, 1872, as secretary of embassy to Paris. Three months afterward (January 18, 1873), upon his father's death, he succeeded to the title as the second Baron Lytton. Twice during that same year, from April 13th to May 17th, and again from September 14th to October 22d, he acted at Paris as *chargé d'affaires*, and to the close of his career in the French capital as secretary of embassy he was always, during the absence of the ambassador, accredited there as minister plenipotentiary. Having previously declined the governorship of Madras, he was appointed ambassador at Lisbon, December, 1874; and, after occupying that post for a year, was suddenly informed by telegram, in January, 1876, of his nomination by Mr. Disraeli as viceroy of India. Immediately on his arrival at Calcutta he was sworn in as governor-general and viceroy on April 12, 1876; and on January 1, 1877, surrounded by all the princes of Hindostan, presided at the gorgeous ceremonial which marked on the plains of Delhi the proclamation of Queen Victoria as empress of India. In December, 1877, the queen conferred upon him the honor of the grand cross of the civil division of the Order of the Bath. On December 12, 1879, an attempt was made to assassinate Lord Lytton, happily without any ill effect whatever. The principal event of Lord Lytton's viceroyalty was the Afghan war. On April 28, 1880, he was raised to the dignity of an earldom, being created earl of Lytton, of Lytton, in the county of Derby, and Viscount Knebworth, of Knebworth, in the county of Herts. Lord Lytton had pre-



viciously given in his resignation as viceroy of India, the earl of Beaconsfield placing it in the hands of her majesty simultaneously with his own resignation, in April, 1880, of the premiership. Lord Lytton had published (chiefly under the assumed name of Owen Meredith), a number of volumes in prose and verse, among which are *Clytemnestra and other Poems*, 1855; *Lucile*, 1860; *Tannhäuser, or the Battle of the Bards*, 1861;

and *The Ring of Amasis*, 1863. In 1874 appeared in 2 vols., his *Fables in Song*, and also in 2 vols., the *Speeches of Edward, Lord Lytton, with some of his Political Writings, hitherto unpublished, and a Prefatory Memoir by his Son*. In 1883 Lord Lytton published two volumes of *The Life, Letters, and Literary Remains of Edward Bulwer, Lord Lytton*, and in 1885 the poem of *Glenaveril*. He died Nov. 24, 1891.

## M.

**MAARTENS, MAARTEN** (pen name of J. M. W. VANDER POORTEN-SCHWARZ), barrister, born in Holland, in 1857, won a high place in literature by his powerful novels, originally written in English: *The Sin of Joost Avelingh, An Old Maid's Love, God's Fool*, and *The Greater Glory*.

**MABERY, CHARLES FREDERIC**, born in Maine, January 13, 1850; graduated at Lawrence Scientific School at Harvard in 1876, and was assistant in chemistry there from 1875 to 1883. In the last named year he was called to the chair of chemistry in the Case School of Applied Science at Cleveland, Ohio. Professor Mabery has made many experiments with regard to the production of platinum by electricity. He is a member of several scientific societies.

**MACADAM, JOHN LOUDOUN**, born in Ayr, Scotland, September 21, 1756; died November 26, 1836. He became noted by his introduction of the system of "macadamizing" roads so named from him.

**MCALISTER, MILES DANIEL**, born in New York, March 21, 1833; died April 23, 1869. He graduated at West Point in 1856, assisted in the construction of the defenses of Washington, was chief engineer of the third corps in the army of the Potomac and of the department of the Ohio, and received a brigadier-general's brevet.

**MACALISTER, ALEXANDER, F.R.S.**, was born in Dublin, 1844, and educated at Trinity College, Dublin. He became L.R.C.S. in 1861, L.R.C.P., 1862, and M.A. and M.D. of the Universities of Dublin and Cambridge. In 1869 he was appointed professor of zoology in Dublin University, and of anatomy in 1872. In 1883 he accepted the professorship of anatomy at Cambridge, and he was elected fellow of St. John's College. He is F.R.S. and member of the senate of the Royal University of Ireland, and has published *Introduction to Animal Morphology*, 1876; *Morphology of Vertebrate Animals*, 1878.

**MACALISTER, JAMES**, born in Glasgow, Scotland, April 26, 1840; came to this country when a boy and graduated at Albany Law School. He became superintendent of public schools in Milwaukee, Wis., in 1873; was afterward regent of Wisconsin normal schools, and superintendent of public schools in Philadelphia. He has published various text-books and manuals of instruction.

**MCALLISTER, MATTHEW HALL**, born in Georgia, November 26, 1800; died in California in December, 1865. He graduated at Princeton, practiced law, and became United States district attorney in Georgia (1827). He sat in the State legislature, and for several terms was mayor of Savannah. In 1850 he removed to California, where he became United States circuit judge, serving from 1855 until 1862.

**MCALPINE, WILLIAM JARVIS**, born in New York city in 1812; became a civil engineer and had charge of the Erie canal improvements, the building of a dry-dock in the United States navy yard at Brooklyn, the construction of the original Chicago and Albany, N.Y., water-works, and many other engineering works. He

was in 1868 elected president of the American Society of Civil Engineers. He died February 16, 1890.

**MACAULAY, JAMES**, was born in Edinburgh, May 22, 1817. His early education was received at the Edinburgh Academy. In 1830 he entered the University of Edinburgh, where he took degrees in art and in medicine, attending also the classes in theology. After graduating in 1841, Doctor Macaulay studied in Paris, and traveled in Italy and Spain. In 1851 he became joint editor of the *Literary Gazette*, and retained the appointment till 1857. In the following year he became editor of the *Leisure Hour* and the *Sunday at Home*.

**MACBETH, ROBERT WILLIAM, A.R.A.**, second son of Mr. Norman Macbeth, the Scotch portrait painter, was born in 1848. He first exhibited at the Royal Academy in 1873, a picture called *Sunshine and Shade*, and has been an exhibitor ever since. He attracted general attention in 1876 by his *Lincolnshire Gang*, a number of little children working in the field under a gang-master. Another picture which drew much attention was his *Flood in the Fens*, exhibited in 1880 at the Grosvenor Gallery. Mr. Macbeth was an excellent etcher, and achieved a very remarkable success by his plates after Frederick Walker, G. J. Pinwell, and George Mason. He was a member of the Institute of Painters in Water Colors, and of the Royal Academy. He died in March, 1888.

**MACCABE, EDWARD**, born in Dublin, Ireland, February 14, 1816; was educated at Maynooth College, and became a priest of the Roman Catholic Church in 1839. In 1877 he became bishop, and assistant to Cardinal Cullen. In 1879 was made archbishop of Dublin, and in 1882 was created a cardinal priest. He died February 10, 1885.

**MCCALL, EDWARD R.**, born in Charleston, S. C., August 5, 1790; died in New Jersey, July 31, 1853. He entered the United States navy as a midshipman in 1808, and, in September 1803, was a lieutenant on board the *Enterprise* when she fought the British brig *Boxer*. Lieutenant Burrows, in command of the *Enterprise*, was mortally wounded early in the action, and the command devolved on Lieutenant McCall, who finally captured the enemy. He was made master-commandant in 1825, and captain in March, 1835.

**MCCALL, GEORGE ARCHIBALD**, born in Philadelphia, March 16, 1802; died February 26, 1868. He was graduated at West Point in 1822, served in the Florida and Mexican wars, and from 1850 to 1853 was inspector-general of the United States army. He organized the Pennsylvania volunteers in 1861; commanded at Mechanicsville, June 26, 1862; was afterward captured and held a prisoner in Libby.

**MCCALLUM, DANIEL CRAIG**, born in Scotland in January, 1815; came to the United States when a boy, and became engaged in railroad work. During the Civil war he had charge of the railroad military service and received the brevets of brigadier and major-general of volunteers. He wrote a report on military railroads.

MCCANN, WILLIAM PENN, born in Kentucky, May 4, 1830; entered the United States navy as a midshipman in 1848, and became lieutenant-commander in 1862. He rendered distinguished service in co-operation with the army of the Potomac in 1862, and at New Berne, N. C., in the following March. Afterward he assisted in the blockade of Mobile and captured several blockade-runners. In 1867 he was made commander; in September, 1876, captain, and in 1887, commodore. He was afterward promoted rear-admiral and given command of the South Atlantic station.

MCCARTHY, JUSTIN, M. P., was born at Cork in November, 1830. After receiving a liberal education there, he became attached to the staff of a Liverpool paper in 1853. He entered the reporters' gallery of the House of Commons in 1860 for the *Morning Star*, became foreign editor of that paper the following autumn, and chief editor in 1864; he resigned the latter post in 1868, and traveled through the United States for nearly three years, visiting thirty-five of the then thirty-seven States. Mr. McCarthy has contributed to the *London Review*, the *Westminster Review*, the *Fortnightly Review*, the *Nineteenth Century*, the *Contemporary Review*, to several English magazines, and to many American periodicals. He is the author of *The Waterdale Neighbors* (1867); *My Enemy's Daughter* (1869); *Lady Judith* (1871); *A Fair Saxon* (1873); *Linley Rochford* (1874); *Dear Lady Distain* (1875); *Miss Misanthrope* (1877); *Donna Quixote* (1879); *The Comet of a Season* (1881); *Red Diamonds* (1894) and many other novels; of *Con Amore*, a volume of critical essays; and *Prohibitory Legislation in the United States*, an account of the working of the liquor laws in Maine, Massachusetts, Michigan, Iowa, and other States of the Union. Mr. McCarthy's most important work is *A History of Our Own Times* (1878-80), being an account of what happened in the British Islands from the accession of Queen Victoria to the general election of 1880. He has also published a four volume *History of the Four Georges*. He has also written a short history of *The Epoch of Reform*, the period between 1830 and 1850, published in 1882. Mr. McCarthy is a political writer for one of the London daily papers. He was elected to parliament as member for the county of Longford, Ireland, in March, 1879, and was reelected when the dissolution took place in 1880, in both instances without a contest. At the general election, 1885, he contested Derry, and was defeated by a majority of twenty-nine, but was immediately elected for Longford, by a large majority. In 1886 he was returned for Longford and in 1892 for North Longford. He has lectured in America, and has been president of the Irish Parliamentary party since Parnell's death.

MCCARTHY, JUSTIN HUNTLY, son of the preceding, was born in Ireland in 1860, was a member of parliament for Athlone, 1884-85, and for Newry in 1886 and has written novels and historical works, besides transient articles for newspapers and magazines. His works include *Serapion*, and *Other Poems* (1883), *Camiola*, *Doom*, *One Sensation Novel*, *Lily Lass*, and *Roland Oliver*, novels, and *Sketches of Irish History*, *England under Gladstone*, 1880-84, *The Case for Home Rule* and a *History of the French Revolution*.

MCCAUL, JOHN, M.A., LL.D., was born in Dublin in 1807. He was educated at Trinity College, Dublin, where he became classical tutor and examiner. In November, 1838, he was appointed, by the then archbishop of Canterbury, principal of the Upper Canadian College, and entered upon his duties in January, 1839. In 1842 he became vice-president of King's College, Toronto, and professor of classics, logic, rhetoric, and belles lettres. In 1848 he was appointed

president of the University of Toronto, and in 1853 president of University College, and vice-chancellor of the University of Toronto, positions which he resigned in 1881, in consequence of advancing years. Doctor McCaul published several volumes of essays and treatises on classical topics. He also edited for collegiate, text-books, the *Satires and Epistles of Horace*, and portions of *Longinus*, *Lucian*, and *Thucydides*. He died April 15, 1887.

MCCAULEY, CHARLES ADAM H., born in Maryland, July 13, 1847; graduated at West Point in 1870, and served first in the artillery, and afterward in the cavalry. In 1876 he accompanied the Red River exploring expedition as an ornithologist, and in 1881 he became quartermaster, with rank of captain. He is the inventor of a system of military signaling by means of mirrors, and is an active member of various scientific societies.

MCCAULEY, EDWARD YORKE, born in Philadelphia, November 2, 1826; entered the United States army as midshipman in 1841; took part in the attack on Chinese pirates in 1855, assisted in laying the first Atlantic cable, and during the Civil war commanded the Gulf squadron. He was made rear-admiral in 1885, afterward commanded the Pacific station, and was retired in 1887.

MCCLELLAN, GEORGE BRINTON, was born at Philadelphia, December 3, 1826. He graduated at West Point in 1846, served in the Mexican war with such ability as to win the brevet of captain, and attained full rank as captain in 1855. His services until 1857 were mainly scientific, with the exception of a military report on the organization of European armies in 1856, the result of a commission from the government to follow the progress of the Crimean war. In 1857 he resigned and entered the service of the Illinois Central railway, becoming its president. At the outbreak of the Civil war he was engaged by Ohio as major-general, commanding her volunteers, and was soon given the same rank in the United States army by President Lincoln. It fell to McClellan to cross into West Virginia and begin the campaign there, which he did during the early summer, the campaign ending with the surrender of the Confederate forces at Rich Mountain and the expulsion of the opposing armies from his department on July 14, 1861. This sudden and brilliant success, followed almost immediately by the collapse of the Manassas campaign against Richmond, brought McClellan into notice as the most likely leader to restore public confidence in the army of the Potomac. He was called to Washington, given command of the army, and, when Scott retired, was made commander of all the armies until March, 1862, when his command was reduced again to the army of the Potomac. The winter of 1861-62 was spent in organizing his new army, and in the spring he was at last almost forced, by public outcry and the impatience of the administration, to attempt the task of wielding the weapon which he had created. Following what seems now the most feasible method of attack on Richmond, McClellan appears to have begun with little confidence in the administration, and it was not long before the administration lost confidence in him. His campaign on the peninsula is historical; but the time involved should be taken carefully into account in estimating McClellan's abilities. It was on September 2d that he was recalled and given command of "all the troops for the defense of the capital." He found the armies in almost complete confusion; he organized and united them, marched them through Maryland to its northern border, attacked Lee's rear so vigorously at South Mountain as to force him to turn and fight, and de-



feated him after a two days' battle; and all this work was done in fifteen days, September 2-17. He was removed, however, November 7, 1862, for slowness in pursuing Lee, and Burnside became his successor. McClellan was nominated for the presidency in 1864, and had much difficulty in reconciling the peace platform of his party with his own feelings. Defeated by Lincoln, he retired to private business as a civil engineer, in which he was very successful. He was elected governor of New Jersey in 1877, serving in 1878-81. He died at Orange Mountain, N. J., October 29, 1888. The literature in attack and defense of his military reputation is voluminous; for his own version of his career see *McClellan's Own Story*.

MCCLEARNAND, JOHN ALEXANDER, born in Kentucky, May 30, 1812; removed to Illinois, and practiced law, and for some years edited a newspaper at Shawneetown. In 1836-40 and in 1842 he served in the State legislature, and from 1843 to 1851 sat in congress as a Democrat. In 1859 he was reelected to congress, but resigned at the beginning of the Civil war to raise a brigade of which he was given command. He commanded the right of the line at Fort Donelson, led a division at Shiloh, and was at Champion Hill, Vicksburg, and other battles. Afterward he commanded the 13th army corps until relieved in July, 1863, and in Nov., 1864, he resigned, and died Sept. 20, 1900.

MCCLEINTOCK, JOHN, born in Philadelphia, October 27, 1814, graduated at the university of Pennsylvania in 1835, and was ordained in the Methodist Episcopal church. For twelve years he held successively the chairs of mathematics and of Greek and Latin in Dickinson College, and from 1848 to 1856 he edited the *Methodist Quarterly Review*. He was afterward pastor of St. Paul's M. E. church, New York, and in 1867 became the first president of Drew Theological Seminary at Madison, N. J. He was D.D. of the University of Pennsylvania, and LL.D. of Rutgers, and was the author of numerous text-books and essays. He died March 4, 1870.

MCCLEINTOCK, SIR FRANCIS LEOPOLD, D.C.L., LL.D., F.R.S., was born at Dundalk in 1819, and entered the British navy in 1831. He was not promoted to the rank of lieutenant until 1845. After some years of foreign service Lieutenant McClintock returned to England, about the time when great anxiety began to be felt for the safety of Sir John Franklin and his companions. He accompanied Sir James Clarke Ross as second lieutenant on board the *Enterprise*, in the Arctic expedition sent out in 1848. Returning unsuccessful in November, 1849, McClintock joined a second expedition sent out early in 1850, as senior lieutenant of the *Assistance*. It was his fortune in August, 1850, to see, at Cape Riley, the first traces of the missing expedition. In the following spring, while frozen up at Griffith's Island, he signaled himself by an unprecedented sledge journey of eighty days and 760 geographical miles, reaching the most westerly point which had yet been attained from the east, in the Arctic regions. Upon the return of this expedition to England in October, 1851, Lieutenant McClintock was promoted to the rank of commander. The following spring he again proceeded to the Arctic regions in command of the *Intrepid*, one of five vessels composing the third searching expedition under Sir Edward Belcher's command. In accordance with instructions from the admiralty, the *Intrepid*, in company with the *Resolute*, Captain Kennett, wintered at Melville Island, in order to search for Captain McClure and his companions; and, most fortunately, they were discovered and rescued, after their three years' imprisonment in the ice. McClintock again distinguished himself by his

sledge journey of 105 days and 1,210 geographical miles, into the hitherto unexplored region northward of Melville Island. The comparative perfection to which Arctic sledge-traveling has been carried is almost entirely due to the improvements effected by him. Abandoning four out of the five ships imbedded in the ice, and also McClure's ship, the *Investigator*, the personnel of this expedition, with McClure and his companions, returned to England in October, 1854, in the depôt ship *North Star*, and two relief ships, freshly arrived out, under Captain Inglefield. McClintock was now advanced to the rank of captain. In 1857 he accepted the command of Lady Franklin's own search expedition—to be fitted out at her expense. He selected, and appropriately equipped, the steam yacht *Fox*, of 177 tons, and with twenty-four companions, sailed on July 1, 1857. He returned September 20, 1859, having discovered, on the northwest shore of King William's Island, a record announcing the death of Sir John Franklin and the abandonment of the *Erebus* and *Terror*. He published a very interesting account of his most important and successful searching voyage, the most memorable of its kind in history. He was knighted in 1860, and until 1865 commanded, in succession, H.M.S. *Bulldog*, *Doric*, and *Aurora*. From 1865 to 1868 he served as commodore of the Jamaica Station. From 1868, until promoted to rear-admiral in 1871, he was a naval aide-de-camp to the queen; from 1872 to 1877, admiral-superintendent of Portsmouth dockyard, when he was promoted to vice-admiral; and from 1879 to 1882 he served as commander-in-chief of the North American and West Indian Stations. In 1884 he became a full admiral and also an elder brother of the Corporation of Trinity House. He is the author of *The Voyage of the Fox in the Arctic Seas*.

MCCLOSKEY, JOHN, cardinal, born in Brooklyn, N. Y., March 20, 1810, of Irish parentage; died in New York city, October 10, 1885. He studied in the college and theological seminary at Emmetsburg, Md., and in 1834 was ordained to the Roman Catholic priesthood. Later he was sent to Rome to continue his studies. In 1835 he spent two years at the Gregorian College in that city, and also visited several parts of Europe. On his return to the United States, in 1837, he became pastor of St. Joseph's church in New York city, and in June, 1841, when Bishop Hughes opened St. John's College in Fordham, N. Y., he was appointed its president. In 1844 he was translated to the new Roman Catholic diocese of Albany, N. Y., where he continued seventeen years, and built the cathedral. In May, 1864, he succeeded Dr. John Hughes as archbishop of New York. Here he built the new St. Patrick's cathedral, and in 1875 was created cardinal-priest, being the first American elevated to that dignity. On several occasions he was called on to confer with the propaganda at the vatican; and he took part in the election of Leo XIII.

MCCLOSKEY, WILLIAM GEORGE, born in Brooklyn, N. Y., November 10, 1823; was ordained to the Roman Catholic priesthood in 1852, held the chair of moral theology in St. Mary's College, and in December, 1859, became the first president of the American College at Rome. In 1868 he was appointed bishop of Louisville, which office he still (1891) holds.

MCCCLURE, ALEXANDER K., born in Perry county, Penn., January 9, 1828; edited newspapers in his native State, and served in the legislature as a Republican. He supported Lincoln in 1860 and 1864, and Greeley in 1872; was an unsuccessful candidate for mayor of Philadelphia, and in 1874 established the *Times* of that city.

MCCOOK, ALEXANDER MCD., born in Ohio, April



22, 1831; graduated at West Point in 1852, served against the Apaches, and from 1858 to 1861 was instructor of infantry tactics at West Point. He commanded a regiment at the first battle of Bull Run, and a division of the army of the Ohio in the Tennessee and Mississippi campaigns. He was brevetted colonel for services at Shiloh, and finally brigadier-general and major-general United States army for gallant and meritorious services at Perrysville and elsewhere. After the war he became lieutenant-colonel, rose to the rank of major-general, in 1894, and was retired in April, 1895.

MCCOOK, ANSON GEORGE, born in Steubenville, Ohio, October 10, 1835; entered the volunteer service in 1861 as captain of an infantry regiment, of which he became colonel. He served in the army of the Cumberland, and with Sherman at Atlanta, commanded a brigade in Virginia, and was brevetted brigadier-general. From 1877 to 1883 he sat in congress as a Republican from New York, and was for a time secretary of the United States Senate.

MCCOOK, DANIEL, born in Pennsylvania, June 20, 1798; died in July, 1863. Although sixty-one years of age he volunteered in the national army in 1861, and was killed during one of Morgan's raids. He was the father of "the fighting McCooks," ten of whom served in the Federal army.

MCCOOK, EDWARD MOODY, born in Ohio, June 15, 1833; served in the Civil war with distinction, and was brevetted major-general of volunteers. From 1866 to 1869 he was United States minister to Honolulu, and he was twice territorial governor of Colorado.

MCCOOK, HENRY CHRISTOPHER, born in New Lisbon, Ohio, July 3, 1837; graduated at Jefferson College, Penn.; served as chaplain in the army, and held pastorates in Illinois, Missouri, and (since 1869) at Philadelphia. Doctor McCook, who is D.D. of Lafayette University, is vice-president of the American Entomological Society, and has written on natural history and other subjects.

MCCORD, GEORGE HERBERT, born in New York city in August 1848; first exhibited at the Academy of Design in 1868, and became an associate of that body in 1880. He is also a member of the American Water Color Society, and is well known as a landscape painter.

MCCORD, JOHN SAMUEL, born in Ireland in 1801; became a lawyer and afterward a judge in Canada, and served as commissioner of public works, and chancellor of the university at Lennoxville. He died in June, 1865.

MACCORMAC, SIR WILLIAM, was born at Belfast, Ireland, January 17, 1836, and died December 4, 1901. He was educated in Dublin, and in Paris; he became bachelor and master of arts, and master in surgery, and doctor of science *honoris causâ* of the Queen's University, and received its gold medal. He saw service at Metz and Sedan, during the Franco-German war, as surgeon-in-chief of the Anglo-American ambulance. He is one of the senior surgeons, and lecturer on surgery, at St. Thomas' Hospital, and consulting surgeon to the French Hospital. He is a fellow of the English and Irish Colleges of Surgeons, and examiner in surgery in the University of London. In 1881 he acted as honorary secretary-general of the International Medical Congress. Sir W. MacCormac is the author of *Work Under the Red Cross*, and treatises on *Antiseptic Surgery* and *Surgical Operations*, besides numerous surgical papers contributed to medical journals and addressed to medical societies.

MCCORMICK, ROBERT, F.R.C.S., deputy inspector general of hospitals and fleets, only son of Robert McCormick, a naval surgeon (lost in the ship-

wreck of H.M.S. *Defense*, in 1811), was born at Runham, Norfolk, July 22, 1800. He was a pupil of Sir Astley Cooper at Guy's and St. Thomas' hospitals. He became a member of the Royal College of Surgeons, December 6, 1822, and an honorary fellow in 1844. He entered the navy in 1823, on board H.M.S. *Queen Charlotte*, served three times on the West India station, and accompanied Sir Edward Parry in H.M.S. *Hecla* in his attempt to reach the North Pole. In 1836 Mr. McCormick joined H.M.S. *Terror*, commissioned for the relief of the ice-bound whale-ships; and in April, 1839, H.M.S. *Erebus*, employed with the *Terror* in the antarctic expedition, on a voyage for magnetic observation and discovery in the south polar regions. He was one of the first, in 1847, to call the attention of the admiralty to the fate of Sir John Franklin, and his long experience in polar service enabled him to lay before the board promising plans of search, at the time, for the missing ships, he himself volunteering to carry them out. He was at last sent out in the *North Star* in 1852. He was given the command of an open boat, manned by six volunteers from the *North Star*, which he called the *Forlorn Hope*, the season being too far advanced; but after a three weeks' exploration, amid tempestuous weather, he set at rest the then mooted question that there was no opening between Baring Bay and Jones' Sound. On March 13, 1853, he was benighted in a dense fog, and had to bivouac in the snowdrift, with a temperature of 32° Fahr. below zero. Having in vain volunteered to explore Smith Sound into the Polar Ocean, if given the command of the *Mary* yacht of twelve tons, lying useless at Beechey Island, his former boat's crew volunteering to accompany him, he returned to England in H.M.S. *Phoenix*. On January 6, 1857, he laid before the Royal Geographical Society and the admiralty his last plan of search, by King William's Land, through Bellot's Strait, for records of the lost ships. This plan was subsequently successfully carried out by Sir Leopold McClintock, and the all-important "record" found, as he had anticipated, near Cape Felix. He was awarded the Arctic medal in 1857, and the Greenwich Hospital pension in 1876. He died in 1891.

MCCOSH, JAMES, D.D., LL.D., was born in Ayrshire, Scotland, in 1811. He was educated at the Universities of Glasgow and Edinburgh, became a minister of the Church of Scotland in Arbroath in 1835, removed to Brechin in 1839, joined the Free Church of Scotland in 1843, and was appointed professor of logic and metaphysics in Queen's College, Belfast, in 1851. In 1868 he came to America, and became president of the College of New Jersey, at Princeton, and took a prominent place among American divines and educators. Besides numerous contributions to British and American reviews, he published many philosophical works, essays, sermons and addresses. He died November 16, 1894.

MCCOSKRY, SAMUEL ALLEN, born in Carlisle, Pa., November 9, 1804; entered West Point but did not graduate; afterward studied law and practiced for some years. In 1833 he was ordained in the Protestant Episcopal Church, served as a pastor for two years, and in July, 1836, became the first bishop of Michigan. He was D.D. of Columbia and of the University of Pennsylvania, and D.C.L. of Oxford, England. In 1878 he resigned his see, charges effecting his moral character were made, and he left the United States. He was formally deposed from the ministry by the house of bishops, and died in New York city in 1886.

MCCRARY, GEORGE W., was born in Evansville, Ind., August 29, 1835. With his parents in 1836 he went to that part of Wisconsin Territory which afterward became the State of Iowa, and began the practice of law in Keokuk in 1856. In 1857 he was a member



the State legislature, and from 1861 to 1865 he was State senator from Keokuk, and chairman of the committee on military affairs. In 1868 he was elected to congress, and served until March, 1877. In 1876 Judge McCrary introduced in congress the electoral commission bill, which resulted in the choice of Rutherford B. Hayes as president. When President Hayes formed his cabinet McCrary was given the war portfolio, which he held two years. He resigned to accept the judgeship of the United States circuit court, to which he was appointed in December, 1879. In March, 1884, he resigned his judgeship, and removed from Keokuk to Kansas City, where he became general consulting attorney for the Atchison, Topeka, and Santa Fé Railroad Company. He died in St. Joseph, Mo., June 23, 1890.

MCCULLOCH, BEN, born in Rutherford county, Tenn., November 11, 1811; died near Pea Ridge, Ark., March 17, 1862. In 1835 he started to join the party of David Crockett and other Texan revolutionists at Nacogdoches. Too long delayed on the road for that purpose, he united with Gen. Samuel Houston's army, and in 1836 did service at the battle of San Jacinto. Later he went to Gonzales, where he surveyed and located lands on the frontier, and in 1839 became a member of the Texan congress. When Texas entered the Union, in 1845, he was chosen a member of the legislature, and appointed major-general of militia. In the war between the United States and Mexico he won distinction as an officer of the Texas rangers. He was particularly successful as a scout and was made quartermaster with the rank of major. In 1849 Major McCulloch settled at Sacramento, Cal., where he was chosen sheriff of the county. In 1852 he returned to Texas, where he was appointed United States marshal under the Democratic administration, and later spent several years in Washington. At the outbreak of the war between the States he resigned his government employment and joined the Confederates, and was commissioned brigadier-general on May 14, 1861. He gathered a force of men, and marched through Arkansas toward Missouri, formed a junction with the troops under Gen. Sterling Price and encountered the national troops under Gens. Nathaniel Lyon and Franz Sigel. The battle of Wilson's Creek was the result, where the Confederates were victorious. Later he led a division at the battle of Pea Ridge, and, while riding forward to reconnoiter, was killed by a bullet.

MCCULLOCH, HUGH, born in Maine, December 7, 1808; studied at Bowdoin College and settled in Indiana in 1833. He became cashier and later president of the bank of the State of Indiana. In 1863 he became comptroller of the currency and assisted Secretary Chase in carrying out the provisions of the act organizing national banks. He was secretary of the treasury 1865-69, was instrumental in converting the national debt and strongly favored resumption of specie payments and reduction of the debt. From 1871 until 1878 he was a banker in England. In October, 1884, he succeeded Judge Gresham as secretary of the treasury, for the rest of President Arthur's term. He wrote *Bi-Metallism and Men and Measures of Half a Century*, an interesting historical review. He died May 24, 1895.

MCCULLOUGH, JOHN EDWARD, actor, born in Coleraine, Ireland, November 2, 1837; died in Philadelphia, Penn., November 8, 1885. He came to Philadelphia in 1853, and played for some time with an amateur company. He began his public career as an actor at the Arch street theater in Philadelphia, playing a minor part in *The Belle's Stratagem*. He was an ardent admirer of the acting of Edwin Forrest, played second parts to him for seven years, and to a marked

degree copied his style. In 1869 McCullough, in connection with Lawrence Barrett, managed the California theater. From 1873 until 1883 he performed in most of our large cities, in the robust parts formerly held by Forrest, such as "Damon," "Brutus," "Jack Cade," "Spartacus," "Virginius," "Othello," and "Coriolanus." In 1881 he appeared at the London theaters without making much impression, and soon returned to the United States. At about this time he gave way to excesses of intemperance. His last appearance was in Chicago, September 29, 1884, where he broke down, and was led from the boards in the midst of his performance, and closed his life in a lunatic asylum.

MACDONALD, ANDREW A., born in Prince Edward Island, February 14, 1829; represented Georgetown in the Assembly, 1854-70, and then served in the legislative council until 1873, when he became postmaster-general of the Province. In 1884 he was appointed lieutenant-governor of Prince Edward Island.

MACDONALD, GEORGE, poet and novelist, was born at Huntly, Aberdeenshire, in 1824, and was educated at the parish school there, and at King's College and University, Aberdeen. After taking his degree he became a student for the ministry at the Independent College, Highbury, London, and was for a short time an Independent minister, but soon retired, became a lay member of the Church of England, and settled in Bordighera to engage in literature. He is the author of *The Seaboard Parish*, *Robert Falconer*, and other novels and of numerous books for juveniles.

MACDONALD, HUGH, born in Nova Scotia, May 4, 1827; was admitted to the bar in 1855, and became queen's counsel in 1872. He served in the Dominion parliament 1867-73, and as president of the privy council and minister of militia. In November, 1873, he was appointed judge of the superior court of Nova Scotia.

MCDONALD, JAMES, born in Nova Scotia, July 1, 1828; was admitted to the bar in 1857, and sat in the legislature from 1859 until 1872. From 1874 until 1881 he was a member of the Canadian parliament. In October, 1878, he was appointed minister of justice, and in 1881 chief justice of Nova Scotia.

MACDONALD, JAMES W. A., born in Steubenville, Ohio, August 25, 1824; studied sculpture in the intervals of business, and in 1854 produced a portrait bust of Thomas H. Benton. Among his works are a statue of Fitz-Greene Halleck, a colossal equestrian statue of Gen. Nathaniel Lyon, and busts of William Cullen Bryant, Charles O'Connor, Thurlow Weed, and Peter Cooper.

MACDONALD, JOHN S., was born in Canada, December 12, 1812; died June 1, 1872. He was admitted to the bar in 1840, and elected to parliament as a Conservative in 1841. In 1849 he became solicitor-general, and speaker in 1852-54. He afterward served a short time as attorney-general. In 1862 he was called upon to form a government on the defeat of the Cartier-Macdonald administration, and he held office for two years. In 1867 he became premier of the Province of Ontario, but resigned in 1871. He remained a member of parliament until his death.

MACDONALD, JOHN HAY ATHOLE, was born in 1836; was educated at the Edinburgh Academy and University, and in 1859 was called to the Scottish bar. He unsuccessfully contested the city of Edinburgh in the Conservative interest in 1874 and 1880, and Haddington Burghs in 1878, but in 1885 he was returned for the Universities of Edinburgh and St. Andrews. In 1876 he became solicitor-general for Scotland. From 1880 to 1885 he was sheriff of Perthshire, and dean of the faculty of advocates from 1882 to 1885.



On the formation of Lord Salisbury's first ministry in 1885, Mr. Macdonald was appointed lord advocate of Scotland, and in the second administration he held the same office.

MCDONALD, JOSEPH EWING, born in Ohio, August 29, 1819; died June 21, 1891. He was elected attorney-general of Indiana, 1856; practiced law in Indianapolis; served in Congress as a Democrat, 1849-51 and was United States senator, 1875-81.

MACDONALD, SIR JOHN ALEXANDER, Canadian lawyer and statesman, born at Glasgow, Scotland, January 11, 1815; was educated at Kingston, elected to parliament for Kingston as a Conservative in November, 1844, and long represented that city, and was a member of the executive council, receiver-general and commissioner of crown lands, 1847-50. He was out of office until difficulties connected with the lands reserved for the Protestant clergy, and other questions, led to a coalition in 1854, Mr. Macdonald joining the government as attorney-general, which post he held until May, 1862, being a part of the time premier. In January, 1862, the militia department was reorganized, and Mr. Macdonald appointed minister of militia. Defeated on their militia bill of that year, he and his colleagues resigned, and remained in opposition until March, 1864, when he again accepted office as attorney-general in the cabinet of Sir E. P. Tache. But the government was unable to command a sufficient majority, and the opposition to federalize British America having been reported by a committee of the legislative assembly, a conference took place between the leaders on both sides, which resulted in a coalition, with the view of maturing and carrying a measure to unite in one government Canada and the maritime provinces. On the death of Sir E. P. Tache, in July, 1865, Mr. Macdonald again became minister of militia, which office, with that of attorney-general of upper Canada, he continued to hold till confederation. This union of the provinces of British North America he was mainly instrumental in bringing about, having been a delegate to the conference in Charlottetown in 1864, and in Quebec in the same year, and he was chairman of the London Colonial Conference, 1866-67, when the act of Union known as the "British North America Act" was passed by the imperial parliament. On July 1, 1867, when the new constitution came into force, Mr. Macdonald was called upon to form the first Government and was appointed minister of justice and attorney-general of Canada, an office he continued to fill until he and his ministry resigned on the Pacific Railway charges, November, 1873. In 1871 Mr. Macdonald was one of the joint high commissioners and plenipotentiaries to act in connection with the commission named by the president of the United States for the settlement of the Alabama claims, resulting in the treaty of Washington, May, 1871. In October, 1878, on the fall of the Mackenzie Reform Government, Mr. Macdonald was intrusted with the task of forming a new administration, taking himself the position of minister of the interior (until 1885) and premier of the Dominion, which he held until his death on June 6, 1891. In 1865 Mr. Macdonald received the honorary degree of D.C.L. from the University of Oxford; and in 1867 was made a K.C.B. In 1872 he was created a Knight Grand Cross of the Royal Order of *Isabel la Catolica* (of Spain). For more than forty years Sir John Macdonald was the acknowledged leader of the Conservative party of Canada.

MCDONOUGH, JOHN, born in Baltimore, Md., December 29, 1779; died in McDonough, La., October 26, 1850. His father was in General Braddock's expedition, and later served in the Revolution. The

son was well educated; at the age of seventeen became a clerk in Baltimore, Md., and in 1800 removed to New Orleans, where he was successful in business and accumulated a fortune. In 1830 he became vice-president of the American Colonization Society, and contributed to its support. When he died he left the bulk of his fortune, about \$2,000,000, to the cities of Baltimore and New Orleans for the establishment of free-schools. The McDonough labor-schools were established, at which seventy boys are annually received to learn farming and elementary English education. He also left bequests to the American Colonization Society and to the New Orleans boys' orphan asylum.

MACDONOUGH, THOMAS, born in New Castle county, Del., December 23, 1783; died at sea, November 16, 1825. He entered the navy as midshipman in 1800, and in 1803, under Commodore Preble, served in the war against Tripoli. In 1804 he acted under Commodore Decatur. In 1813 he was promoted master-commander, and during the second war between the United States and Great Britain, commanded a flotilla on Lake Champlain, anchored in Plattsburg Bay. He had in all fourteen vessels, carrying eighty-six guns, with a complement of 850 men. In August, 1814, a British army, under Gen. Sir George Prevost, advanced on the western shore of Lake Champlain to Plattsburg, accompanied by a lake squadron of sixteen vessels, carrying ninety-five guns, and about 1,000 men. The two fleets soon came to an action, in which the British were defeated. For this victory Macdonough was made captain, received a gold medal from congress, and was presented by the State of Vermont with an estate, situated near the scene of the engagement. He afterward commanded the United States Mediterranean squadron.

MCDUGALL, WILLIAM, puisne judge in the province of Quebec, Canada, was born at Toronto, January 25, 1822. He was educated at Toronto and at Victoria College, and afterward studied law. From 1848 till 1858 he conducted at Toronto a monthly journal on agriculture, which obtained a large circulation in all the provinces; and from 1850 till 1857 edited the *North American*, which was merged in the *Toronto Globe* in 1857. He was first elected to parliament as a Reformer in 1858; was appointed commissioner of crown lands, and a member of the executive council in a Reform Ministry in May, 1862; and resigned office with his colleagues in March, 1864. In June of the same year he was offered a seat in a coalition ministry (as one of three representatives of the Liberal party of Upper Canada), formed to carry a measure to unite British America under one government, and accepted office as provincial secretary. During the Fenian troubles in the summer of 1866, Mr. McDougall was charged with the duties of minister of marine, and with the aid of Vice-Admiral Sir James Hope, organized a navy of seven gunboats. In the first Dominion government of 1867 he was made minister of public works, which position he held until 1869, when he was commissioned lieutenant-governor of Rupert's Land and the Northwest Territories. In 1868 he was sent to England to confer with the general government on some questions of a constitutional character that had arisen between the provinces. In 1873 he was the special commissioner of the Dominion Government to confer with the imperial authorities on the subjects of the fisheries and emigration. Mr. McDougall sat for South Simcoe in the Ontario legislature from May, 1875, to September, 1878, when he resigned to contest Halton in the Dominion parliament, in which he was successful. He was created C.B. (Civil) in 1867. He is now a puisne judge in the Province of Quebec. His son,



**JOSEPH E. McDOUGALL** (born in 1846), is judge of the maritime court of Ontario.

**MCDOWELL, IRVIN**, born at Columbus, Ohio, October 15, 1818; studied in a military school in France, and graduated from the Military Academy at West Point in 1838, remaining there until 1845, as instructor in tactics and adjutant. On the breaking out of the Civil war he was made a brigadier-general and appointed to the command of the Federal troops at Washington. He was in command when the Union army was defeated at the battle of Bull Run, July 21, 1861. General McClellan took the command soon after that battle, and General McDowell was placed in charge of the troops around Washington. He was made a major-general of volunteers, March 14th, and commander of the department of the Rappahannock, April 14, 1862. He took part in the various battles fought by General Pope, in August, 1862, but was relieved from his command September 5th. In 1863-64 he was president of the court for investigating cotton frauds, and of the board for retiring disabled officers. From July, 1864, to June, 1865, he was in command of the department of the Pacific. In November, 1872, he was made major-general of the regular army, and successively had command of the various military departments into which the United States is divided, until he was placed on the retired list in 1882. He died in San Francisco, May 4, 1885.

**MCDUFFIE, GEORGE**, born in Columbia county, Ga., about 1788; died in Sumter district, S. C., March 11, 1851. He was admitted to the bar in 1814, and practiced in Edgefield, S. C. Four years later he became a member of the legislature, during which time he had several personal and political controversies that led to a number of duels, in one of which he was maimed for life. He was an able writer on the local questions of the day, and issued a series of pamphlets that are collectively known as *The Crisis*. From 1821 until 1834 he was a Democratic member of congress. Originally he had been a supporter of President Jackson, but opposed him on the State-rights question and became an ardent champion of nullification. He wrote the address to the people of the United States that was issued by the South Carolina convention of 1832. From 1834 until 1836 he was governor of South Carolina, and from 1842 until 1846 served as United States senator.

**MACEDO, JOAQUIM MANOEL**, born in Brazil, June, 1820, became, in 1850, professor of natural history, entered politics in 1854, and was elected deputy of the State of Rio Janeiro several times. He is the author of numerous novels, some dramas and comedies, and has a reputation as a lyric poet.

**MCENTEE, JERVIS**, painter, born in Rondout, N. Y., July 14, 1828. In 1853 he first exhibited at the National Academy of Design, and in 1861 was elected an academican. In 1869 he went to Europe for study, visiting the principal art galleries and sketching in Italy and Switzerland. Like many American painters his art was limited to the painting of landscapes and he usually delineated nature in her somber aspects and autumnal scenes. He died January 27, 1891.

**MACFARREN, SIR GEORGE ALEXANDER**, son of the late G. Macfarren, dramatic author, born in London, March 2, 1813, was educated at the Royal Academy of music, and was appointed member of the board of professors of the academy, 1860, and of the committee of management of the same, in 1868. In 1875, upon the death of Sir W. Sterndale Bennett, Mr. Macfarren succeeded him as principal, chairman of the committee, and one of the directors of the Royal Academy of Music. He was knighted May 24, 1883. Sir G. A. Macfarren composed *The Devil's Opera*,

*Don Quixote*, *King Charles II.*, *Sleeper Awakened*, *Robin Hood*, *Frey's Gift*, *Jessy Lea*, *She Stoops to Conquer*, *Soldier's Legacy*, and *Helvellyn*; the oratorios of *St. John the Baptist*, *The Resurrection*, *Joseph*, and *King David*, and many other works. He died in London in 1887.

**MACGAHAN, J. A.**, born in Perry county, Ohio, June 12, 1844; died in Turkey, June, 1878. In 1870, while visiting in Europe, he was engaged as special correspondent for the New York *Herald* and undertook to follow the fortunes of the French army of the Loire. His work during the campaign attracted much attention and was followed by letters from Paris describing the rise and fall of the commune. He formed an intimacy with some of the communist leaders and was arrested by the Versailles troops, but was released through the intercession of the American minister. Afterward he became the special correspondent for the *Herald* at St. Petersburg, and reported the proceedings of the Geneva conference. In January, 1873, he started on his famous expedition to Khiva. In 1874 he published in London his *Campaign on the Oxus*, and the *Fall of Khiva*. In the same year he joined the Carlist forces in Spain and for ten months contributed letters to his paper from that country. In June, 1875, he sailed in the *Pandora* on its Arctic expedition. A year later he visited Bulgaria in company with Eugene Schuyler, and his letters on the condition of affairs in that unhappy country were reprinted under the title of *Turkish Atrocities in Bulgaria*. During the Russo-Turkish war, which followed, he met with a severe accident, but managed to keep in the field, and described the scenes of battle from the fight at Shipka Pass to the surrender of Plevna. He died at Pera, a suburb of Constantinople, of an epidemic disease.

**McGEE, THOMAS D'ARCY**, born in Ireland in 1825; killed in Ottawa, Canada, April 7, 1868. He became a parliamentary correspondent of the *Dublin Freeman's Journal*, identified himself with the "Young Ireland" party, and then joined the staff of the *Nation*. In 1848 he was compelled to leave Ireland, came to the United States, and established a newspaper in advocacy of the claims of Ireland to independency. About 1855 he abandoned his nationalistic opinions and became a Loyalist. He removed to Canada, where he established a paper, and in 1857 was elected to the Canadian parliament from the city of Montreal. In 1864 he became president of the executive council, an office he retained until 1867. He took an active part in the movement for confederacy after the Union, and became a member of the Ottawa parliament, but he had rendered himself obnoxious to the Fenian element of the Irish party, and while returning from a night session of the House he was assassinated at the door of his hotel.

**McGEE, W. J.**, born in Iowa, April 17, 1853; in 1881 became a geologist attached to the United States service. He is a member of many scientific societies and has written extensively on geology in technical journals.

**McGLYNN, EDWARD**, born in New York city, September 27, 1837. He was educated at the public schools of New York city, and for ten years, from 1851 to 1860, studied theology at the college of the Propaganda in Rome. In 1860 he was ordained priest of the Roman Catholic church, and on his return to the United States became a hospital chaplain. In 1866 he became pastor of St. Stephen's church in New York city. His unwillingness to establish a parochial school in connection with his church brought him in to disfavor with the archbishop of his diocese and his coadjutor, Mgr. Preston. He also spoke in favor of the land theories of Henry George on several public occasions, for which he came under the censure of his church, and was suspended



from his pastoral functions. Cited to appear for a hearing at the Vatican he ignored the papal demands, and was excommunicated in 1887. He lectured for some time but went to Rome in 1892 and was restored to his ministerial functions. Died Jan. 7, 1900.

MACGREGOR, JOHN, born at Gravesend, England, January 24, 1825. He entered Trinity College, Cambridge, and graduated as B.A. and a wrangler. In 1845 Mr. MacGregor began to write and sketch for *Punch*. In 1847 he entered at the Inner Temple, and graduated as M.A. at Cambridge. During the revolution in Paris in 1848 he visited that metropolis; and, in 1849-50 made a tour in Europe and the Levant, and through Egypt and Palestine. In 1851 he was called to the bar. He subsequently visited Russia, and every other country in Europe, as well as Algeria and Tunis, and the United States and Canada, and published an account of his observations. In 1865 he made his first canoe voyage, and published in 1866 his logbook, under the title of *A Thousand Miles in the Rob Roy Canoe on Rivers and Lakes of Europe*, which has passed through many editions. He died July 16, 1892.

MCGUIRE, HUNTER HOLMES, M.D., LL.D., born in Virginia, October 11, 1835, entered the Confederate service as medical director of the army of the Shenandoah, and later of the second army corps. From 1865 until 1880 he was professor of surgery in the Virginia Medical College at Richmond, in 1885 became professor emeritus and was president of the American Surgical Association in 1887.

MACHRAY, ROBERT, first Canadian archbishop of the Church of England, born in 1832 at Aberdeen, and educated at Cambridge, was a University examiner and vicar of Madingley till he was appointed bishop of Rupert's Land, now Manitoba, in 1865. He is chancellor of St. John's College, Manitoba, and prelate of the Order of St. Michael and St. George, and at the first General Synod of the Church of England in Canada, September, 1893, was made primate of the dominion, and archbishop of his see.

MCILVAINE, CHARLES PETTIT, born in New Jersey in 1799, graduated at Princeton, became a deacon in the Protestant Episcopal Church, 1820, held a chair in the University of the City of New York, and in 1832 was elected bishop of Ohio. He was D.C.L. of Oxford and LL.D. of Cambridge. In March, 1873, he died while on a visit to Europe for his health.

MCINTOSH, LACHLAN, soldier, born in Scotland, March 17, 1725; died in Savannah, Ga., February 20, 1806. Brought to America when a boy, he was appointed brigadier-general in 1776; in 1777 challenged Button Gwinnett to a duel and mortally wounded him; in 1778 quelled the western Indians, and in 1779 was captured at Charleston. In 1784 he became a member of congress for a short time.

MCINTYRE, ALEXANDER FRASER, born in Ontario, December 25, 1847, educated at McGill University, was admitted to the bar in 1872, and in 1875 entered the Ontario assembly as representative from Cornwall. He was president of the Liberal association of Ottawa, and held an important position in the political field of the province.

MACKARNES, JOHN FIELDER, D.D., bishop of Oxford, was born December 3, 1820, and received his education at Eton and at Merton College, Oxford. He took his B.A. degree in 1844, with a second class in classics. Shortly afterward he was elected to a fellowship at Exeter College. In 1855 he was presented to the rectory of Honiton, Devonshire. In 1858 he was promoted by the late bishop of Exeter (Doctor Philpotts) to an honorary prebendal stall in Exeter cathedral. In December, 1869, he was appointed, on the recommenda-

tion of Mr. Gladstone, to the bishopric of Oxford, vacant by the translation of Doctor Wilberforce to the see of Winchester. He died September 16, 1889.

MACKAY, CHARLES, LL.D., was born in Perth in 1804 and removed in infancy to London. Proceeding to Belgium to complete his education, he was a witness of the startling events of the revolution that broke out in 1830, and published in 1834 a small volume of poems. He became editor of the Glasgow *Argus* in September, 1844, and retired from the management of that paper at the general election in 1847, in consequence of a schism in the Liberal party. In 1846 the Glasgow University conferred on him the title of LL.D. Doctor Mackay, on the establishment of the *Daily News*, under the editorship of Mr. Charles Dickens, wrote for that journal a series of poems. For some years he contributed leading articles to the *Illustrated London News*, and he established the *London Review* in 1860. Doctor Mackay visited the United States from the winter of 1857 to the spring of 1858 on a lecturing tour, and published an account of his experiences under the title of *Life and Liberty in America*. He returned to America in 1862, and resided in New York until 1866, as correspondent of the *London Times* in that city during the Civil war. As a prose writer he is known by his *Memoirs of Extraordinary Popular Delusions*, published in 1841. A collection of his contributions to *All the Year Round*, *Robin Goodfellow*, and other periodicals, was published, with the title of *Under the Blue Sky*, in 1871. Doctor Mackay died December 24, 1889.

MACKAY, ROBERT, born in Montreal in 1816; died in 1888. He practiced law after 1837, became queen's counsel in 1867; judge of the supreme court in 1868, and from the latter year until 1883 was judge of the court of queen's bench.

McKEAN, THOMAS, signer of the Declaration of Independence, was born in New London, Penn., March 19, 1734, and died in Philadelphia, June 24, 1817. He was sent to the general assembly in 1765. Subsequently he held various public offices in Delaware, and from 1774 until 1783 was a member of the continental congress from that State. In 1777, although residing in Pennsylvania, he was appointed president of Delaware, and in a single night wrote its State constitution. From 1777 until 1799 he was chief justice of Pennsylvania, and from 1799 until 1808, served as governor of that State. By a strange oversight of the printer his name does not appear subscribed to the copy of the signers as published in the journal of congress. He was vice-president of the Pennsylvania Society of the Cincinnati, and was given the degree of LL.D. by three colleges in succession. With Prof. John Wilson he published *Commentaries on the Constitution of the United States*.

MACKENZIE, ALEXANDER, M. P., ex-premier of the Canadian Dominion, was born in Perthshire, Scotland, January 28, 1822. He was educated at Perth and at Dunkeld, after which he emigrated to Canada, and for a time became a contractor and builder, first at Kingston, and latterly at Sarnia, Province of Ontario. For some years he edited the *Lambton Shield*, a reform journal. He entered parliament in 1862 as member for Lambton, and represented that constituency in the Canadian assembly until confederation. In 1867 he was returned to the Dominion parliament, and concurrently represented West Middlesex in the Ontario legislature during the years 1871-72, holding the office first of provincial secretary, and afterward of provincial treasurer. In October of the latter year he resigned his seat in the local house; and in 1873, on the defeat of the Macdonald ministry, was called upon to form an administration in the Dominion parliament, and accepted



the office of premier and minister of public works. This post he held until the fall of his government in 1878. In 1875 he visited the mother country, when he was presented with the freedom of the Scottish towns of Irvine, Dundee, and Perth. In 1881, on the occasion of a second visit to his native land, he was presented with the freedom of Inverness. He remained a member of the Dominion parliament until his death, April 17, 1892.

MACKENZIE, SIR ALEX'R. CAMPBELL, was born in Edinburgh in 1847, and sent to Germany at the age of ten, to study music. Four years later he entered the dual orchestra, at Schwarzburg-Sondershausen, and remained in Germany till 1862, when he went to London to study the violin under M. Sainton. The same year he was elected king's scholar at the Royal Academy of Music. In 1865 he returned to Edinburgh as a teacher of the pianoforte. He has written *Cervantes*, an overture for orchestra; a scherzo for the same; overture to a comedy; a string quartet, and many other pieces in MS., but the composition which made him famous was his opera *Colomba*, based upon Mérimée's celebrated story. This work (of which the libretto was written by Doctor Hueffer) was produced with great success by the Carl Rosa Company at Drury Lane, 1884. His second opera, *The Troubadour*, was produced in the summer of 1886. His *Veni Creator Spiritus* and his oratorio *Bethlehem* (1891) were very successful.

MACKENZIE, ALEXANDER SLIDELL, naval officer, born in New York city, April 6, 1803; died in Tarrytown, N. Y., September 13, 1848. His father was John Slidell; his mother's name, Mackenzie, was added to his own in 1837, for family reasons. He entered the United States navy in 1815, became lieutenant in 1825, and commander in 1841. During the siege of Bahia and its surrender he was in command of the *Dolphin*. In 1842 he was sent to the west African coast in command of the United States brig *Somers*, manned mostly by naval apprentices. On the return voyage a midshipman, John C. Spencer, son of the United States secretary of war, with two others, was arrested for mutiny, tried by a council of officers, and sentenced to be hanged at the yard-arm. This affair created much sensation and a wide difference of opinion. Officers of the navy justified the sentence on technical grounds, but the public at large censured Mackenzie for hasty and unnecessary severity. When the *Somers* arrived in New York city a court of inquiry was ordered to investigate the circumstances, with the result of a full approval of Mackenzie's conduct. Later he was sent on a private mission to Cuba, was ordnance officer at the siege of Vera Cruz, and commanded a division of artillery at the storming of Tabasco.

MACKENZIE, GEORGE HENRY, born in Scotland, March 24, 1837; came to the United States in 1863, and served in the Civil war, in which he attained the rank of captain of volunteers. He developed a remarkable capacity for the game of chess, of which he was, perhaps, the greatest modern exponent. Between 1878 and 1887 he contested in and carried off the prizes at tournaments in Paris, Berlin, Vienna, London, Hamburg, and Frankfort. He defeated Zukertort, Blackburne, and almost every other prominent player except Steinitz. In 1887 he won fifteen out of twenty games, against the most formidable competitors, and received the championship medal. He died April 13, 1891.

MACKENZIE, RANDALL S., born in Westchester county, N. Y., July 27, 1840; graduated at West Point in 1862, and joined the engineer corps. He was wounded at Manassas, fought at Gettysburg, Chancellorsville, and Petersburg, and received the brevets of brigadier-general in the regular army and major-general

of volunteers, in March, 1865. He was retired in 1884 on account of disability, and died on January 19, 1889.

MACKENZIE, ROBERT SHELTON, born in Ireland, June 22, 1809; became editor of an English journal, and was for many years the English correspondent of a New York paper. In 1852 he came to the United States and settled first in New York, and afterward in Philadelphia. He became identified with the Philadelphia press, and engaged in literature, art, and pursuits of various kinds. He was made LL.D. of Glasgow University in 1834, and D.C.L. of Oxford, England, in 1844. His works consisted principally of the lives of literary men and of sketches. He died in Philadelphia in November, 1880.

MACKENZIE, SIR MORELL, M.D. (London), was born at Leytonstone, Essex, England, in 1837, and educated at the London Hospital Medical College, Paris, and Vienna. He founded the hospital for diseases of the throat, Golden Square, 1863; and in the same year obtained the Jacksonian prize from the Royal College of Surgeons for his essay on diseases of the larynx. He was soon afterward elected assistant-physician to the London hospital, becoming in due course full physician, and was appointed lecturer on diseases of the throat, which position he held until his death. He was a corresponding member of the Imperial Royal Society of Physicians of Vienna, and of the Medical Society of Prague, and an honorary fellow of the American Laryngological Association. Doctor Mackenzie was the author of numerous publications on laryngological subjects, and in particular of a systematic treatise in two volumes, on *Diseases of the Throat and Nose*, which is acknowledged to be a standard work. Sir Morell Mackenzie received his title from Queen Victoria for his services to the late Emperor Frederick of Germany. He died February 3, 1892.

MACKENZIE, WILLIAM LYON, born in Dundee, Scotland, March 12, 1795; died in Toronto, August 28, 1861. After a brief visit to France Mr. Mackenzie came to Canada early in 1820, where he became connected with the works of the Lachine canal, and later opened a store in Toronto. In 1823 he removed to Queenstown, where he published the *Colonial Advocate*. Subsequently he removed to Toronto, where, in June, 1826, the establishment was raided and destroyed by persons whom his newspaper had held up to animadversion. In 1832 he visited England with a petition of grievances, and secured the dismissal from office of the attorney-general and solicitor-general of Upper Canada, and also a veto of the Upper Canada bank bill. In March Mr. Mackenzie was chosen the first mayor of Toronto. In July, 1836, he issued the first number of *The Constitution*, in August, 1837, published in his paper what was virtually a declaration of Canadian independence, and in December instigated rebellion. At the head of an armed body of insurgents he demanded of Lieutenant-governor Head a settlement of all provincial difficulties by convention; this was not acceded to. In return he threatened to march on the city, arrest the governor and his council, and declare Canada a republic. An encounter took place four miles from Toronto, on December 7, 1837, where the insurgents fled before a superior force of regulars, and took up a position on Navy island in Niagara river. Here, reinforced by 500 American sympathizers, Mackenzie formally established a provisional government, and offered a reward of \$2,500 for the apprehension of the lieutenant-governor, Sir Francis B. Head. In return he was outlawed, his camp cannonaded by British troops, and all volunteering prevented by the interference of the United States. Mackenzie fled to the United States, and was sentenced



to a year's confinement in Rochester jail, for violation of the neutrality laws. Later he became employed on several newspapers. In 1849, when political amnesty was proclaimed, he returned to Canada, and in 1850 was elected to parliament, where he sat until 1858. For a number of years he published in Toronto *Mackenzie's Message*, a weekly newspaper. He died in comparative poverty. His persistent agitation, however, was not without effect as all the reforms for which he battled have since been granted.

MCKINLEY, WILLIAM, President, was born at Niles, Ohio, January 29, 1844; enlisted in the U. S. army in May, 1861, as a private soldier in the 23d Ohio volunteer infantry, and was mustered out as captain of the same regiment and brevet major in September, 1865; was prosecuting attorney of Stark county, Ohio, 1869-71; was elected to the forty-fifth congress (1877), and sat continuously until 1891, becoming one of the leaders of the Republican party and its chief advocate of protection. In the 51st congress he was chairman of the Committee on Ways and Means, and in 1890 introduced the tariff measure, adopted and since known as the McKinley Bill. He was defeated for reelection in 1890, but was elected governor of Ohio in 1891. He was reelected in 1893 by a plurality of 80,995 over Lawrence Neal, a revenue reform Democrat, and at once became prominent as a Presidential possibility for 1896. McKinley became President in 1896, and was elected again in 1900. He was shot at Buffalo in Sept., 1901, dying on the 14th of that month.

MACKINTOSH, CHARLES HERBERT, born in London, Ontario, 1843; was for many years connected with journalism in Canada, and for five years in Chicago. In 1879 he became mayor of Ottawa, and in 1882 he was elected to the Dominion parliament from that city.

MCLANE, LOUIS, was born in Delaware, in May, 1786, represented his native State in congress from 1817 to 1827, and for two years acted as United States senator. From 1829 to 1831 he served as minister to England, and in April, 1831, was appointed secretary of the treasury by President Jackson. He was not in accord with Jackson's policy in regard to the removal of the government deposits from the United States bank, and was soon removed from the treasury department and made secretary of state. This position he resigned in 1834, and in 1845 he again became minister to England. In this capacity he negotiated with the English Government on the vexed questions in relation to the Oregon boundary, and when this was settled he returned home. He died in October, 1857.

MCLANE, ROBERT M., born in Wilmington, Del., June 23, 1815, studied in St. Mary's College and in Paris. He was graduated from West Point in 1837 and assigned to the artillery. He took part in the Seminole war, and in 1843 resigned his army commission and began the practice of law in Delaware. In 1844 he was elected to congress from Maryland and was reelected, 1847 and 1849. He supported the Mexican war policy of Polk. In 1853 he was sent as United States commissioner to China, Japan, Siam, Corea, and Cochin-China. He was accompanied by a naval force and accomplished the mission on which he was sent and returned home in 1856. In 1859 he was appointed minister to Mexico. He took no active part in the Civil war, and in 1877 became a State senator for Maryland. In 1878 he was elected to the House of Representatives, and in 1883 he was chosen governor of Maryland. In 1885 he was appointed minister to France by President Cleveland. He resigned in 1889, and died April 16, 1898.

MCLAREN, WILLIAM EDWARD, born in Geneva, N. Y., December 13, 1831, graduated at Washington

and Jefferson College, Pennsylvania, in 1851, and afterward studied at the Alleghany Presbyterian Theological Seminary, whence he was graduated in 1860. He was ordained in the Presbyterian ministry, and for three years served as a missionary in South America. On his return to the United States he decided to enter the Protestant Episcopal ministry, in which he was ordained in 1872. He held a pastorate in Cleveland, Ohio, for three years, and in September, 1875, was elected bishop of Illinois. When, two years later, two dioceses were set apart from his own, he retained that part of the State now included in the diocese of Chicago, over which he still presides.

MCLAWS, LAFAYETTE, born in Augusta, Ga., January 15, 1821; graduated at West Point in 1842, and took part in the battle of Monterey and the siege of Vera Cruz. He served against the Mormons in 1858, and against the Navajos in 1859-60, and resigned to join the Confederacy in 1861. On May 23, 1862, he was promoted major-general. His division formed the right wing at Chancellorsville and was in the thick of the fight at Gettysburg. He commanded in Georgia in 1864 and afterward in North Carolina. After the war he held Federal offices in Georgia. Died July 24, 1897.

MCLELAN, ARCHIBALD W., born in Nova Scotia, December 24, 1824; served in the assembly of that province from 1858 to 1867. Then he entered the Dominion parliament, and in June, 1869, was sent to the Senate. He became president of the privy council of Canada and a member of the cabinet in May, 1881. In July, 1882, he was appointed minister of marine and fisheries; in December, 1885, minister of finance, and in January, 1887, postmaster-general.

MACMAHON, MARIE EDMÉ PATRICK MAURICE DE, Duc de Magenta, a marshal of France, ex-president of the French Republic, born at Sully, July 13, 1808; derives his descent from an Irish family. The MacMahons, carrying their national traditions, ancestral pride, and historic name to France, mingled their blood by marriage with the old nobility of their adopted country. This member of the family entered the military service of France in 1825, at the school of St. Cyr; was sent to the Algerian wars in 1830; while acting as aide-de-camp to General Achard, took part in the expedition to Antwerp in 1832; attained to the rank of captain in 1833; and, after holding the post of aide-de-camp to several African generals, and taking part in the assault of Constantine, was nominated major of foot chasseurs in 1840, lieutenant-colonel of the Foreign Legion in 1842, colonel of the 41st of the line in 1845, and general of brigade in 1848. When, in 1855, General Canrobert left the Crimea, General MacMahon, then in France, was selected by the emperor to succeed him in the command of a division; and when the chiefs of the allied armies resolved on assaulting Sebastopol, September 8th, they assigned to General MacMahon the perilous post of carrying the works of the Malakoff. For his brilliant success on this occasion he was made grand cross of the Legion of Honor; and in 1856 was nominated a knight grand cross of the Bath. General MacMahon, who took a conspicuous part in the Italian campaign of 1859, received the baton of a marshal, and was created duke of Magenta, in commemoration of that victory. He was nominated to the command of the 3rd corps d'armée, October 14, 1862, governor-general of Algeria September 1, 1864. In this capacity he inaugurated a new system, the tendency of which was to create an Arab kingdom. It proved, however, a complete failure. On the breaking out of the war with Prussia, Marshal MacMahon was intrusted with the command of the First Army Corps, whose headquarters were at Strasburg. On August 6, 1870, the crown prince of



Prussia attacked the united army corps of General MacMahon, Faily, and Canrobert, drawn up in a position at Woerth. MacMahon had under him 50,000 men in all, and occupied a strong defensive position on the slopes of the Vosges, but the French line was turned by the Prussians at two points, and their left and center broken, notwithstanding a desperate charge of cavalry, which was ordered by MacMahon as a last resort. MacMahon retired on the following day to Saverne, next to Toul (13th), Rheims (21st), and Rathel (22d). On the 30th his forces were again defeated by the Prussians, being driven back from Beaumont beyond the Meuse, near Mouzon. He was chief in command at the battle of Sedan (September 1st), but received a severe wound in the thigh at the beginning of the engagement, whereupon the command devolved on General Wimpffen, who signed the capitulation. MacMahon was made a prisoner of war, and conveyed into Germany. Having recovered from his wound, he left Wiesbaden for France, March 13, 1871, and was nominated in the following month commander-in-chief of the army at Versailles. He successfully conducted the siege of Paris against the commune, and ably assisted M. Thiers in reorganizing the army. On M. Thiers resigning the presidency of the republic, May 24, 1873, he was elected to the vacant office by the assembly. Of the 392 members who voted, 390 voted for Marshal MacMahon. He at once proceeded to form a conservative administration. The Septennate was voted November 19, 1873, when the National Assembly, by 378 votes against 310, intrusted him with the exercise of power for seven years. On May 16, 1877, Marshal MacMahon addressed to M. Jules Simon, the president of the council, a letter reproaching him with incapacity. This compelled the latter to resign, and a new ministry was formed. The Chamber of Deputies was immediately prorogued, and the Senate, by a small majority, resolved to exercise the power conferred by the constitution, by concurring with the president of the republic in a dissolution. Accordingly, the Marshal dissolved the Chamber of Deputies by a decree dated June 25, 1877. The elections for the new Chamber were held throughout France on October 14th, resulting in the return of 335 Republicans and 198 Anti-Republicans, the latter classed as 89 Bonapartists, 41 Legitimists, 38 Orleanists, and 30 "MacMahonists." The Republican majority refused to vote the supplies, and after a brief interval of hesitation the marshal came to the conclusion that M. Gambetta's famous alternative—*se soumettre ou se démettre*—"submit or resign"—must be acted upon. Accordingly he yielded to the Republican majority, and a new ministry was formed under the presidency of M. Dufaure, with M. Léon Say as minister of finance, and M. Waddington at the foreign office. Thus, the prolonged crisis that began on May 16th, was peacefully brought to a close on December 14, 1877. The senatorial elections at the beginning of 1879 gave the Republican party an effective working majority in the Upper Chamber. M. Dufaure's cabinet was at once pressed to remove the most conspicuous Anti-Republicans among the generals and officials. Marshal MacMahon refused to be a party to these measures, and, seeing that resistance was idle, resigned on January 30th, and was succeeded by M. Grévy. He wrote his *Memoirs* and died October 17, 1893. An imposing state funeral was given him.

MCMASTER, JOHN BACH, born in Brooklyn, N. Y., June 29, 1852; graduated at the College of the City of New York in 1872, in 1877 became instructor in civil engineering at Princeton College, and in 1883, professor of American history in the University of Pennsylvania. He has written a *History of the United States from*

*the Revolution to the Civil War, a Life of Benjamin Franklin*, and other works.

MCMULLEN, JOHN, Roman Catholic bishop, was born in Ireland in 1833; came to the United States when a child and was educated at St. Mary's College, Chicago. He was ordained priest in 1858; was for some years president of the University of St. Mary's of the Lake, and in 1870 took charge of the cathedral of the Holy Name in Chicago. In 1877 he became vicar-general of the diocese of Chicago, and in 1881 was consecrated bishop of Davenport, Iowa. He died July 3, 1883.

MACNAB, SIR ALLAN NAPIER, born in Niagara, Ontario, February 19, 1798. His father was aide-de-camp to Colonel Simcoe in the war of the Revolution. In the war of 1812-14 between the United States and Great Britain, young MacNab served as midshipman, under Sir James L. Yeo, in an expedition against Sackett's Harbor and other United States ports on Lake Erie, and afterward was an ensign in the army. At the affair at Plattsburg he led the advance guard. On the return of peace he studied law, and in 1826 entered on practice in Hamilton. In 1829 he was elected a member in the Assembly of Upper Canada. In the insurrection of 1837 he was appointed colonel of militia on the Niagara frontier, and routed the insurgents near Toronto on December 7, 1837. When their leader, William L. MACKENZIE (*q.v.*), took possession of Navy Island, in Niagara river, and received supplies and reinforcements from the American side by the steamer *Caroline*, Colonel MacNab sent over a party of men, who seized and burnt the steamer and sent her adrift over the falls. For this dramatic performance he was knighted July 14, 1838. From 1846 to 1854 he was prime minister under the earl of Elgin, and again under Sir Edmund Head, 1854-56. He was made a baronet in 1858, and a member of the legislative council in 1860. In 1857 he went to England for recreation, where he was made honorary colonel of the British army, and honorary aide-de-camp to the queen. Throughout life he was guided by Tory sentiments, and just before his death is said to have become a Roman Catholic. He died in Toronto, August 8, 1862.

MACOMB, ALEXANDER, born in Detroit, Mich., April 3, 1782; died in Washington, D. C., June 25, 1841. He entered the army in 1799, and in 1812 had been advanced to lieutenant-colonel of engineers and adjutant-general of the army. Later he was made colonel of a regiment of artillery, and for his services at Niagara and Fort George was promoted brigadier-general in 1814. At Plattsburg, when in command of 1,500 soldiers, he was attacked by a superior force under Sir George Prevost, and repulsed the enemy. For this achievement he was promoted major-general, and received the thanks of congress and a gold medal. After the death of Gen. Jacob Brown, in 1835, he became commander-in-chief of the United States army. In the Florida war he acted for a short time only.

MACON, NATHANIEL, born in Warren county, N. C., December 17, 1757; died there June 29, 1837. He studied at Princeton, but left his classes to join a company of American volunteers. Toward the end of the war he served in South Carolina, where he was present at the surrender of Fort Moultrie, the fall of Charleston, the rout at Camden, and with Gen. Nathanael Greene in his retreat across Carolina. Later he was elected to the Senate of North Carolina, and unwillingly retired from military service, refusing a pension and all payment. He continued in the Senate until 1785, and permanently settled on a plantation on Roanoke river, in Warren county. From 1791 until 1815 he was a member of the United States Congress.



was elected to the United States senate in 1816, and in 1825 was its temporary president.

MCPHERSON, EDWARD, LL.D., born in Gettysburg, Pa., July 31, 1830; graduated at Pennsylvania College, in his native town, and began literary work in Philadelphia. From 1859 to 1863 he served in congress as a representative, and in the beginning of 1864 became clerk of the House of Representatives, which office he held until 1873. He has since been engaged in journalism in his native State. Mr. McPherson, who is M.A. of Princeton and LL.D. of the University of Pennsylvania, has published several historical works and a handbook on politics, and has edited the *New York Tribune* almanac for many years. Died Dec. 14, 1895.

MCPHERSON, JAMES BIRDSEYE, born in Sandusky, Ohio, November 14, 1828; died near Atlanta, Ga., July 22, 1864. He was graduated at the United States Military Academy in 1853, first in a class of fifty-two members, and for a year later served as instructor at that institution. He entered the army as second lieutenant of engineers in 1853, and became captain in 1861, serving on fortification and construction in the harbors of New York city and San Francisco. At the beginning of the Civil war he applied for active duty, was appointed lieutenant-colonel, November 12, 1861, and became major-general of volunteers October 8, 1862. In the early part of 1862 he was attached to the staff of Gen. U. S. Grant, and served as chief engineer at Fort Henry, Fort Donelson, Shiloh and the siege of Corinth. On October 2nd he commanded a brigade under Gen. William S. Rosecrans at the battle of Corinth. He was promoted to the command of a division at Bolivar, Tenn., and during the winter of 1862-63 cooperated with General Grant's movements. At the battle of Fort Gibson part of his corps, led by himself, decided the battle in favor of the Federals. On May 12th his corps engaged part of Gen. Joseph E. Johnston's army at Raymond, and routed it. On May 16th General Grant's army met Pemberton's at Champion's Hill, where General McPherson signally aided in the fight. Throughout the entire campaign General McPherson was constantly engaged, and was conspicuous for his skill, industry, and personal bravery. On August 1, 1863, he was made brigadier-general in the regular army. In 1864 General McPherson was advanced to the command of the army of the Tennessee. He assembled 25,000 men at Huntsville, Ala., in April, 1864. From May until June he had constant skirmishes with the Confederate forces, and led several attacks that inflicted losses, but led to no permanent results. On July 22nd General Hood massed the Confederate forces and made an attack on the left flank of General Sherman's army, commanded by General McPherson. The latter at the time was at General Sherman's headquarters, engaged in consultation, and rode rapidly to the threatened point. In attempting to pass from one column to another, to meet this attack, he unguardedly passed into the enemy's lines and was killed. As a general he showed remarkable ability, being self-possessed, quick of perception and of untiring activity. In one of the public parks of Washington a statue is erected to his memory by his comrades of the army of the Tennessee.

MACPHERSON, SIR DAVID LEWIS, born in Inverness, Scotland, September 18, 1813; came to Canada in 1835, and engaged in business in Montreal, and was one of the organizers of the railway from Montreal to Kingston, which formed the nucleus of the Grand Trunk railroad. He sat in the legislative council of Canada from October, 1864, until the Union, and was transferred to the Senate in May, 1867. In February, 1880, he was appointed speaker of the Senate and a

member of the cabinet; and in 1883 became minister of the interior, which office he resigned in August, 1885. He has written on banking and currency, and is considered a high authority on finance. Died Aug., 1896.

MCQUAID, BERNARD JOHN, born in New York city, December 15, 1823; was ordained priest in the Roman Catholic Church in 1848, held several pastorates, and for ten years was president of the Seton Hall College and Seminary. In July, 1868, he was consecrated first bishop of Rochester, N. Y.

MCVEAGH, WAYNE, born in Chester county, Penn., April 19, 1833; graduated at Yale in 1853. He served as district attorney of Chester county, Penn., from 1859 to 1864. In 1870 he was appointed United States minister to Turkey, and in 1877 he was a member of the commission which visited Louisiana by request of President Hayes. At the accession of Mr. Garfield, in March, 1881, Mr. McVeagh, who had taken much interest in the civil service reform movement, was appointed attorney-general of the United States, but resigned at Garfield's death. Becoming a Democrat he supported Cleveland, in 1884 and was appointed by him ambassador to Italy in 1893-97.

MACWHIRTER, JOHN, artist, was born in 1839, near Edinburgh, Scotland, and became an associate of the Royal Academy, associate and honorary member of the Royal Scottish Academy, and member of the Royal Institute of Painters in Water Colors. His *Fairy of the Glen*, *Corrie Arran*, and *Hail Gentle Spring*, were in the British collection at Chicago in 1893.

MÄDLER, JOHANN HEINRICH, astronomer, born at Berlin in 1794, died at Hanover, in 1874; was director of the observatories at Berlin, and at Dorpat, Russia; made important observations on Mars and Jupiter, and on double and variable stars; published numerous works and in *Die Centralsonne* presented the hypothesis of a central sun, around which the whole stellar universe revolves, naming Alcyone as the central sun.

MAFFITT, JOHN NEWLAND, son of Bishop Maffitt, was born February 22, 1819, and entered the United States navy as a midshipman, 1832. He served in various capacities until the beginning of the Civil war, when he entered the naval service of the Confederate States. In April, 1862, he received command of a vessel which had been clandestinely constructed at Liverpool for the Confederacy. It took on guns and ammunition at Nassau, and he rechristened the vessel the *Florida*. With this vessel he entered upon a cruise in the northern Atlantic, emulating the piracies of the *Alabama*. In all he took fifty-five merchantmen, some of the prizes being extremely valuable. He was relieved in consequence of sickness, returned to the United States after the war, and died in 1886.

MAGEE, WILLIAM CONNOR, D.D., archbishop of York, was born in Cork, Ireland, in 1821. At the age of thirteen he entered Trinity College, Dublin, and subsequently obtained a scholarship, besides other academical distinctions. In due course he took holy orders. In 1848 he accepted the curacy of St. Saviour's, Bath. In 1850 he was appointed joint incumbent, and shortly after sole incumbent of the Octagon Chapel, Bath. In 1860 he succeeded Dean Goulburn as minister of Quebec Chapel, London, and in the following February he was appointed to the rectory of Enniskillen by the University of Dublin. In 1864 he was appointed dean of Cork. In 1868 he was appointed bishop of Peterborough and in January, 1891, became archbishop of York. He died three months later.

MAGOFFIN, BERTAH, born in Kentucky, April, 1815; died there February 28, 1885. He practiced law and served in the State Senate and as probate judge, and in September, 1859, became governor of Kentucky. In



this capacity he refused to honor Lincoln's call for troops, and demanded the withdrawal of both Federal and Confederate forces from the State.

MAGRUDER, JOHN B., born in Winchester, Va., August 15, 1810; died in Texas in February, 1871. He graduated at West Point in 1830, was assigned to the artillery, commanded a battalion in the Mexican war, and was brevetted lieutenant-colonel for gallant conduct at Chapultepec. At the beginning of the Civil war he resigned his commission of captain, entered the service of the Confederacy, won the battle of Big Bethel and received a brigadier-general's commission. At Yorktown for several weeks he prevented the advance of the National forces, was promoted major-general, and took part in the battle of Malvern Hill. In October, 1862, he was given command of the department of Texas, and on January 1, 1863, he recaptured Galveston. At the close of the war he entered the army of Maximilian, in Mexico, with the rank of major-general.

MAHAFFY, JOHN PENTLAND, D.D., born in Switzerland, 1839, was educated in Germany, and at Trinity College, Dublin, where since 1871 he has been professor of Ancient History. An eminent Greek scholar and philosopher, he has written *Kant's Critical Philosophy for English Readers*, *Social Life in Greece*, *Greek Antiquities*, *Descartes*, *Greek Life and Thought*, *The Decay of Modern Preaching*, and many other works.

MAHAN, ALFRED THAYER, CAPTAIN, American naval officer and author, born September 27, 1840, entered the navy as midshipman in 1859, becoming lieutenant, 1861; lieutenant commander, 1865; commander, 1872, and captain in 1885. In the latter year he was appointed lecturer on history, strategics and tactics, and president of the United States Naval War College. In 1895 he was commander of the "Chicago." Capt. Mahan has written *The Gulf and Inland Waters* (1883); *Influence of Sea Power upon History*, 1660-1783 (1890); *Influence of Sea Power upon the French Revolution and Empire*, 1793-1812 (1892), the two latter works winning him a wide reputation and an offer from the English ministry to enter the service of that nation, and *Life of Admiral Farragut* (1894).

MAHDI, EL, Arabic for "The Well Directed," the title of an Arab dervish, supposed to have been Mahomed Ahmed, born near Dongola, Nubia, about 1842, who announced himself in 1881 as the Mahdi or Messiah of the Mohammedan faith. After the overthrow of Arabi Pasha in Egypt, in 1882, the Mahdi raised a large body of troops in the Soudan, with which he annihilated the Egyptian army under Hicks Pasha. By 1884 he had extended his power to Souakin and threatened Egypt. England sent General CHARLES GORDON (*q.v.*) unarmed and alone to Khartoum, where he was blockaded by the Mahdi and slain in January, 1885, when Khartoum was captured. The British evacuated the entire territory, except Souakin, and the Mahdi formed a government with its capital at Khartoum. A few months later he died, it is said of small-pox, and was succeeded by one of his generals.

MAHON, CHARLES JAMES PATRICK, "The O'Gorman," a distinguished Irish soldier and orator, who was born in Ennis, March 17, 1800, was a member of parliament for Ennis, 1847-52, served in the armies of Russia, Turkey, and Austria; was a general in the government armies in Uruguay in the Civil war; commanded the Chilean fleet in the war with Spain; was a colonel in the Brazilian army, fought in the Union army in the Civil war, was a colonel under Louis Napoleon and an intimate of Bismarck. He entered parliament in 1879, sitting for Clare until 1885, and for Carlow from 1887 until his death in London, January 15, 1891.

MAHONE, WILLIAM, born in Virginia, December

21, 1826; joined the Confederate army early in 1861 and fought at Norfolk navy yard, and in nearly every battle of the Peninsular campaign, on the Rappahannock, and in the campaign around Petersburg. A fearless fighter, he became brigadier and major-general, and commanded a division in A. P. Hill's corps. After the war he returned to engineering, became president of the Norfolk and Tennessee railroad, entered politics about 1878, and became the leader of the party which aimed at the "readjustment" (repudiation) of the State debt of Virginia. He was Republican United States senator, 1881-87. He died Oct. 8, 1895.

MAHONY, FRANCIS, better known as "Father Prout," was born in Ireland about 1805, and died in 1866. He was one of the wittiest of scholars and most charming of writers.

MAINE, SIR HENRY JAMES SUMNER, born in 1822, educated at Pembroke College, Cambridge, was regius professor of the civil law, 1847-54, reader on jurisprudence at the Middle Temple, 1854-62, and in 1862 went to India as law member of the supreme government, originating many legislative improvements. Returning to England, 1869, he was elected corpus professor of jurisprudence in the University of Oxford in 1870, in 1871 was appointed a member of the council of the secretary of state for India, on which occasion he was created a K.C.S.I., and in 1885 was offered the permanent under-secretaryship of state at the home office, but declined it. He died February 3, 1888. A high authority on international law, he wrote important works on that and other subjects, including: *Ancient Law: Its Connection with the Early History of Society*; *Village Communities in the East and West*; *Early History of Institutions*; *Popular Government*, and *International Law*.

MAITLAND, SIR FREDERICK LEWIS, a British naval officer, born in Scotland in 1779, commanded the *Bellerophon* off the coast of France in 1815, with instructions to prevent the escape of Napoleon, who had arranged to take ship at Rochelle for the United States. Napoleon, finding himself unable to escape, surrendered to Captain Maitland in July, and was by him conveyed in the *Bellerophon* to England. Captain Maitland was knighted and made a rear-admiral. He died in 1839.

MAITLAND, SIR PEREGRINE, born in England in 1777; died in 1854; became a full general in the British army, fought at Corunna and Waterloo, in 1818 became lieutenant-governor of Canada, and afterward became interim governor-general and lieutenant-governor of Nova Scotia.

MAJOR, RICHARD HENRY, F.S.A., born in London in 1818, was honorary secretary of the Hakluyt Society, 1849-58, a vice president of the Royal Geographical Society, 1881-84, and long connected with the library of the British Museum. He died June 25, 1891.

MAKART, HANS, celebrated Austrian figure painter, and brilliant colorist, born at Salzburg, 1840, died 1884. His well known series of ideal paintings of the *Five Senses* was exhibited at the World's Columbian Exposition in Chicago in 1893.

MALBONE, EDWARD GREENE, painter, born in Newport, R. I., in August, 1777; died in Savannah, Ga., May 7, 1807. He early painted a landscape scene for the Newport theater. In 1794-96 he was settled in Providence, R. I., as a portrait painter. He visited Boston, New York, and Philadelphia, and in 1800 accompanied Washington Allston to Charleston, S. C. In 1801 both artists visited Europe, but Malbone returned in December of the same year to Charleston, where he became permanently located. From there he made periodical visits to the northern cities, where he painted miniatures of many persons of note.



Toward the close of his life he attempted oil painting. An interesting specimen in this department is his own likeness, now in the Corcoran gallery at Washington. Occasionally he painted landscapes in oil, and figure pieces. One of his finest of the latter kind is *The Hours*, preserved in the Providence Athenæum. In his day Malbone's pencil and brush were in great demand.

MALET, SIR EDWARD BALDWIN, K.C.B., born at the Hague, October 10, 1837, is the son of Sir Alexander Charles Malet, K.C.B., formerly British minister at Frankfurt. He was educated at Eton, and at Corpus Christi College, Oxford, and entered the diplomatic service in 1854, as attaché at Frankfurt. In 1858 he was transferred to Brussels, to Rio de Janeiro in 1861, and in 1862 to Washington, where he was made second secretary. From 1865 to 1878 he served at Lisbon, Constantinople, Paris, Peking, Athens and Rome, and on April 20, 1878, he was appointed minister plenipotentiary at Constantinople. The following year he went to Egypt as agent-consul-general, and a minister plenipotentiary in the diplomatic service; was made K.C.B. in 1881, and received the medal and Khedive's star for his services in Egypt in 1882. In August, 1883, he was promoted to be envoy extraordinary and minister plenipotentiary at Brussels, and he became ambassador at Berlin, September 20, 1884. Sir Edward Malet was sworn a privy counselor in March, 1885, and in June of the same year was made a G.C.M.G.

MALIBRAN, MARIA FELICITA GARCIA, born in Paris, in 1808, died in 1836, was one of the most celebrated mezzo-soprano singers of the century. She achieved a continental reputation before she was eighteen, sang in 1826 in New York, where she married M. Malibran, a banker; separated from him in 1828, after his bankruptcy, and repeated her successes in all the capitals of Europe.

MALLERY, GARRICK, born in Wilkesbarre, Pa., April 23, 1831, graduated at Yale in 1850; practiced law and engaged in editorial work in Philadelphia until 1861. He then entered the volunteer service as first lieutenant of Pennsylvania troops, received the brevets of lieutenant-colonel and colonel, and in 1870 was commissioned captain in the United States infantry. During the war he was twice severely wounded and was for some months a prisoner in Libby prison. During the reconstruction period he served as secretary of state and adjutant general of Virginia. In August, 1870, he was detailed for meteorological service, and until 1876 had charge of the signal service bureau. While on duty in the West he paid much attention to the ethnology and mythology of the Dakota Indians, on which subjects he wrote several valuable works. In 1879 he became ethnologist of the Bureau of Ethnology, which position he held until his death, October 25, 1894. He was president of the Anthropological Society and chairman of the anthropological section of the American Association (1881). Died Oct., 1894.

MALLET, JOHN WILLIAM, born in Dublin, Ireland, October 10, 1832; studied chemistry at Göttingen and came to the United States in 1853. He became connected with the chemical department of Amherst and afterward with the University of Alabama. He served in the Confederate army, and from 1867 to 1883 held professorial chairs at the University of Virginia. After one year at the University of Texas he accepted the chair of physics in Jefferson Medical College, Philadelphia, and in 1885 returned to the University of Virginia as professor of chemistry and pharmacy. He has written extensively on chemistry as applied to the arts, is a fellow of the Royal Society of England,

and in 1882 was president of the American Chemical Society.

MALLOCK, WILLIAM HURRELL, born in England in 1849. *The New Republic*, most of which he wrote when he was at Oxford, was published in 1876, having first appeared in a fragmentary form in *Belgravia*. A year later he published *The New Paul and Virginia*. In 1879 he published *Is Life Worth Living*, which first appeared in fragments in the *Contemporary Review* and the *Nineteenth Century*. In 1880 he brought out a small edition of *Poems*, written, most of them, many years previously. The following year he published *A Romance of the Nineteenth Century*, and in 1882 *Social Equality: a Study in a Missing Science*, the substance of which had already appeared in fragments in the *Nineteenth Century* and the *Contemporary* during the three previous years. In 1884 he published *Property and Progress*, an examination of the theories of contemporary radical and socialistic agitation. The year following he published *Atheism and the Value of Life; or Five Studies in Contemporary Literature*, being criticisms of Professor Clifford, Lord Tennyson, George Eliot, the author of *Ecce Homo*, and Herbert Spencer. He also wrote *The Old Order Changes*, a novel (1886), and *Labor and the Popular Welfare* (1893).

MALLORY, STEPHEN RUSSELL, born in the West Indies, April, 1813; died in Florida, November 9, 1873. He was admitted to the bar in Florida in 1839; served as judge of Monroe county, and probate judge, and in 1845 was appointed collector of customs at Key West. He took an active part in the Seminole war, and in 1851 was elected to the United States senate; was reelected in 1857, and continued to represent the State until the secession of Florida early in 1861, when he resigned to join the Confederacy. He was appointed chief justice of the admiralty court of Florida after the secession, but declined that office, and on February 21, 1861, became secretary of the navy in Jefferson Davis' cabinet, which position he held to the close of the war.

MALMESBURY, EARL OF (JAMES HOWARD HARRIS, G.C.B.), born in London, March 25, 1807, entered the House of Commons as a Conservative in 1841; succeeded to the peerage the same year; as secretary of state for foreign affairs in Lord Derby's first administration, in 1852, was the first to recognize the French empire, held the same position, 1858-59, and was lord keeper of the privy seal, 1866-68, and again, 1874-76. He died May 17, 1889.

MAMIANI, DELLA ROVERE, COUNT TERENZIO, Italian scholar and statesman, born in 1799, at Pesaro; died at Rome, May 21, 1885. He took part in revolutions against the papal power, founded a society for promoting Italian unity at Turin; on the flight of Pius IX. from Rome to Gaeta, became foreign minister in the cabinet of Galetti; in 1856 was a member of the Sardinian parliament; in 1860 was Italian minister of instruction, and was ambassador to Greece in 1861, and to Switzerland in 1865.

MANBY, GEORGE WILLIAM, inventor of life-saving apparatus, born in England, 1765; died 1854. In 1808 he succeeded, with his apparatus, in saving the lives of the crew of the brig *Elizabeth* and devoted his life to similar work.

MANCINI, PASQUALE, born in Italy, 1820, became professor of jurisprudence at the University of Naples; opposed the king in the Neapolitan parliament and in 1848 had to flee to Turin; in 1860 became minister of justice and religion in the new Italian government; minister of education in 1862 and in 1876 minister of justice. From 1871 to his death, December 26, 1888, he was professor of criminal jurisprudence in the university of Rome as well as deputy in parliament.



MANCO CAPAC, first Inca of Peru, died about 1107. He is supposed to have been a foreigner who gathered the native tribes on the borders of Lake Titicaca, pretending to bring them a new revelation as the offspring of the sun; taught them the arts of peace, abolished human sacrifice, taught of an unknown supreme being, and offered subordinate homage to the sun, moon and stars, and founded the city of Cuzca.

MANET, EDOUARD, a French painter, born in 1832, died in 1883. He founded the school of Impressionism in painting, a protest against the conventional in art in favor of absolute truth in rendering the personal and immediate "impressions" of nature.

MANN, AMBROSE DUDLEY, diplomatist, born in Virginia, April 26, 1801, and died at Paris, France, Nov. 20, 1889. He served as United States consul at Bremen in 1842, and became commissioner to Hungary in 1849. The next year he was made United States minister to Switzerland, and from 1851 to 1856, was assistant secretary of state. He joined the Confederacy, and with Slidell and Mason was sent on a special mission to Europe in 1861. He resided in France after the war, and published his *Memoirs* in 1888.

MANNERS, LORD JOHN JAMES ROBERT, second son of the late Duke of Rutland, born at Belvoir Castle, Leicestershire, December 13, 1818; was educated at Eton and Trinity College, Cambridge, where he graduated M.A. in 1839, and was one of the earliest members of the Camden Society. He entered Parliament as a Conservative for Newark in 1841, and represented Colchester from 1850 to 1857, when he was elected for North Leicestershire. He made his maiden speech in February, 1841, when he opposed the repeal of the corn laws. He was appointed first commissioner of the office of works, with a seat in the cabinet, and sworn a privy counselor in Lord Derby's first administration in 1852; held the same post in Lord Derby's second administration in 1858-59, and was reappointed in Lord Derby's third administration, 1866-67. In February, 1874, he was appointed postmaster-general, and he held that post till the Conservatives went out of office in April, 1880, when he was created a G.C.B. In 1885 he was returned for the new Melton Division of Leicestershire, and was postmaster-general in Lord Salisbury's government. In 1888 he succeeded to the dukedom of Rutland, and has since sat in the House of Lords.

MANNING, DANIEL, was born at Albany, N. Y., August 16, 1831. Losing his father at an early age he was compelled to support himself, and soon became connected with the Albany *Atlas*, a paper afterward merged in the Albany *Argus*. Working his way up from office-boy, through the composing-room to the reportorial and editorial staff, by 1873 he had secured control of the paper and had become president of the Argus Publishing Company. On the accession to the presidency of Mr. Cleveland in March, 1885, Mr. Manning was appointed secretary of the treasury. He held that office until April, 1887, and died December 24, 1887.

MANNING, HENRY EDWARD, cardinal priest of the Holy Roman Church and archbishop of Westminster, born in England, July 15, 1808, was educated at Harrow and Balliol College, Oxford, where he graduated B.A. in first-class honors in 1830, and became fellow of Merton College. He was for some time one of the select preachers in the University of Oxford, was appointed rector of Lavington and Grafham, Sussex, 1834, and archdeacon of Chichester in 1840. These preferences he resigned in 1851 on joining the Roman Catholic Church, in which he entered the priesthood, and in 1857 founded an ecclesiastical congregation at Bays-

water. The degree of D.D. was conferred upon him at Rome, and the office of provost of the Catholic archdiocese of Westminster, prothonotary apostolic and domestic prelate to the Pope. After the death of Cardinal Wiseman, Monsignor Manning was consecrated archbishop of Westminster, June 8, 1865. Pope Pius IX. created him a cardinal priest March 15, 1875, the title assigned to him being that of SS. Andrew and Gregory on the Coelian Hill. The same pontiff invested him with the cardinal's hat at a consistory held at the Vatican, December 31, 1877. Cardinal Manning was the foremost English Roman Catholic prelate, took a deep interest in social reforms, was a sincere friend of the working classes, frequently acting as their mediator in strikes, and wrote numerous ecclesiastical works, including *The Temporal Power of the Pope*. He died June 14, 1902.

MANNING, THOMAS C., born in North Carolina in 1831; died 1887. He practiced law in North Carolina and Louisiana; sat in the Louisiana secession convention, was appointed adjutant-general in 1863; became chief justice of the supreme court of Louisiana, 1877-80; in 1880 was appointed United States senator, but not admitted by the senate; sat on the supreme bench of Louisiana again, 1882-86, and was then appointed by President Cleveland as minister to Mexico.

MANOGUE, PATRICK, born in county Kildare, Ireland, 1831; came to the United States in 1856, was ordained in the Roman Catholic priesthood in 1861, held pastorates in the missionary districts of Nevada, and in 1884 became bishop of Virginia City. He died February 27, 1895.

MANSFIELD, RICHARD, an actor of versatile genius and great merit, who was born in Heligoland, 1857, but has won his dramatic triumphs on the American stage, achieving great success in such widely different plays as *Richard III.*, *Prince Karl*, *Beau Brummell*, "Baron Chevalier" in *A Parisian Romance*, the titular rôles in *Dr. Jekyll and Mr. Hyde*, and, in 1895, as "Baron Bluntschli" in *Man and the Arms*. Early in 1895 he opened the "Garrick Theatre" in New York city, as a permanent home for his stock company. His wife, Beatrice Cameron, was his leading lady.

MANTEUFFEL, EDWIN HANS KARL VON (BARON), was born at Magdeburg, Germany, February 24, 1809, and entered the Prussian army at the age of eighteen. In 1858 he had attained the rank of major-general, and in 1864 he commanded a large force of German troops in the Schleswig-Holstein campaign. During the Austro-Prussian war in 1866 he was active in Hanover and Saxony, and when the Franco-Prussian war broke out in July, 1870, he was given command of an army corps, in which capacity he greatly distinguished himself. In 1879 he was promoted to the rank of field marshal. He was given the governorship of Alsace-Lorraine, which he administered in an autocratic manner. He died June 17, 1885.

MAPES, JAMES JAY, born in New York city, May 29, 1806; died there January 10, 1866. In 1832 he invented a new process for sugar-refining. He was appointed professor of chemistry at the National Academy of Design in New York, and delivered lectures on the chemistry of colors; later he became connected with the American Institute in the same capacity. At that time he experimented in many directions, analyzing, distilling, dyeing, etc., and later opened a consulting office for civil engineering. In 1847 he removed from New York city to Newark, where he devoted much attention to agriculture and agricultural chemistry; here he made the first artificial fertilizers, and originated the use of superphosphates in the United States. He was elected president of the Mechanics' Institute in 1844;



for many years was vice-president of the American Institute, and delivered many addresses before agricultural societies. In 1840 Professor Mapes published *The American Repertory of Art, Sciences, and Manufactures*, and from 1850 to 1864, *The Working Farmer*.

MARBOIS, FRANÇOIS DE BARBÉ, MARQUIS DE, French diplomatist, born in Metz, Germany, January 31, 1745; died in Paris, January 14, 1837. In 1779 he became secretary of legation to the United States, and served as such during the American Revolution. When de Luzerre returned to France, Marbois remained until 1785, as *chargé d'affaires*, and organized the various French consulates in this country. In 1783 he married a daughter of Governor William Moore of Pennsylvania, and in 1785 became intendant of Santo Domingo. During the revolutionary disturbances in France he was exiled to Cayenne for over two years. On his return he was made state counselor, and in 1801 became French secretary of the treasury. In 1803 he was authorized by Napoleon to cede Louisiana to the United States for 50,000,000 francs, but diplomatically managed to exact 80,000,000 francs for its transfer. In 1813-14 he served as senator, and in 1814 was the first one to vote for the deposition of Napoleon. Louis XVIII. made him a peer of France, and soon afterward he was created marquis. He published several essays on finance and agriculture. His history of the plot of Arnold and Clinton is of considerable historical value.

MARCH, FRANCIS ANDREW, LL.D., born at Millbury, Mass., October 25, 1825; graduated at Amherst College in 1845; in 1858 was chosen professor of the English language and comparative philology in Lafayette College, Easton, Pa., has devoted himself to the Anglo-Saxon language, ranking among the foremost scholars in that department, and in 1873 was chosen president of the American Philological Association. He has taken the direction of the work in America for the *Historical Dictionary of the English Language*, now in publication by the University of Oxford, and is president of the Spelling Reform Association, and honorary member of the Philological Society of London.

MARCHETTI, FILIPPO, an operatic composer, born at Rome in 1835, became in 1881 president of a musical college in Rome. His best-known operas are *Romeo e Guletta*, and *Ruy Blas*.

MARCOU, JULES, a French geologist, born in 1824. As agent for the *Jardin des Plantes*, he visited the United States, making valuable collections of minerals, and in 1853 he entered the United States service for two years; in 1861 was associated with Louis Agassiz in founding the Museum of Comparative Zoölogy, and in 1875 again entered the United States service. He wrote several works on geology. Died April 17, 1898.

MARCY, OLIVER, born in Massachusetts, February 13, 1820, was educated at Wesleyan University, and in 1862 became professor of natural history in the Northwestern University at Evanston, Ill. He is the author of numerous scientific articles, a member of several scientific societies, and LL. D. of the University of Chicago, 1876.

MARCY, RANDOLPH BARNES, born in Massachusetts, April 9, 1812; graduated at West Point in 1832, and served in the Blackhawk war, the Mexican war, the Red River exploration, the Seminole war in Florida in 1857, and the Utah expedition of the following year. During the Civil war he served as chief of staff to his son-in-law, Gen. George B. McClellan, in West Virginia, and in the Peninsula. He was made brigadier-general of volunteers in September, 1861, and afterward was assigned as inspector-general of the southwest. In 1869 he became inspector-general of the United States army, and served in that capacity until

January 2, 1881, when he was retired from active service. He died in New Jersey, November 22, 1887.

MARCY, WILLIAM LEARNED, was born at Sturbridge, Mass., December 12, 1786. He graduated at Brown University in 1808, was admitted to the bar in 1810, and began practice at Troy, N. Y. He soon became a leading Democratic politician, and one of the "Albany regency" which was supposed to control the action of the party in New York State. He was United States senator in 1831-32, and during his term he incidentally made use of the phrase so frequently afterward heard, "To the victors belong the spoils." He resigned to become governor of New York, 1833-39. He was secretary of war under Polk, 1845-49, and secretary of state under Pierce, 1853-57. As secretary of state he conducted with success the Koszta case in 1854, involving a collision with Austria on the subject of the right of expatriation. All his political leanings were to that branch of the Democratic party in New York which made the strength of the new Republican party in 1856, and he would have been its natural leader if he had followed his own convictions on the Kansas-Nebraska bill. He hesitated, and other men took his place. He died at Ballston Spa, N. Y., July 4, 1857.

MARIA CHRISTINA, ex-Queen of Spain, was born April 27, 1806. In 1829 she became the fourth wife of Ferdinand VII. of Spain, who in 1830 restored the law by which, in default of male issue, the right of inheritance was given to females, and in October of that year the queen gave birth to a daughter, Isabella II., ex-Queen of Spain. Ferdinand died September 29, 1833, and by his testament his widow was appointed guardian of her children—the young Queen Isabella and the Infanta Maria Louisa, now Duchess de Montpensier—and also regent till the young queen should attain the age of eighteen years. A civil war broke out, the adherents of Don Carlos, Ferdinand's brother, seeking to place him on the throne. This war continued till 1840. Maria was united, in December, 1833, to Don Fernando Muñoz, in a morganatic marriage, which, however, was kept secret, while her connection with him was no secret. She had ten children by him. A conspiracy, which broke out on the night of August 13, 1836, exposed Muñoz to great danger, and led the queen-mother to concede a constitution to Spain. She gave to the new prime minister Espartero, October 10, 1840, a renunciation of the regency, and retired to France. After the fall of Espartero she returned to Madrid, in 1843, and in October, 1844, her marriage with Muñoz, who was now made Duke of Rianzares, was publicly solemnized. In July, 1854, a revolution expelled her from the country, and she again took refuge in France, but returned to Spain in 1864. She died in August, 1878.

MARIO, GUISEPPE, born in Sardinia in 1810; served in the army of his native country, and about 1838 made his first appearance as a singer in Paris. He took the leading character in the opera *Robert le Diable*. For six years he sang in London and Paris, and for five years at St. Petersburg. In 1854 he visited the United States in company with Madame Grisi. He was then at the top of his reputation, and the engagement was a great success. Twenty years after he revisited America, but this time his magnificent voice was gone. He was one of the greatest tenor singers of his age, and had a voice of remarkably sympathetic quality. Mario was of good birth, being titular marquis of Candia. He died in Rome, December 11, 1883.

MARISCAL, IGNACIO, born in Mexico, July 5, 1829; practiced law in Oajaca, and became solicitor-general of that state (1850-53). In 1856 he served in the national congress, and again in 1861-62. Juárez



made him a judge in 1863, and he afterward acted as assistant secretary of state. From August, 1863, until October, 1867, he served as secretary of the Mexican legation at Washington. In 1868 he was appointed minister of justice, and, shortly afterward, a representative and judge of the Supreme Court. In 1869 he was appointed secretary of justice and education, and in this capacity introduced into Mexico the system of trial by jury in criminal cases. From June, 1869, until May, 1871, he was the Mexican minister to the United States, and, after a short term as secretary of foreign affairs, he returned to Washington in his former capacity, remaining there until 1877. After that he held various judicial and cabinet offices in Mexico, and in 1883 became minister at London. In the following year he returned home, and became secretary of foreign affairs under President Diaz.

MARKHAM, SIR CLEMENTS ROBERT, C.B., F.R.S., F.S.A., was born July 20, 1830; educated at Westminster School, and entered the British navy in 1844. He passed for a lieutenant in 1850, and left the navy in 1851. He became a clerk in the board of control in 1855; assistant secretary in the India office in 1867, and was placed in charge of the geographical department of the India office in 1868. From 1862 to 1864 he was private secretary to Mr. T. G. Baring (now earl of Northbrook). He was appointed secretary to the Hakluyt Society in 1858, and was elected secretary of the Royal Geographical Society in 1863. Mr. Markham served in the Arctic expedition in search of Sir John Franklin in 1850-51; explored Peru and the forests of the Eastern Andes in 1852-54; introduced the cultivation of the cinchona plant from South America into India in 1860-61; visited Ceylon and India in 1865-66; served as geographer to the Abyssinian expedition, and was present at the storming of Magdala in 1867-68; and was created a companion of the Bath in 1871.

MARKS, HENRY STACEY, R.A., was born in London, September 13, 1829. He gained admission as a student to the Royal Academy in 1851. He was elected an associate of the Royal Academy in January, 1871; an associate of the Water Color Society in March the same year; and a royal academicien December 19, 1878. Mr. Marks, whose *forte* is genre and quaint mediævalism, has been a constant exhibitor at the Royal Academy since 1853. He died Jan. 9, 1898.

MARMADUKE, JOHN S., born in Missouri, March 14, 1833; graduated from West Point in 1857, and served in Utah and New Mexico under Albert Sidney Johnston. Like his general he joined the Confederacy, and was made colonel of the 3d Confederate infantry. He fought with gallantry at Shiloh, and was wounded in the second day's fight. Afterward he took part in the campaigns of Mississippi and Arkansas, and was made a major-general for his services against N. P. Banks. He was captured in Missouri, in October, 1864, and held a prisoner of war at Fort Warren, Boston, until August, 1865. After the war he engaged in the life insurance business in Missouri, and also carried on a newspaper. In 1873 he became secretary of the Missouri State Board of Agriculture. In 1875 he was appointed railway commissioner, and in 1884 was elected governor of Missouri. He died at Jefferson City, December 28, 1887.

MARMORA, ALFONSO FERRERO DELLA, born in Turin, Italy, in 1804; became Sardinian minister of war in November, 1848, and held that office until February, 1855. A year later he commanded the Sardinian contingent in the Crimea, and on his return home again served as minister of war. In July, 1859, he became president of the council of ministers, which office he held for one year. In 1864 he was again president, and

also held the portfolio of foreign affairs. When the Austro-Prussian war broke out in June, 1866, Della Marmora resigned his offices to take command of the army. His troops were overwhelmed by the Archduke Albert of Austria, at Custozza, a few weeks later. Della Marmora practically disappeared from public life after this and died at Florence, January 8, 1878.

MAROCCHETTI, CHARLES (BARON), was born at Turin, Italy, 1805, and removed to England in 1848. He had already produced numerous statues, busts, and other works of sculpture, and in England his chief works are the colossal statue of Richard, Cœur de Lion, in Palace Yard, Westminster, the equestrian statue of Queen Victoria at Glasgow, and various groups of statuary in London. He became a Royal Academician in 1866, and died in December of the following year.

MARRIOTT, SIR WILLIAM THACKERAY, Q.C., M.P., was born in 1834, and educated at St. John's College, Cambridge. He took orders and worked for some time as a curate, but gave up his clerical career and was called to the bar at Lincoln's Inn in 1864. He became a queen's counsel in 1877 and was made a bencher in his Inn in 1879. He first entered parliament as Liberal member for Brighton in 1880, but in 1884, having differed from his party on the question of the *clôture*, he announced a change in his political opinions and was reelected as a Conservative, and returned as such in 1885 and again in 1886. In Lord Salisbury's first administration (having been sworn of the privy council) he was judge advocate-general, a post to which he was again appointed in 1886. Mr. Marriott at one time gained notoriety by his violent attacks on the Liberal party. He was made a knight in 1888.

MARRYAT, FLORENCE (MRS. FRANCIS LEAN), sixth daughter of the late Capt. Frederick MARRYAT (*q.v.*), was born at Brighton in Sussex, and educated at home. She began to write in 1865, when her first novel, *Love's Conflict*, was published, since which time she has written over fifty works, most of which have been republished in America and Germany, and translated into French, German, Russian, Flemish, and Swedish. She was appointed editor of *London Society* in 1872, and has been a constant contributor to magazines and newspapers. She is known on the stage as an operatic singer and high-class comedy actress, and has been most successful as an entertainer and lecturer.

MARSH, GEORGE JENKINS, born in Woodstock, Vt., March 15, 1801; died in Vallombrosa, Italy, July 23, 1882. He was graduated at Dartmouth in 1820, and studied law in Burlington, Vt. In 1835 he was chosen a member of the State legislature, and in 1842 elected to congress on the Whig ticket, where he served until 1849. From 1849 until 1853 he served as United States minister to Turkey, and in 1861 was appointed minister to Italy. He received the degree of LL.D. from several colleges, and was connected with many learned societies. He rendered important services as a philologist, and made the Gothic dialects his particular study. In 1858 and 1859 he lectured on language at Columbia College and the Lowell Institute.

MARSH, OTHNIEL CHARLES, was born at Lockport, N. Y., October 29, 1831. He graduated from Yale College in 1860, and from the Yale Scientific School in 1862, and from 1862 to 1865 studied in the universities of Berlin, Heidelberg, and Breslau. Returning to America in 1866, he was chosen professor of paleontology in Yale College. He devoted himself to the special investigation of the extinct vertebrate animals of the Rocky Mountain districts, and nearly every year since 1868 has organized and led a scientific expedition to those regions. In these explorations more than 1,000 new species of vertebrates have been discovered, many of which repre-



sent wholly new orders, and others not before discovered in America. Of these more than 300 have already been described by Professor Marsh in papers most of which have appeared in the *American Journal of Science*. These papers are over 150 in number. Since 1876 he has been engaged in preparing a series of reports, to be published by government, giving full illustrated descriptions of his western discoveries. The first of these, on the *Odontornithes*, or birds with teeth (34 plates), was issued in 1880, and a second memoir on the *Dinocerata* (56 plates), appeared in 1884. A third volume on the *Sauropoda* (90 plates) has lately been completed. In 1878 Professor Marsh was president of the American Association for the Advancement of Science, and since 1882 has been president of the National Academy of Sciences. He is a fellow of the Geological Society, Zoological Society, and many others. Died Mar., 1899.

MARSHALL, the name of an English family which settled in Virginia, many of the members of which became more or less notable in early days. The founder of the family, JOHN, was a cavalry captain under Charles I., and settled in Virginia during the commonwealth. His son THOMAS (1665-1704), and THOMAS, grandson of the same name (1730-1802) were large planters and land-owners. The last named became colonel of a Virginia regiment and fought gallantly at the Brandywine. He removed to Kentucky, and held some important offices. His eldest son, JOHN (1755-1835), became chief justice of the United States supreme court, and his life is treated of in an earlier volume. (See MARSHALL, JOHN). Another son of the second THOMAS (1761-1817), and also of that name, served in the Revolutionary war. Another son, JAMES MARKHAM (1764-1848), married a daughter of ROBERT MORRIS (*q.v.*), and was financial agent of some of the colonies in France. Another son, ALEXANDER KEITH (1770-1825), was a somewhat noted lawyer; and another, LOUIS (1773-1866), was a physician, and became president of Washington College, Va., and Transylvania University, Ky.

Of the third and fourth generations the most noted were:

THOMAS (1793-1853) was a member of the Kentucky legislature and a brigadier-general in the Mexican war.

CHARLES ALEXANDER, born in 1809; raised a regiment for the Union in Kentucky and fought at Ivy Creek.

THOMAS FRANCIS (1801-1864) lawyer, congressman, and soldier of the Mexican war.

EDWARD COLSTON, born in 1820; served in the Mexican war; settled in California; served in congress 1851-53, and in 1878 was elected attorney-general of California.

CHARLES, born in Virginia, October, 1830; was mathematical professor in the University of Virginia, and served on Lee's staff. After the war he practiced law in Baltimore.

NICHOLAS TALIAFERRO, born in 1810; died in 1858; practiced medicine in Kentucky and Cincinnati, and was a professor in the Ohio Medical College.

Of a collateral branch of the family was HUMPHREY, born in Virginia in 1756, who was a delegate to the early conventions and served in the United States Senate from 1795 to 1801 as a Federalist. He fought a duel with Henry Clay, January 19, 1809, in which Clay was wounded.

His son, JOHN JAY (1785-1846) served many years in the Kentucky legislature, and for six years was a circuit court judge at Louisville. Another son, THOMAS ALEXANDER (1794-1871), sat in the Kentucky legislature and in 1831-35 in congress as a Whig. He became chief justice of the court of appeals.

MARSHALL, HERBERT MENZIES, was born at

Leeds, England, August 1, 1841, and educated at Westminster School, and at Trinity College, Cambridge, where he graduated in 1864, second class in the natural science tripos. In the same year he went to Paris for the purpose of studying architecture. In 1871 he exhibited his first drawing at the Dudley Gallery. In 1879 he was elected an associate of the Society of Painters in Water Colors, and became full member in 1882.

MARSHALL, HUMPHREY, born in Frankfort, Ky., January 13, 1812; graduated at West Point in 1832, but resigned to become a lawyer. He was sent to congress twice from his native State, served as colonel of cavalry in the Mexican war, and in 1861 entered the Confederate service, in which he served throughout the war, rising to the rank of major-general. He died at Louisville, March 28, 1872.

MARSHALL, JAMES WILSON, born in New Jersey in 1812; died in California August 8, 1885. In 1844 he went from Kansas to California, where he worked for Gen. John A. Sutter at Coloma. On January 18, 1848, he found a nugget of gold, the first discovered in California. A rush of miners followed and Marshall derived no advantage from his find.

MARSTON, PHILIP BOURKE, poet, novelist, and essayist, the son of Dr. Westland Marston, was born in London, August 13, 1850. After contributing a few poems to the *Cornhill Magazine* and other periodicals, he published his first volume of poems, entitled *Song-Tide*, in 1870. This was followed by a second volume, entitled *All in All*, in 1875, and by a third, entitled *Wind Voices*, 1883. These poems gained for him the friendship of Swinburne and of the late Dante Gabriel Rossetti, who addressed to him a sonnet. Mr. Marston also contributed poetical criticisms, essays, and novellettes to various well-known periodicals both in England and America. He died in England February 14, 1887.

MARSTON, WESTLAND, LL.D., poet and dramatist, was born at Boston, Lincolnshire, England, January 30, 1819. His best known five-act dramas are, *The Patrician's Daughter*, a tragedy, published in 1841; *The Heart and the World*, a play, in 1847; *Strathmore*, a tragedy, in 1849; and *Ann Blake*, a play, in 1852. He also wrote *Philip of France*, a tragedy; *A Life's Ransom*, a play; *Borough Politics*, a comic drama in two acts; *A Hard Struggle*, a drama in one act; and assisted in the composition of *Trevelyan, or the False Position*, a play in three acts. Of late years his more conspicuous works are, *Pure Gold*, a play in four acts; *The Wife's Portrait*, a drama in two acts; and *Donna Diana*, a comedy in three acts. Mr. Marston, who was one of the editors of the *National Magazine*, has written some stirring lyrics, some of which appeared in the *Athenæum*. He died January 5, 1890.

MARTIN, BENJAMIN NICHOLAS, born in Mt. Holly, N. J., October 20, 1816; died in New York city, December 16, 1883. He was graduated at Yale in 1837, filled pulpits in New York city and in the interior cities of the State, and in 1852 became professor and lecturer in the University of the City of New York, where he remained for thirty-one years.

MARTIN, BON LOUIS HENRI, French historian, born in 1810; died December 14, 1883. He was the author of *A History of France up to 1789*, of *Monarchy in the Seventeenth Century*, and of various other historical works. He was elected senator in 1871, and a member of the French Academy in 1878.

MARTIN, FRANÇOIS XAVIER, born in France, March 17, 1764; died in New Orleans, December 11, 1846. He came to the United States in 1786 and settled at New Berne, N. C., where he became a printer and



proprietor of a newspaper. He was admitted to the bar and after twenty years practice as a lawyer in North Carolina was appointed United States judge for the (then) Territory of Mississippi. Afterward he became a judge in the Territory of Orleans, (now Louisiana). In 1813 he became attorney-general of the new State of Louisiana; in 1815 judge of the State supreme court, of which he was made chief justice in 1837, and from which he retired in 1845. Judge Martin codified the laws of Louisiana, and was LL.D. of Nashville University and of Harvard.

MARTIN, HENRY NEWELL, born in Ireland in 1848, studied at University College, London, and took his B.A. degree at Cambridge, England, where he became a fellow of his college and lecturer on natural history. In 1876 he was invited to become professor of biology in the newly constituted Johns Hopkins University at Baltimore, which position he has since retained. Prof. Martin is a member of many scientific societies, and a fellow of the Royal Society of England, and has contributed largely to scientific journals, his special subject being biological research. Died Oct. 20, 1896.

MARTIN, HOMER DODGE, born in Albany, N. Y., October 28, 1836; began his artistic career in New York city, and became in succession an associate of the National Academy, and (in 1875) an academician. He is chiefly known as a landscape painter.

MARTIN, JOSIAH, born in the West Indies, April 23, 1737; died in London, England, in July, 1786. In 1756 he was an ensign in the British army, and in 1771 had become lieutenant-colonel, when he was appointed governor of North Carolina. In April, 1775, affairs came to a crisis; he secretly organized the Loyalist elements, and a body of Whigs attacked his residence and carried away six cannon. He took refuge on board of a sloop-of-war, and transferred his headquarters to Fort Johnston, on Cape Fear river. Subsequently a body of colonists demolished the fort and compelled the governor to seek safety on board the vessel that conveyed him thither. Martin then prepared a plan for the subjugation of the two Carolinas, with the aid of Sir Peter Parker at sea, and the land forces of Lord Cornwallis; but it miscarried. In June, 1776, he went to Charleston, S. C., and assisted in the formation of military bodies among the Highlanders and Regulators.

MARTIN, LADY (HELEN FAUCIT), born in 1816; went upon the stage in 1836, and speedily took rank as an artist of the very first class. She married Sir Theodore MARTIN (*q.v.*) in 1851 and retired from the stage, but has since, on several occasions, given readings from Shakespeare and other great dramatists for the benefit of charities. Died Oct. 31, 1898.

MARTIN, LUTHER, born in New Brunswick, N. J., February 9, 1748; died in New York city, July 10, 1826. He was graduated at Princeton in 1762, and taught school in Queenstown, Md., while reading law. In 1771 he was admitted to practice, and settled in Somerset, Md. In 1774 he was a member of the convention at Annapolis, where he defended the rights of the colonies. In 1778 he became attorney-general of Maryland, and in 1784 a delegate to the continental congress. In 1805 he resigned the attorney-generalship of Maryland and continued his law practice. In 1807, on the occasion of Col. Aaron Burr's trial at Richmond, Va., he was one of his counsel, and at its close entertained both Burr and Herman Blennerhassett at his residence in Baltimore. From 1814 to 1816 he was chief judge of the court of oyer and terminer in Baltimore, and, in 1818, was again appointed attorney-general of Maryland. In 1820 he was made helpless by a stroke of paralysis, and became dependent on his

friends for support. Luther Martin's last days were spent in New York city, where Aaron Burr gave him a home in his own house. He was the author of a *Defense of Captain Cresap*, whose daughter he had married in 1783.

MARTIN, THOMAS MOWER, born in England, October 5, 1838; removed to Canada in 1862, and settled in Toronto. He was one of the founders of the Ontario Society of Artists, and of the Royal Canadian Academy, and became, in 1877, director of the Ontario School of Art. In 1884 he removed to New York city, and became connected with the National Academy of Design.

MARTIN, SIR THEODORE, K.C.B., was born in Edinburgh in 1816, and received his education at the high school, and at the university of his native city. After practicing as a solicitor in Edinburgh for several years, he went in 1846 to London, where he established himself as a parliamentary agent. He first became known as an author by his contributions to *Fraser's Magazine* and *Tait's Magazine*, under the signature of "Bon Gaultier," and in conjunction with the late Professor Aytoun he composed the *Book of Ballads*, which bears that pseudonym, and a volume of translations of the *Poems and Ballads of Goethe*, 1858. He prepared a translation of the Danish poet Henrik Hertz's fine lyrical drama *King René's Daughter*, which was produced on the stage with great effect, the principal character, "Iolanthe," being played by Miss Helen Faucit, who in 1851 became Sir T. Martin's wife. His metrical translation of the *Odes of Horace* appeared in 1860, and was immediately republished in the United States. It was followed, ten years later, by a critical essay on Horace's life and writings, in the *Ancient Classics for English Readers*. In 1882 Sir T. Martin completed his Horatian labors by a translation of Horace's whole works, with a life and notes, in two volumes.

MARTINDALE, JOHN HENRY, born in New York city in 1815; graduated at West Point in 1835, and was attached to the first dragoons but resigned a year later. He practiced law in Batavia and Rochester, N. Y., until the outbreak of the Civil war, when he received a commission as brigadier-general of volunteers. He was actively engaged at Hanover Court House, Gaines' Mills, and Malvern Hill. Charges were preferred against him by Fitzjohn Porter, but he was fully exonerated by the court of inquiry. From November, 1862, until May, 1864, he served as military governor of Washington city. He then joined the army of the James, and led a division in the operations at Richmond and Petersburg. Subsequently he commanded the eighteenth army corps until he was compelled, on account of sickness, to resign his commission. He was brevetted major-general of volunteers for gallant conduct at Malvern Hill. In 1866-68 he served as attorney-general of the State of New York, and he died December 13, 1881.

MARTINEAU, JAMES, LL.D., younger brother of the late Miss Harriet Martineau, was born at Norwich, England, April 21, 1805. He was appointed second minister of Eustace Street Presbyterian meeting-house, Dublin, in 1828; second minister of Paradise Street chapel, Liverpool, in 1832; professor of mental and moral philosophy in Manchester New College, in 1841; removed to London, 1857; was minister of Little Portland Street chapel, 1859-72; and was appointed principal of Manchester New College, London, in 1868. Doctor Martineau is the author of *The Rationale of Religious Inquiry*, published about 1837; *Lectures on the Liverpool Controversy*, 1839; *Hymns for the Christian Church and Home*, 1840; *Endeavors after the Christian Life, Studies of Christianity*, 1858; *Essays Philosophical and Theological*, 2 vols., 1868; *Hymns of Praise and*



*Prayer, 1874; and Religion as Affected by Modern Materialism.* He has been a constant contributor to the *National Review*, of which he was one of the founders. The honorary degree of LL.D. was conferred upon him by Harvard College, Cambridge, Mass., in 1872; that of doctor of theology by the University of Leyden, in 1875; and that of D.D. by the University of Edinburgh in 1884. He died Jan. 11, 1900.

MARTINEZ CAMPOS, ARSENIO, a Spanish statesman and one of Spain's foremost generals, who in 1895 was sent to Cuba to suppress the revolution which was threatening to secure the independence of that rich colony. He was born in 1834; and died September 23, 1900. He won the rank of major in Morocco in 1850, and in 1864 joined the army in Cuba as colonel, remaining six years on that island. On his return to Spain in 1870, he was sent, with the title of brigadier-general, to join the army of the North, which was engaged in subduing the Carlist rebellion. After the abdication of King Amadeo he declined to give in his adhesion to the new order of things, and made no secret of his antipathy to the republic. He was put on the retired list in 1873, and shortly afterward was confined in a fortress as a conspirator. He was sent to the army of the North in April, 1874, to command a division of the third corps; took part in the engagements of La Muncas and Galdanes, which led to the siege of Bilbao being raised, and was the first to enter the liberated city on May 1, 1874. When General Concha reorganized the Liberal army, Martinez Campos was appointed general in command of the 3rd corps. General Martinez Campos, besieged at Zurugay, by the main body of the Carlists, opened a passage through the enemy's ranks at the head of a column which numbered barely 1,800 men, and went to rejoin at Murillo, the headquarters, where he was able to organize the retreat of the army on Tafalla. Returning to Madrid, he continued to conspire almost overtly in favor of Don Alfonso, while Marshal Serrano, chief of the executive power, was operating against the Carlists. In conjunction with General Jovellar he made the military *pronunciamiento* of Sagunto, which gave the throne of Spain to Alfonso XII. The new government sent him into Catalonia as captain-general and commander-in-chief of that military district. In less than a month he pacified the country, put down the Carlist bands, and took the command of the army of the North. He brought the civil war to a close by the defeat of Don Carlos at Pena de Plata, in March, 1876. The high dignity of captain-general of the army, which is equivalent to a marshal of France, was the recompense for his signal services. A year afterward he was appointed commander-in-chief of the army in Cuba, which the rebels had held in check for seven years. On his return to Spain, General Martinez Campos accepted the portfolio of war and the presidency of the council (March 7, 1879), and endeavored to procure the fulfillment of the promises made to the Cubans; but not obtaining the support of the Cortes, he resigned, and was succeeded by Señor Cánovas del Castillo (December 9, 1879). Early in 1881 the Conservative government of Señor Cánovas del Castillo was overthrown, and a coalition between Señor Sagasta and General Martinez Campos came into power, and retained it till October, 1883, when it resigned in consequence of being unable to obtain from the French Government a satisfactory apology for the insult offered to King Alfonso by the Paris mob on his visit to Paris.

MARX, KARL, born at Treves, Germany, in 1818; was educated at Bonn and Berlin, and in 1843 became connected with a newspaper at Cologne. He was expelled successively from that city, from France and

from Belgium, but returned to Germany during the revolutionary movement of 1848-49. Again banished, he sought refuge in London, where he founded the "International," a federation of socialistic societies which undertook to reform everything. Marx wrote extensively on political economy, quarreled with his co-workers and established several newspapers for the dissemination of his own views, and died March 16, 1883.

MASCAGNI, PIETRO, composer of the famous opera *Cavalleria Rusticana*, was born at Leghorn in 1863. The son of a baker, he began composing at an early age, went to the Milan Conservatoire, but could not get on with the professors there, and so joined a traveling opera company. *Cavalleria Rusticana*, though not the first of his operas, was the first that brought him fame, and has been performed in Italian, German, French, English, and Russian, and frequently produced in the United States. It was written in a few days in 1886, in competition for a public prize offered for a one-act opera. Signor Mascagni has written other successful operas including *L'Amico Fritz* and *I Rantzau*, the latter performed in Florence in 1892, and in London in 1893 under the composer's direction.

MASON, CHARLES, born in England in 1730; died in Philadelphia, February, 1777. For several years he served as assistant in the Greenwich, England, Observatory, and, with Jeremiah Dixon, made an observation of the transit of Venus at the Cape of Good Hope in 1761. Two years later the two scientists were instructed to survey the boundary line between Pennsylvania and Maryland. They spent four years on this work, and the line then drawn became famous in the history of the United States, as practically marking the northern limit of the slave States. Mason and Dixon's line, however, must not be confounded with the boundary of 36° 30', beyond which slavery was not to be permitted in any territories of the United States. (See Wilmot Proviso and Missouri Compromise, under head of UNITED STATES.)

MASON, GEORGE, member of the Federal convention of 1787, was born in Fairfax county, Va., in 1726. He served in the Virginia convention in 1775, and drafted its declaration of rights and plan of government. His most conspicuous service was in the Federal convention of 1787, of which he was a member. He took part in most of the debates, and exerted a strong influence on the decision of almost every question before the convention. Some of his strongest utterances were on the subject of slavery, and his language on one occasion (August 22d) might have served as a model to an anti-slavery orator of later times. He was dissatisfied with the constitution, and opposed its ratification. He died October 7, 1792.

MASON, JAMES MURRAY, born in Fairfax county, Va., November 3, 1798; died in April, 1871. He served many years in the Virginia house of delegates, and sat in congress as a Democrat from 1837 to 1839. From 1847 to 1861 he sat in the United States Senate from Virginia, but resigned to join the Confederacy. In the autumn of 1861 he was appointed with John Slidell as commissioner from the Confederate States to England. They sailed from Charleston, October 12th, for Cuba. Here they took passage for England on the British mail steamer *Trent*. This vessel was overhauled by a United States ship of war under the command of Commander Charles Wilkes, who demanded the bodies of Mason and Slidell, and the steamer being unarmed, the captain turned the men over to him. They were brought to Boston and confined in Fort Warren, and congress passed a resolution of thanks to Wilkes for his prompt action. The British Government made an im-



mediate demand, and a peremptory one, for the delivery of the men, who, they claimed, were protected by the British flag. There was a great outcry against surrendering them, but Abraham Lincoln showed his good sense and political wisdom by giving them up. This occurrence, known as the *Trent* affair, intensified the ill-feeling between England and the United States, which had grown out of the expressions of sympathy made by the English aristocrats for the Confederates.

MASON, JOHN YOUNG, born in Virginia in April, 1799; died in France, October, 1859. He was graduated at the University of North Carolina in 1816, and practiced law for many years in his native State. He sat in the State legislature and in congress from 1831 to 1837, then became a judge of the United States District Court, and in 1844 was appointed secretary of the navy. In 1845 he became attorney general of the United States, and a year later returned to the navy department. From 1853 until his death he was minister to France.

MASON, LOWELL, musician, born in Medfield, Mass., January 8, 1792; died in Orange, N. J., August 11, 1872. In early youth he taught himself to play on a variety of musical instruments, led the village choir, and trained Sunday-school singing classes. At twenty years of age he went to Savannah, where he taught music. At that time he arranged a collection of hymn and psalm tunes, mostly derived from the German composers, and including several of his own. These were published in Boston in 1821 under the auspices of the Boston Handel and Haydn Society and favorably received. In 1827 Mr. Mason removed to Boston and made church music and the training of church choirs his specialty. In 1837 he went to Europe for observation and study, and on his return published *Musical Letters from Abroad* (New York, 1853). In 1855 he received from the University of the City of New York the degree of Mus. Doc.

MASON, WILLIAM E., was born in New York, July 7, 1850; removed with his parents to Bentonsport, Iowa, in 1858; taught school from 1866 to 1870, the last two years at Des Moines, Iowa; entered the law office of Hon. Thomas F. Withrow, and was admitted to practice law in Des Moines; went to Chicago in 1872, and has practiced law there ever since; was elected to the State house of representatives in 1879, to the State senate in 1881; was elected to the fiftieth congress (1886), and was reelected to the fifty-first congress as a Republican, but was defeated in 1890.

MASPERO, GASTON, a French Egyptologist, was born at Paris June 24, 1846, and after a brilliant course of study at the Lycée Louis-le-Grand, entered the École Normale in 1865. He was appointed teacher and assistant professor of Egyptian Archaeology and philosophy at the College of France, February 4, 1874. On the death of Mariette Bey, Professor Maspero was appointed keeper of the Boulak Museum, and since that time he has done much to promote archaeological discovery in Egypt. He was decorated with the Legion of Honor January 15, 1879.

MASSASOIT, Indian chief, born in Massachusetts about 1580; died there in 1660. His control extended from Cape Cod to Narragansett Bay. In March, 1621, an Indian, whom the whites called Samoset, appeared three months after the founding of Plymouth, and called, in broken English, taught him by some fishermen, "Welcome, Englishmen." He said he came from the great sachem, Massasoit. After some parleying the chief appeared in person, was received with deference, and a treaty of amity was concluded with his tribe and their confederates, and honorably kept for fifty-four years—beyond the lifetime of Massasoit. When Roger Williams was banished from Massachusetts, and went

on his way to Providence, he was entertained by Massasoit for several weeks. Massasoit lived and died a sincere friend to the white settlers. His sons were Alexander and "King" Philip.

MASSE, VICTOR, a French musical composer, was born March 7, 1822. He was educated at the Paris Conservatory, and produced his first work for the stage in 1852. Among his compositions the best known are *Galatea*, *Paul and Virginia*, and *The Seasons*. He died July 6, 1884.

MASSENET, JULES EMILE FRÉDÉRIC, a French composer, born at Montaud, May 12, 1842; studied at the Paris Conservatoire under Laurent, Reber, Savard, and Ambrose Thomas, obtained the first prize for pianoforte in 1859, the first for fugue and the prix de Rome for his cantata *David Rizzio* in 1863. He traveled through Italy and Germany, and made his debut at the Opéra Comique, Paris, 1868, with *La Grande Tante*. In 1873 he was appointed professor of composition at the conservatoire, and elected a member of the Académie des Beaux Arts.

MASSEY, GERALD, was born at Tring in Hertfordshire, England, May 29, 1828. At eight years of age he was working twelve hours a day in a silk manufactory. At the age of fifteen he went to London and found work as an errand boy, and at twenty-one he became editor of the *Spirit of Freedom*. The following year he was one of the secretaries of the "Christian Socialists," and a personal friend of Charles Kingsley and F. D. Maurice. In 1854 he published *The Ballad of Babe Christabel, and other Poems*, which was at once favorably reviewed. He then joined the staff of the *Athenæum*, and for ten years wrote a considerable number of its reviews of poetry. As early as 1852 Mr. Massey began to take a great interest in mesmerism, spiritualism, and kindred subjects, and he has since delivered many lectures on such matters in England, North America, Australia, and the colonies, where he is better known and more highly thought of than in England. Of late years he has written very little poetry, and has occupied himself chiefly with promoting spiritualistic and socialistic societies.

MASSON, DAVID, professor of rhetoric and English literature in the University of Edinburgh, was born December 2, 1822, in Aberdeen, and educated at Marischal College in that city, and at the University of Edinburgh. He began his literary career at the age of nineteen, as editor of a Scotch provincial newspaper, and repairing, in 1844, to London, where he remained about a year, contributed to *Frazer's Magazine* and other periodicals. He was appointed to the chair of English language and literature at University College, London, on the resignation of the late Professor Clough in 1852. He retired from his post in October, 1865, having been appointed professor of rhetoric and English literature in the University of Edinburgh. He contributed numerous articles to the *Quarterly*, *National*, *British Quarterly*, and *North British* reviews, to the *Encyclopædia*, and the *English Cyclopædia*, and in 1859 became editor of *Macmillan's Magazine*, which he conducted for a good many years, and to which he has largely contributed.

MASTERS, MAXWELL TYLDEN, M.D., F.R.S., born in 1833 at Canterbury, was educated at King's College, London, after which he practiced medicine for some years. He held the lectureship on botany at St. George's Hospital from 1855 to 1868, and became principal editor of the *Gardeners' Chronicle* in 1865. Doctor Masters has been botanical examiner in the University of London; is a fellow of the Royal Linnean, and Royal Horticultural Societies; an associate of King's College; an honorary or corresponding member



of the principal horticultural societies of Belgium, France, Germany, Russia, Italy and America, and of the Royal Society of Sciences of Liège, the Society of Natural Sciences of Cherbourg and the Botanical Society of France, and correspondent of the Academy of Natural Sciences of Philadelphia.

MATHER, INCREASE, clergyman, born in Dorchester, Mass., June 21, 1639; died in Boston, August 23, 1723. He was the father of Cotton Mather, and was graduated at Harvard in 1656. He took his degree at Trinity College, Dublin, in 1658. His earliest ministry was at Great Torrington, Devonshire, England. From there, in 1659, he was transferred to the island of Guernsey, as chaplain of the English garrison, where he continued for two years. In 1661 he returned to his native land. There he preached alternately for his father in Dorchester and for the North Church in Boston. Increase Mather was in England when the witchcraft excitement was at its height. On his return home he published a book entitled *Causes of Conscience Concerning Witchcraft* (1693). He wrote sermons against the witches, and at the same time endeavored to subdue the excitement. In 1681 he was chosen president of Harvard, which office he then refused; but, on the renewal of the offer in 1685, it was accepted. He was the sixth president of Harvard, and retained the office until 1701. Some time before the year 1700 he resigned his pastorate. In 1692 Harvard gave him the degree of D.D., the earliest one of the kind bestowed in the colonies.

MATHER, RICHARD HENRY, born in Binghamton, N. Y., February 12, 1835, graduated at Amherst, 1857, and taught Greek and German in that university for many years. He became D.D. in 1879, and was well known as the author and editor of several Greek text books. He died April 16, 1890.

MATHERS, HELEN BUCKINGHAM (MRS. HENRY REEVES), novelist, was born in 1852 at Somerset, England. Her first novel was *Comin' Thro' the Rye* (1875), which immediately secured popularity, and was rapidly translated into more languages than any of Dickens' works. *The Token of the Silver Lily*, a poem, was published in 1876, and soon sold out; *Cherry Ripe*, Miss Mathers' second novel, was published in 1877, and followed in 1878 by *The Land o' the Leal*, and *As He Comes up the Stair*, which are novelettes. Her third novel, *My Lady Green Sleeves*, appeared in 1879, and was followed in 1881 by *The Story of a Sin*. *Sam's Sweetheart* and *Eyre's Aquittal* were published in 1883 and 1884; *Found Out* in 1885; *Venus Victrix* and *Wrostell's Weird* (1893); *A Man of To-day* (1894), and many others.

MATHEWS, CHARLES JAMES, actor, born in London, England, in December, 1803; died in England, June, 1878. He made his first appearance on the stage in 1835, and for more than forty years was the leading exponent of light comedy on the English stage. Mathews visited this country twice and was well received.

MATHEWS, WILLIAM, born in Waterville, Me., July 28, 1818; practiced law in Washington, and published newspapers in Maine and in Boston, and in 1856 removed to Chicago. He became professor of rhetoric and English literature in the University of Chicago in 1862. He retained that position for thirteen years, and in 1880 he removed to Boston, where he is still residing. He is the author of many works of general circulation.

MATHILDE, PRINCESS (MATHILDE LÆTITIA WILHELMINE BONAPARTE), daughter of the ex-King Jerome and Princess Catherine of Würtemberg, and cousin of Napoleon III., was born at Trieste, May 27, 1820, and married at Florence, October 10, 1841, to the Russian Prince Anatole Demidoff. This union was not happy,

and in 1845 they separated by mutual consent, her husband being compelled by the czar to allow the princess an annuity of 200,000 roubles. From 1849 till the marriage of Napoleon III. she did the honors at the palace of the president, and on the reestablishment of the empire was comprised among the members of the imperial family of France, and received the title of highness.

MATTHEWS, BRANDER, born in New Orleans, February 21, 1852, graduated at Columbia in 1873 and was admitted to the bar. He has written several successful plays and many essays upon lives of actors and authors.

MATTHEWS, HENRY, Q.C., M.P., was born in 1826 in Ceylon, where his father was a judge. After graduating at the universities of Paris and London, he was called to the bar at Lincoln's Inn. He has been engaged in several of the great cases of his time, notably the Home case, the Tichborne case, and the Crawford case. He contested the borough of Dungarvan three times unsuccessfully, but sat for it from 1868 to 1874. At the general election of 1886 he was returned for East Birmingham, being the first Conservative who ever sat for Birmingham. On the formation of Lord Salisbury's second ministry, Mr. Matthews was appointed home secretary. He is a Roman Catholic.

MATTHEWS, STANLEY, born in Cincinnati, July 21, 1824; died, March 22, 1889. He graduated at Kenyon College in 1840, and practiced law for a short time in Tennessee. He removed to Cincinnati and became connected with the *Herald* of that city, an ardent anti-slavery paper, which he conducted for several years. He was elected judge of the court of Hamilton county, afterward became State senator, and from 1858 to 1861 United States attorney for the southern district of Ohio. He entered the volunteer service in March, 1861, and served in western Virginia and with the army of the Cumberland. He resigned in 1863 to become judge of the superior court of Cincinnati, and was an unsuccessful candidate for congress in 1876. In 1877 he was of counsel for the Republicans in the Florida and Oregon cases before the electoral commission. In March, 1877, he was elected United States senator and took the place of John Sherman, who had resigned. In 1881 Mr. Matthews was appointed, by President Garfield, associate justice of the United States supreme court.

MAUDSLEY, HENRY, M.D., born February 5, 1835, and educated at University College, London, is an acknowledged authority on mental diseases; consulting physician to the West London Hospital, and an honorary member of various learned societies in Paris, Vienna, Italy and America.

MAUPASSANT, GUY DE, a brilliant French writer, born August 5, 1850, was trained in letters by Flaubert, and after seven years practice in writing published in 1880 a short story, *Boule de Soif*, which made him immediately popular. He wrote plays, lyrics and over thirty naturalistic novels of great power, and sometimes less delicacy, but always clear and charming in style, including *Une Vie*, *Pierre et Jean*, *Bel Ami* and *Notre Cœur*. He died July 6, 1893, after two years insanity caused by use of stimulants.

MAX-MÜLLER, FREDERIC, son of Wilhelm Müller, the German poet, was born at Dessau, December 6, 1823; studied at the University of Leipzig, where he published, in 1884, his first work, a translation of *The Hitopadesa*, a collection of Sanskrit fables; then at Berlin attended the lectures of Bopp and Schelling, and examined the collection of Sanskrit MSS. there. In 1845 he went to Paris to study under E. Burnouf.



He was invited by the University of Oxford to give some courses of lectures on comparative philology, as deputy Taylorian professor, in 1850; was made honorary M.A. and member of Christ Church in 1851; was elected Taylorian professor, and received the full degree of M.A. by decree of convocation in 1854; was made a curator of the Bodleian library in 1856; and elected a fellow of All Souls College in 1858. He was in 1860 an unsuccessful candidate for the professorship of Sanskrit at Oxford, being opposed by a coalition of theological parties. For a time he was Oriental librarian at the Bodleian library. In 1868 the university founded a new professorship of comparative philology, and the statute of foundation named him as the first professor. In 1872 he was invited to lecture in the newly founded University of Strasburg as professor of Sanskrit. He declined the appointment, but gave some courses of lectures there in 1872. As he refused to accept any salary, the University of Strasburg founded a triennial prize for Sanskrit scholarship in memory of his services. On December 3, 1873, at the invitation of the Dean of Westminster, he delivered in Westminster Abbey a lecture on the *Religions of the World*. In 1875 he resigned his professorship at Oxford, intending to return to Germany, but the university requested him to remain in Oxford, and intrusted him with the editing of a series of translations of the *Sacred Books of the East*. Forty-nine volumes of this series have been published, of which the first contains Max-Müller's translation of the Upanishads, 1879, and the tenth his translation of the Dhammapada from Pali, 1881. A new series was begun in 1883. On October 28, 1881, he was elected curator of the Bodleian library in place of the late Professor Rolleston. In 1882 he was invited by the University of Cambridge to give a course of lectures on India, specially intended for the candidates for the Indian civil service. These lectures were published in 1882, under the title of *India: What can it teach us?* In 1873 appeared his edition of the two texts of the *Rig-Veda* (2nd ed., 1877), and in 1874 the sixth and concluding volume of his large edition of the *Rig-Veda Sâyana's Commentary*. Since the year 1879 Prof. Max-Müller has devoted himself to the teaching of several Buddhist priests who had been sent to him from Japan to learn Sanskrit. This led him to the discovery that the oldest Sanskrit MSS. existed in Japan. Died Oct. 28, 1900.

MAY, EDWARD HARRISON, artist, born in England in 1824, came to this country when a child, and in 1876 was elected an associate of the National Academy. He painted both figures and landscape and received a medal at Paris in 1855. He died May 17, 1887.

MAY, GEORGE AUGUSTUS CHICHESTER, was born at Belfast in 1815. He received his education at Shrewsbury School and at Magdalen College, Cambridge, where he graduated with honors. He was called to the bar in Ireland in 1844; was made a queen's counsel there in 1865; was law adviser to the crown in Ireland from February, 1874, to November, 1875; and attorney-general for Ireland from the last date to February, 1877, when he was appointed to succeed the late Right Honorable James Whiteside as lord chief justice of the queen's bench for Ireland. Died Aug. 15, 1892.

MAYALL, THOMAS JEFFERSON, born in North Berwick, Me., August 10, 1826; became employed in a paper-mill and invented rubber belting and cylinder printing. He also devised a revolving cannon and took out many patents for electric railroads. He died in Massachusetts in February, 1888.

MAYER, ALFRED MARSHALL, born in Baltimore, November 17, 1836, was called in 1856 to the chair of physics and chemistry in the University of Maryland.

He afterward held professorial chairs in Westminster College, Missouri; Pennsylvania College, and the Lehigh University. He devoted himself largely to the study of astronomy, and in 1872 was elected to the National Academy of Sciences. In the same year he became professor of physics in the Stephens Institute, at Hoboken, N. J. He has contributed articles to many of the technical journals, and is a member of numerous scientific societies. Died July 13, 1897.

MAYER, CONSTANT, born in France, October 4, 1832; studied at the School of Fine Arts in Paris, and in 1857 removed to New York. He is best known by his genre pictures, many of which have been engraved. He is an associate of the National Academy, and a member of the American Art Union. Among his works are portraits of General Grant and General Sherman.

MAYHEW, HENRY, born in 1812; began his literary career in London, bringing out, in conjunction with the late Mr. Gilbert a Beckett, the farce of the *Wandering Minstrel* at the Queen's theatre, and in 1841 was one of the promoters of *Punch*, from which he afterward withdrew. He also wrote numerous tales and articles in magazines, but is best known by *London Labor and the London Poor*, a cyclopædia of information on the condition of the working classes. Among his other works are *The Mormons, or Latter-Day Saints*, published in 1852, and *The Wonders of Science*, in 1855. In conjunction with his brothers, Horace and Augustus, he published a variety of fairy tales and farces, and several works of humorous fiction:—*The Greatest Plague of Life, Whom to Marry and How to get Married, The Magic of Kindness, Peasant-boy Philosopher, and Tricks of Trade*. He died July 25, 1887.

MAYNARD, HORACE, born in Massachusetts, August 13, 1814; died in Tennessee, May, 1882. He graduated at Amherst in 1838 and became instructor in the East Tennessee College. He was admitted to the bar of Tennessee and practiced until 1857, when he was elected to congress on the Know-Nothing ticket. In 1864 he became attorney general of the State, and from 1866 to 1875 he served in congress as a representative. From 1875 to 1880 he was United States minister to Turkey, and in August, 1880, became postmaster-general under Hayes, and served until March 4, 1881.

MEAD, LARKIN G., born in New Hampshire, January 3, 1835; studied sculpture with Henry Kirke Brown, and in 1855 produced his first work. One of the most noted of his works is the statue of Abraham Lincoln at Springfield, Ill.

MEADE, GEORGE GORDON, general in the United States army, was born in Cadiz, Spain, where his father was an agent of the United States navy, December 30, 1815. He graduated at West Point in 1835, and, after serving but one year in the army, resigned to begin practice as a civil engineer. He was frequently employed by the government, and reentered its military service in 1842. He served with distinction on the staffs of Taylor and Scott in the Mexican war, and in scientific work. At the outbreak of the Civil war he was placed in command of a brigade of volunteers, soon rising to the command of a division, and joining his fortunes permanently to those of the army of the Potomac. He led his division through the Seven Days' battle, being severely wounded at Glendale, through the Antietam campaign, and at Fredericksburg, where he particularly distinguished himself. At Chancellorsville he commanded the fifth corps; and when Hooker resigned the command of the army, and while the army itself was in hasty movement northward to check Lee's invasion of the North in 1863, Meade was appointed to the command. He accepted it with the greatest reluctance, and



altogether from a sense of duty. He had inclined to fight on the line of Pipe Creek, to the south of Gettysburg; but Reynolds fell into collision with Lee's advance at Gettysburg, other corps hurried to support, and Gettysburg became historical. When Grant assumed general command in 1864, Meade continued to command the army of the Potomac under him, and mutual good-feeling enabled them to maintain this delicate relation without friction, and with the best results. At the close of the war, being major-general in the regular army, he commanded the military division of the Atlantic until his death at Philadelphia, November 6, 1872.

MEAGHER, THOMAS FRANCIS, born in Waterford, Ireland, August 3, 1823; was educated at Stonyhurst (Catholic) College, England, and became one of the leaders of the "Young Ireland" party, 1846-48. In October, 1848, he was convicted of treason and sentenced to death, but this was commuted to banishment for life. He was sent to Van Diemen's Land but escaped in 1852 and came to the United States, where he practiced law. At the beginning of the Civil war he joined a New York regiment and was present at the first battle of Bull Run. Later, in 1861, he organized the "Irish brigade" in New York city. As brigadier-general he fought at second Bull Run, Fredericksburg, Antietam, and Chancellorsville. In 1865 he was appointed secretary of the Territory of Montana, and while exercising the duties of governor *pro tem.* was drowned in the Missouri river, July 1, 1867.

MECKLENBURG-STRELITZ, GRAND DUKE OF, (FREDERICK WILLIAM CHARLES GEORGE ERNEST ADOLPHUS GUSTAVUS), a lieutenant-general in the Prussian army, born October 17, 1819; married, June 28, 1843, the Princess Augusta Caroline Charlotte Elizabeth Maria Sophia Louisa of Cambridge, daughter of the late Duke of Cambridge. He succeeded his father, September 6, 1860, and has one son, George Adolphus Frederick Augustus Victor Ernest Gustavus William Wellington, born July 22, 1848.

MEDILL, JOSEPH, born in New Brunswick, Canada, April 6, 1823; removed to Ohio when a boy, and practiced law in Massillon. He founded a Free Soil and a Whig newspaper in Cleveland, Ohio, and in 1855 purchased an interest in the Chicago *Tribune*, of which he is editor and chief owner. In 1871 he was elected mayor of Chicago. He was also a member of the Illinois constitutional convention in 1870, and afterward of the civil service commission, and is credited with having refused several appointments as foreign minister. He died Mar. 16, 1899.

MEDING, OSKAR, a German novelist, who writes under the pseudonym, "Gregor Samarow," was born April 11, 1829, at Königsberg, being the son of the governor of East Prussia. He studied law in his native town, at Heidelberg and at Berlin, from 1848 to 1851, when he became an advocate at Marienwerder. At a later period he was employed in the magistracy and administration; and in 1859 he quitted the public service of Prussia and joined that of Hanover. Sent on a mission to the Elector of Hesse, in 1866, he returned to Hanover at the time of the Prussian invasion of that country; rejoined the king, who was with the army, and, after the catastrophe of Langenesalza, followed the king to Vienna. He went to Paris in the following year as the representative of the interests of the deposed king. In 1870 he gave in his adhesion to the Prussian government, and after residing two years in Switzerland, and at Stuttgart, he settled in Berlin, where, keeping wholly aloof from politics, he began to write his personal reminiscences, in the form of novels, under the pseudonym of "Gregor Samarow."

MEDLEY, JOHN, D.D., bishop of Fredericton, and metropolitan of Canada, born in 1804; was educated at Wadham College, Oxford, where he graduated B.A. in honors in 1826, and M.A. in 1830. He was for several years vicar of St. Thomas', Exeter, and prebendary of that cathedral, and in 1845 was consecrated first bishop of Fredericton. His diocese included the entire province of New Brunswick. In 1879 he became metropolitan of Canada. He died September 9, 1892.

MEEKER, JOSEPH R., artist, was born in New Jersey, April 21, 1827, and exhibited at the American Art Union about 1850. He removed to St. Louis and devoted his attention to landscape painting, in which he became very successful.

MEIGS, JAMES A., born in Philadelphia, July 31, 1829; died November 8, 1879. He held the chair of physiology in the Pennsylvania Medical College and was also professor of the institutes of medicine in Philadelphia College of Medicine. He became distinguished as an anatomist and a pathologist and was a member of various medical societies. His articles on craniology and ethnology are of value.

MEIGS, MONTGOMERY C., born in Augusta, Ga., May 3, 1816, graduated at the United States Military Academy in 1836, and was appointed to the artillery, but transferred the following year to the engineer corps. For many years he was occupied in the engineering service on the sea coast and in the construction of the government works at Washington, D. C., and elsewhere. In May, 1861, he was promoted colonel of the 11th infantry, and the following day was made quartermaster-general of the United States army, with the rank of brigadier-general. This post he held until his retirement from active service in November, 1882. During the whole of the war General Meigs was engaged in directing the equipment and supplies of the armies in the field. In 1876 he was a member of the commission for reorganization of the army, and after his retirement he served as the architect of the pension bureau building at Washington, which was completed in 1887. He was a regent of the Smithsonian Institution. He died in January, 1892.

MEILHAC, HENRI, a French dramatic author, born in Paris in 1832; was educated at the Lycée Louis-le-Grand. From 1852 to 1855 he contributed with pen and pencil to the *Journal pour Rire*, and in 1855 his first dramatic efforts, *Satania* and *Garde toi, je me garde* were produced at the Palais Royal, but without much success. In 1860, in collaboration with M. Ludovic Halévy, he wrote *L'Étincelle*, and *Une heure avant l'ouverture*, both played at the Vaudeville, and in 1861, with M. Arthur Delavegne, *La Vertu de Célémène*, produced at the Gymnase, which became very popular, notwithstanding its improbable plot. In conjunction with the above-mentioned authors, M. Meilhac has produced a large number of plays, the chief among them being *La Belle Hélène*, *Barbe Bleue*, *La Grande Duchesse de Gérolstein*, *Frou-frou*, etc. Died July, 1897.

MEISSONIER, JEAN LOUIS ERNEST, painter, born at Lyons about 1812; went, while young, to Paris, and for some time attended the studio of M. Léon Cogniet. He displayed remarkable ingenuity in microscopic painting, which no one in France had attempted before him, and his *Little Messenger*, exhibited in 1836, attracted the attention of critics, who were astonished that so much precision could be allied to such delicacy of finish. In 1853 he exhibited four pictures, all in his minute and elaborately careful manner, all of entirely different subjects, each one perfect in its way. In the salon of 1857 he had nine subjects, all distinguished by an exquisite touch, and manifesting great care and patience. His most celebrated pictures are the *Napoleon Cycle*, four



small paintings from the life of the first Napoleon, of which 1814—the *Campaign of France*—is certainly his masterpiece. He obtained a medal of the third class in 1840, one of the second class in 1841, and two of the first class in 1855. He was decorated with the Legion of Honor in 1840; was made grand officer in June, 1856; commander in June, 1867, and member of the Academy of Beaux Arts in 1861. In 1884 an exhibition of his works was held in Paris. Meissonier died January 31, 1891.

MELBA, NELLIE, singer, born in Australia, May 19, 1865. She studied under Madame Marchesi in Paris, and made her stage *début* October 15, 1887, in *Rigoletto*, at Brussels, and her pure soprano voice, of great power, range and beauty, soon made her the most admired of artists in grand opera. For her Bemberg wrote *Elaine*, produced in London in 1892. She sang in grand opera in the United States in 1894 and 1895, winning popular triumphs by her renditions of "Lucia," "Juliet," "Elaine," "Ophelia," and "Marguerite," in *Faust*.

MELIKOFF, LORIS, a Russian general, of Armenian descent, born at Moscow, 1824. In the Crimean war he was colonel of a light cavalry regiment, won the rank of general, fought in the Caucasus, and became governor of Vladi-Kavkas, in Circassia, in 1860. Some years afterward he obtained leave of absence because of ill health and was staying at Wiesbaden when the declaration of war by Russia against Turkey recalled him to active service. He was appointed adjutant-general to the Grand Duke Michael, the imperial lieutenant commanding-in-chief of the army of the Caucasus. It was in fact Gen. Loris Melikoff who directed all the military operations in a country with which no one was more intimately acquainted than himself. To him in particular was due the capture of Ardham by the Russian troops, May 17, 1877. He died Dec. 27, 1888.

MELLO, CUSTODIO JOSÉ DE, Brazilian naval officer and revolutionist, born in 1845. He was a captain in the navy at the time of the bloodless revolution, in which he took a prominent part, that overthrew the empire in 1889, and was promoted to admiral by President Fonseca in 1890, and for a time was minister of marine. On September 6, 1893, he seized the Brazilian war ships in the harbor of Rio Janeiro and declared war on President Peixoto. He captured some of the forts but was unable to establish a blockade through the refusal of foreign powers to recognize him as a belligerent. He captured Santa Catherina in September, established a provisional government there and carried on the war six months until President Peixoto, having secured war ships from Europe and the United States, captured Mello's fleet and suppressed his rebellion. Mello was repulsed at Rio Grande do Sul April 16, 1894, and took refuge at Buenos Ayres, Argentine Republic.

MELLON, MRS. ALFRED, known under her maiden name, Miss Sarah Jane Woolgar, born July 8, 1824; made her first appearance in London in the Adelphi theater, in September, 1843, in a farce called *Antony and Cleopatra*, when her merit was recognized, and she found herself high in favor with the London public. She took part in all the Adelphi triumphs from the date of her first appearance till her retirement; indeed, except for very brief engagements, she has appeared at no other London theater. She became the wife of the late Mr. Alfred Mellon, the popular composer and conductor, for some time the leader of the orchestra at the Adelphi theater, who died in June, 1867.

MELVILLE, GEORGE WALLACE, born in New York city, January 10, 1841, entered the United States navy as an engineer in July, 1861, and rose through the intervening grades to the rank of lieutenant-com-

mander. He was engineer of the *Jeannette*, which sailed on July 8, 1879, under the command of Lieut. George W. DeLong, on a polar expedition. Melville accompanied DeLong over the ice to Bennett Island after the sinking of the *Jeannette* in June, 1881, and after the division of the party he commanded one of the *Jeannette's* boats, which reached the mouth of the Lena river in September of that year. Melville afterward discovered the remains of DeLong and his eleven companions, and after his return to the United States he was appointed engineer-in-chief in the United States navy, with the rank of commodore. He is the author of *In the Lena Delta*, an account of the voyage of the *Jeannette*.

MELVILLE, HERMAN, author, was born in New York city, August 1, 1819. In 1837 he went to sea as a common seaman, to Liverpool, and several years later sailed around Cape Horn, for a whaling cruise in the South Pacific Ocean. But as the treatment to which he was subjected was harsh and forbidding, he, with a companion, deserted when the vessel reached one of the Marquesas Islands. Here the two mariners were held captive for several months. Altogether Melville spent about two years among the islands of the Pacific Ocean. In 1850 he removed to Pittsfield, Mass., but subsequently returned to New York city, where he became employed at the custom house. His adventures formed the basis of his earliest work, *Typee* (New York, 1846), and were further related in *Omoo* (1847). In both books actual adventure is apparently mingled with romance, which secured for them an extensive sale. But the vein was soon exhausted. Mr. Melville died September 28, 1891.

MEMMINGER, CHARLES GUSTAVUS, born in Würtemberg, Germany, January 9, 1803; came to the United States when very young and settled in South Carolina. In 1836 he was elected to the legislature of that State, in which he sat until 1852. From February, 1861, until June, 1864, he was secretary of the treasury in the Confederate Government. After his resignation he lived in retirement, and died at Charleston, March 7, 1888.

MENABREA, LOUIS FREDERICK, MARQUIS DE VAL-DORA, an Italian general and statesman, born at Chambéry (Savoy), September 4, 1809; studied with distinction at the University of Turin, and entered the corps of engineers as lieutenant. At an early age he became favorably known by his scientific attainments, which led to his appointment as professor of mechanics in the Military Academy, in the School of Artillery, and in the University of Turin, and to his election, in 1839, as a member of the Academy of Sciences in that city. He attained the rank of captain in 1848. Sent by King Charles Albert, of Sardinia, on a mission to the Italian duchies, he worked to procure a vote in favor of union with the Subalpine kingdom. He was next elected to the Chamber of Deputies, and attached as chief officer, first to the ministry of war, and next to that of foreign affairs. These functions he resigned on the accession to power of Gioberti, but he resumed them after the defeat at Novarra. In the war of Italian Independence Count Menabrea, who had been advanced to the rank of major-general, and placed at the head of the engineering department of the army, executed several important works, including the investment of Peschiera, and was present at the battles of Palestro and Solferino. On the cession of his native province to France, he determined to retain his Italian nationality. Soon afterward he was nominated a senator by King Victor Emmanuel. He was also made lieutenant-general, and conducted the military operations at Ancona, Capua, and Gaeta. In 1861 he became minister of marine in the administration of Baron Rica-



solì, and in 1866 he was sent to Germany, where, as plenipotentiary of Italy, he signed the treaty of Prague. In 1867 he was entrusted by the king, whose first aide-camp he had been for some time previously, with the formation of a cabinet in which he held the portfolio of foreign affairs, besides being president of the council; and notwithstanding numerous financial difficulties, and the complications of the Roman question, he remained in power till November, 1869, when a new cabinet was formed by Signor Lanza. General Menabrea was sent as ambassador to Vienna in November, 1870, but was recalled in the following year. He was appointed ambassador at the court of St. James in May, 1876. He was subsequently appointed ambassador at Paris. Ennobled in 1843, he was created a count in 1861, and Marquis de Val-Dora in 1875. Died May, 1896.

MENARD, PIERRE, born in Quebec, Canada, in 1767; removed to Kaskaskia, Ill., in 1788; became a United States district judge and member of the Territorial legislature, and in 1819 became the first lieutenant-governor of the new State of Illinois. He died in 1845.

MENARD, RENÉ, a French missionary, was born in Paris in 1604; entered the Society of Jesus in 1624, and came to Montreal in 1640. For more than twenty years he was active as a missionary among the Algonquin, Cayuga, and Oneida Indians of central New York. He died while on a journey to visit some Huron tribes on the Black river. A county in Illinois is named after Father Menard.

MENDENHALL, THOMAS C., born in Ohio, October 4, 1841; became in 1873 professor of physics and mechanics in Ohio University, and occupied that position for five years. From 1878 until 1881 he was occupied with meteorological observations in Japan, and on his return resumed his old position. In 1884 he became connected with the United States signal service, and in 1886 accepted the presidency of a Polytechnic Institute in Indiana.

MENDÈS, CATULLE, was born at Bordeaux in 1840. In 1860 he established in Paris *La Reine Fantaisiste*, in which he published *Le Roman d'une Nuit*, a drama in verse, but being under age he was condemned to two months' imprisonment and a fine of 500 francs. His other works include *Philomèla* (a volume of lyrics, 1864); *Hesperus* (a poem, 1869); *La Colère d'un Franc-tireur Odelette Guerrière* (1871); *Contes Épiques* (1872), republished in 1876 under the title of *Poésies*; several novels, *Les Folies Amoureuses* (1877); *Les Mères Ennemies* (1880); *La Divine Adventure* (1881), in conjunction with M. Lesclide; *Le Rose et le Noir* (1885), and various pieces for the theater. In 1866 he married Mlle. Judith Gautier.

MENKEN, ADAH ISAACS, was born in New Orleans, of Jewish parentage, June 15, 1835. She appeared as a dancer in Havana, Cuba, at an early age, and played in Texas, Mexico, and New Orleans. In Galveston, 1856, she married Alexander Isaacs Menken, a musician, from whom she subsequently obtained a divorce. For two years she appeared in various parts as leading lady in theaters of the South, and on April 3, 1859, she married, in New York city, John C. Heenan, of California, the well known pugilist, from whom she was divorced in 1862. She first appeared in New York city in 1859, as an actress, and in that city married Robert H. Newell, better known by his nom de plume of "Orpheus C. Kerr." After a visit to California in July, 1863, she went to England, where she drew crowded houses by playing her favorite character of *Mazeppa*. In 1865 she terminated her matrimonial engagement with Newell, and a year later married one James Barclay. She died in Paris, August 10, 1868, and is buried

in the cemetery of Mont Parnasse. She was the author of a book of poems called *Infelicia*, of which Charles Dickens spoke in high terms.

MENZEL, ADOLF FRIEDRICH ERDMANN, German historical painter, was born December 8, 1815, at Breslau, but removed in 1830 with his parents to Berlin, where he studied art at the academy. In 1836 he made his first attempt in oil painting, *The Chess Players*, followed by several other pictures; but from 1839 to 1842 he worked at the illustrations to Kugler's *History of Frederick the Great*. Since then he has become celebrated as a painter of the most life-like and accurate scenes from the age of Frederick. His first important work of the period was the *Round Table of Frederick the Great* (1850); followed by the *Flute Concert at Sans Souci* (1852); *Frederick's Reception in Breslau*, and *Frederick at the Battle of Hochkirch* (1856); *Blücher and Wellington at Waterloo* (1858), and many others. All these paintings are remarkable for strong realism, great power of characterization, and for the masterly skill with which every detail is represented. He has been, since 1856, professor at the Berlin Academy, and is a member of the academies of Vienna and Munich, and honorary member of the English Royal Water Color Society.

MERCER, HUGH, born in Aberdeen, Scotland, in 1721; died near Princeton, N. J., January 12, 1777. He was educated at the University of Aberdeen, became a physician, and in 1745 served as surgeon in the battle of Culloden. He came to America in 1747, and located near what is now Mercersburg in Pennsylvania. He was made a captain in the wars with the Indians; and was wounded in the expedition of General Braddock. In 1758 he was promoted lieutenant-colonel, and for several months commanded the post at Pittsburg. He afterward settled in Fredericksburg, Va., where he practiced medicine. On the outbreak of the Revolution he raised three regiments of minute men on behalf of the colonies; in 1776 was made colonel and organized the Virginia militia. On June 5, 1776, congress appointed him brigadier-general. He led the column of attack at Trenton, N. J., and advised the night-march on Princeton. Commanding the advance he encountered a large body of British troops and in the ensuing action was felled to the ground by the butt of a musket and several times bayoneted. A monument has been erected to his memory at Laurel Hill cemetery, Philadelphia.

MERCHANT, CHARLES SPENCER, born in Albany, N. Y., February 22, 1795; became the first cadet at the United States Military Academy, and was graduated from there in 1814. He served in the war against Great Britain during the disturbances in Canada, and in the Mexican war. In 1861 he was promoted colonel of artillery, and commanded Fort Washington on the Potomac until August, 1863, when he was retired from active service, and was brevetted brigadier-general for long and valuable services. At the time of his death, in December, 1879, he was senior officer in the United States army.

MERCIÉ, MARCUS JEAN ANTOINE, a French sculptor, was born at Toulouse, October 30, 1845. He was a pupil of Falguière and Joffroy, and studied at the École des Beaux Arts. In 1868 he obtained the prix de Rome, and the same year exhibited a medallion at the Salon. In 1872 he sent from Rome a plaster statue of *David*, and *Dalila*, a bust; and in 1874 *Gloria Victis*, a group in bronze, attracted much attention, and was purchased by the government. *The Genius of the Arts*, intended for the grand entrance of the Louvre, was exhibited in 1877; the plaster model of the bas-relief for the tomb of Michelet in Père Lachaise, in



1879; and a statue of *Arago*, in 1880. Besides these he has modeled various portrait busts. M. Mercié was decorated with the Legion of Honor in 1874, and made an officer in 1879.

MERCIER, HONORÉ, was born in Quebec, October 15, 1840; was admitted to the bar of Lower Canada in 1867, and edited *Le Courrier de St. Hyacinth*. He sat in the Dominion Parliament and the Legislative Assembly of Quebec, and served as solicitor-general in 1879. In 1881-86 he was reelected, and in 1887 became premier. His administration was dismissed in 1891 for corruption, but he was not involved personally. He died October 30, 1894.

MERCUR, ULYSSES, lawyer, born in Bradford county, Pa., August 12, 1818; died June 16, 1887. He served as judge, 1861-65, was four terms in congress, became justice of the Supreme Court of Pennsylvania in 1872, and chief justice in 1883.

MEREDITH, GEORGE, novelist and poet, born in Hampshire, England, about 1828, and educated partly in Germany, was brought up to the law, which he quitted for literature. He has written *Poems* (1851); *The Shaving of Shagpat, an Arabian Entertainment* (a burlesque prose poem, 1855); *Farina, a Legend of Cologne* (1857); *The Ordeal of Richard Feverel* (a philosophical novel, bearing upon the more serious questions of moral education 1859); *Evan Harrington* (a serial tale of modern life, first printed in *Once a Week*, and republished in a separate form, 1861); *Modern Love: Poems and Ballads* (1862); *Emilia in England* (1864); *Rhoda Fleming* (1865); *Vittoria* (1866); *The Adventures of Harry Richmond* (1871); *The Egoist* (a novel, 3 vols., 1879); *The Tragic Comedians* (2 vols., 1881, a novel founded on the life and tragic fate of Ferdinand Lassalle); *Diana of the Crossways*; *Lord Ormont and his Aminta* (1894); *The Amazing Marriage* (1895), and other novels and poems.

MEREDITH, SIR WILLIAM COLLES, born in Ireland, May 23, 1812; studied law, emigrated to Canada, and was called to the bar of Montreal in 1836. In 1844 he became queen's counsel, and from 1849 to 1866 served as judge of the Superior Court and of the Court of Queen's Bench successively. From 1866 to 1884 he was chief justice of the Superior Court. He received the degrees of D.C.L. and LL.D., and was knighted in 1886.

MEREDITH, SOLOMON, born in North Carolina in May, 1810; died in Indiana, October, 1875. He removed to Indiana when a lad, served twice as sheriff of Wayne county, was four times elected to the State legislature, and served one term as United States marshal. In 1861 he became a colonel in the volunteer service, and was promoted brigadier-general in October, 1862. He commanded the "Iron Brigade" through the war, took a distinguished part in the battles of Chancellorsville and Gettysburg, and was severely wounded at the latter. On his recovery he commanded at Cairo, Ill., and Paducah, Ky. On August 14, 1865, he was brevetted major-general of volunteers. His three sons served in the national army and two were killed in battle.

MEREDITH, SULLIVAN AMORY, brother of the foregoing, born in Philadelphia, July 5, 1816; died December 27, 1874. In April, 1861, he entered the volunteer service as colonel of the 10th Pennsylvania regiment; served in the Shenandoah Valley, and was with McDowell's corps in the second battle of Bull Run, where he was severely wounded. He was promoted brigadier-general of volunteers, served in the southwest, and was mustered out in August, 1865.

MEREDITH, WILLIAM MORRIS, born in Philadelphia, June 8, 1799; died there August 17, 1873. He graduated at the Pennsylvania University in 1812, and

practiced law in Philadelphia. He was a member of the select council, of the State legislature, and of the constitutional convention of 1837. In 1849 he became secretary of the United States treasury, and held that office until the death of President Taylor. From 1861 to 1867 he was attorney-general of Pennsylvania, and in 1873 he presided over the constitutional convention of that year.

MERIVALE, CHARLES, D.D., churchman, brother of the late Herman Merivale, born in 1808, was educated at Harrow, Haileybury, and St. John's College, Cambridge, of which he was successively scholar, fellow, and tutor. He took his B.A. degree in high honors in 1830, was a select preacher before the University of Cambridge in 1838-40, one of the preachers at Whitehall in 1839-41, Hulsean lecturer at Cambridge in 1861, and Boyle lecturer in 1864 and 1865. He was rector of Lawford, Essex, 1848-69; chaplain to the speaker of House of Commons from 1863 to 1869; and was installed dean of Ely, December 29, 1869. He was the author of a *History of the Romans Under the Empire* (published in 8 vols., 8vo, in 1850-62); *Boyle Lectures* (1864-65); *Translation of Homer's Iliad* (in English rhymed verse, 2 vols., 1869); *General History of Rome from the Foundation of the City to the Fall of Augustulus* (B.C. 753-A.D. 476, 8vo, London, 1875); and *Lectures on Early Church History* (1879). He died December 27, 1893.

MERIVALE, HERMAN CHARLES, son of the late Herman Merivale, permanent under-secretary of state for the colonies, and afterward for India, was born in London, January 27, 1839, and educated at Harrow and at Balliol College, Oxford, where he graduated B.A. in 1861. He was called to the bar at the Inner Temple in 1864; and served on the western circuit and Exeter sessions. He afterward practiced in the privy council on Indian appeals. From 1870 to 1880 he was editor of the *Annual Register*, and in 1879, owing to ill-health, was obliged to give up the legal profession. Since then he has occupied himself almost entirely with literature and politics. His chief works are the plays *All for Her* (1874); *Forget Me Not* (1879); *The Cynic* (1882); *Fedora* (from Sardou, 1883); and *Our Joan* (1885); a novel, *Faust of Balliol* (1882); *Binko's Blues* (a fairy tale, 1884); *White Pilgrim*, and *Other Poems* (1883); *Florien and Other Poems* (1884).

MERIWETHER, LEE, born in Mississippi, December 25, 1862. He has written extensively on the tariff question and the condition of labor in the United States. He published in 1887 an account of a pedestrian tour through Europe.

MERMILLOD, GASFARD, D.D., bishop of Geneva, born at Carouge, near Geneva, in 1824; in 1846 became parish priest of Geneva. There he displayed remarkable activity; was mainly instrumental in raising the church of Notre Dame, which was opened in 1857, and obtained great influence at Rome on account of his zeal and rare eloquence. In 1864 he was consecrated bishop of Hebron, in *partibus infidelium*, and appointed auxiliary to the bishop of Lausanne and Geneva, as vicar-general. In 1873 Pius IX. nominated him vicar-apostolic of Geneva, which was thus separated from the diocese of Lausanne. This act was considered as the creation of a new hierarchical office in the canton without the consent of the government. Consequently on February 17th the bishop was exiled, and it was added, "this decree is to hold good as long as the person elected shall not declare to the federal council, or to the government of Geneva, that he renounces the functions conferred upon him contrary to the decisions of the cantonal and federal authorities." For ten years Bishop Mermillood was absent from his



flock, yet ever active in his zealous labors for the Catholic faith in France, in Rome, and in other parts of Europe, being regarded as one of the most eminent prelates of the Roman Church. In 1879 Leo XIII. settled the dispute by appointing him bishop of Freiburg-Lausanne, Geneva, suppressing the vicariate apostolic. Bishop Mermillod published numerous sermons, conferences, discourses, and other theological works. He died February 23, 1892.

MERRILL, Lewis, born in Pennsylvania, October 28, 1834; graduated at West Point in 1853, and in 1861 was made colonel and chief of cavalry on the staff of General Frémont. He led a brigade in the army of the southwest, commanded the district of northern Missouri, and was engaged in several battles with the guerilla cavalry. He commanded the cavalry in Missouri against Price, and later was transferred to the army of the Cumberland as brigadier-general. In March, 1875, he was made inspector-general and judge advocate of the department of the Platte. He was afterward assigned to the command of the military district of South Carolina, where he did good service in the suppression of the Ku-Klux conspiracy. In 1876 he performed a similar duty in Louisiana, and in 1886 he was retired from active service on account of disability.

MERRILL, STEPHEN MASON, born in Jefferson county, Ohio, September 16, 1825; became a traveling preacher in the Methodist Episcopal church in 1864, edited the *Western Christian Advocate* from 1868 to 1872, and was consecrated bishop in the latter year. He is D.D. of Ohio University, and LL.D. of the Northwestern University.

MERRILL, WILLIAM EMERY, born in Brown county, Wis., October 11, 1837; graduated at West Point in 1859, was assigned to the engineer corps and served as assistant engineer in the army of the Potomac and afterward as chief engineer of the army of Kentucky, and of the army of the Cumberland. He served in all important actions during the campaigns of 1862-63-64 and was promoted colonel for faithful services at Chickamauga and Lookout Mountain. After the war he served as chief engineer on the staff of General Sherman and had charge of the improvements on the Ohio and other rivers. He was promoted lieutenant-colonel February, 1883, and died in 1891.

MERRY, WILLIAM WALTER, M.A., rector of Lincoln College, Oxford, was born in 1835, and educated at Cheltenham College, whence he proceeded to Oxford, as a scholar of Balliol, in 1853. Mr. Merry was placed in the first class in classical moderations in 1854, and in the second class in lit. humaniores in 1856. He gained the chancellor's prize for the Latin essay in 1858; and in the next year he was elected fellow and tutor of Lincoln College, an appointment which he held till his election in 1884 to the place of rector of that society, in succession to the late Mark Pattison. Mr. Merry has taken a prominent part in teaching and examining in the university, having frequently filled the post of classical moderator. The editions of classical authors, which he has undertaken for the Clarendon press, are well known and widely circulated; the principal ones are *Homer, Odyssey*, i-xii., 2d ed., 1886; the same for schools, 29th thousand; and a series of the plays of Aristophanes.

METTERNICH, PRINCE (RICHARD CLEMENT JOSEPH LOTHAIRE HERMANN), diplomatist, son of the famous statesman Prince Metternich, born at Vienna, January 7, 1829, was educated as a diplomatist, became attached to the Austrian embassy at Paris in 1852, and was made secretary of legation there in December, 1854. In the complications which arose in 1859, before the Italian war broke out, Prince Metternich was in-

trusted by the Austrian Government with a special mission to Paris, and at the close of the war he became ambassador of Austria at the French court, which position he retained till December, 1871. He was named hereditary counselor of the Austrian empire, 1861, and counselor, 1864. He died March 1, 1895.

MEYER, JOHANN GEORG, a distinguished German painter, best known as "Meyer von Bremen," was born at Bremen in 1813, and died in 1886. His principal works are pictures of domestic life, and particularly of children. The best known is the *Game of Blind Man's Buff*.

MEYRICK, FREDERICK, M.A., born in 1826, was educated at Trinity College, Oxford, of which he was successively scholar, fellow, and tutor; graduated B.A. in honors in 1847, and afterward held the university offices of select preacher and public examiner. He has written several theological works.

MIANTONOMO, chief of the Narragansetts; died in September, 1643. In 1636 he succeeded his uncle, Canonicus, in the government of his tribe. Miantonomo was friendly to the colonists of Massachusetts, and proposed to the governor the complete destruction of the Pequot nation, making a treaty that neither party should make peace with the enemy without the consent of the other. In 1636 Canonicus and Miantonomo made over to Roger Williams, for his colony, a section of land at the head of Narragansett Bay, now partially occupied by the city of Providence. In 1637 he aided in fighting the Pequots; but in the following year he and Uncas, sachem of the Mohegans, agreed not to make war without first appealing to the colonists. Eventually the unfriendly feeling between the Narragansetts and Mohegans could no longer be restrained, and hostilities followed. Miantonomo, with 600 warriors, marched against the rival chieftain, Uncas, who led 400 men. The latter proposed a duel between themselves as a settlement of their difficulties, which Miantonomo declined, when the forces of Uncas suddenly fell on the Narragansetts and put them to flight. Their chief, who was encumbered with a coat of mail, was taken prisoner and surrendered to the English at Hartford, who returned him to Uncas for punishment. The Mohegan chief then sent him to the spot where he was captured, and caused him to be slain.

MICHAEL, GRAND DUKE (NICOLAIEVITCH), brother of the late Alexander II., emperor of Russia, and fourth son of the late Czar Nicholas I., was born October 13 (25), 1832. He is a general and grand master of artillery, general aide-de-camp to the Czar, governor-general of the Caucasus, and head of several regiments of artillery, cavalry, and infantry. In the war between Russia and Turkey in 1887 the Grand Duke Michael had the chief command of the army of the Caucasus. He married, in August, 1857, Olga-Féodorovna (formerly Cecilia Augusta), daughter of the late Leopold, grand duke of Baden. The eldest of his children, the Grand Duke Nicholas, was born April 14, 1859.

MICHEL, LOUISE, poet, communist and anarchist, was born in 1839 in Lorraine, France. At fourteen she began to teach, and to write in the papers against Napoleon. In 1855 she went to Paris as a teacher, and even then was an enthusiastic Republican. In 1870 she was an active worker in the revolutionary commune, and fought for her principles in the streets of Paris. She was arrested, and banished to New Caledonia. On her return she became an anarchist, and was again imprisoned in 1883 and 1886. Since her release she has lived in London, and has written her *Memoirs* and a novel, *The Microbes of Society*.



**MICHELET, KARL LUDWIG**, born at Berlin in 1801; died in 1893. In 1825 he became professor of philology and philosophy in the French gymnasium of Berlin, and later was promoted to the chair of philosophy in the university of that city. He published the *History of the German Philosophy, from Kant to Hegel*.

**MICHELSON, ALBERT A.**, born in Poland, December 19, 1852; graduated at the United States Naval Academy in 1873, and served in the navy until 1881. In that year he became professor of physics at the Case School of Applied Science at Cleveland, Ohio. He is a member of several learned societies, and has served as vice-president of the American Association for the advancement of science.

**MIDDLETON, ARTHUR**, one of the signers of the Declaration of Independence, was born in South Carolina in June, 1722, and died there in 1787. He became a member of the provincial congress and of the council of safety in 1775 and in 1776 a delegate to the Continental congress, signing the Declaration on behalf of his native state. He afterward served in congress and in the State legislature.

**MIDHAT PASHA**, born in Constantinople, 1822, exterminated the brigands of Roumelia in 1857 and became successively acting governor of Bulgaria, pasha, governor of Albania, governor-general of Bulgaria, president of the council of state, grand vizier, governor of Bagdad, minister of justice and governor-general of Syria. In 1881 he was tried and found guilty of the murder of the Sultan Abdul Aziz in 1876 and sentenced to death, but this was commuted to banishment, and he died in South Arabia, May 11, 1884.

**MIFFLIN, THOMAS**, soldier, born in Philadelphia, Pa., in 1744; died in Lancaster, Pa., January 20, 1800. His parents were Quakers. He was graduated at Philadelphia College in 1760; traveled in Europe in 1765; in 1772 was elected to the legislature, and in 1774 to congress. On the outbreak of the Revolution he became aid-de-camp to the general-in-chief, with rank of colonel. On May 19, 1776, he was commissioned brigadier-general, and participated in the retreat from Long Island, where he commanded the rear guard. Later, in Philadelphia, General Mifflin organized three regiments, and sent 1,500 men to Trenton, N. J. On February 19, 1777, congress commissioned him major-general. Together with other generals he was opposed to the Fabian policy of General Washington, and offered his resignation, which was not accepted. In March, 1778, both he and General Gates were discharged from their places on the board of war. On November 3, 1783, he was chosen president of congress, and in 1787 was a delegate to the convention that framed the constitution of the United States. From 1791 until 1800 he was governor of Pennsylvania.

**MILAN OBRENOVITCH I.**, ex-king of Serbia, grandson of Ephraim Obrenovitch, brother of Milos, and second cousin of Prince Michael, was born August 10, 1854, at Jassy, of a Moldavian mother, who had married the only son of Prince Ephraim. He was adopted by Prince Michael, who had no children by his marriage with Julia Hunyadi, and was sent by him, in 1864, to Paris to be educated at the Lycée Louis-le-Grand. The youth's studies were interrupted by the events of 1868, and the assassination of Michael Obrenovitch. Hastening to Serbia, he was proclaimed Prince in July of that year, the government of the country being intrusted, during his minority, to a council of regency, who continued the liberal and reforming policy begun by Michael III. Their regency terminated with the coronation of Prince Milan IV.; but M. Ristic continued to possess the confidence of the prince, who was only eighteen years of age when he was crowned

in Belgrade cathedral, August 22, 1872. On June 12, 1876, Prince Milan issued a proclamation stating that "the insurrection in the Turkish provinces had found its way to the frontiers of Serbia, which had compelled him to place his people under arms." Shortly afterward (June 22d), he sent what may be called a threatening letter to the grand vizier, and he formally proclaimed (June 30th) that he intended to join his arms to those of Bosnia and Herzegovina in order to secure the liberation of the Slavonic Christians from the yoke of the Porte. On July 2d a joint declaration of war was sent by the prince of Serbia and the Hospodar of Montenegro to the Turkish Government, their troops crossing the frontier at the same time. The prince departed from Belgrade (July 24th), to assume the command of the Servian troops in the field; but he soon returned to his capital (August 12th), and appointed the Russian general Tchernayeff, to the command of the Servian forces. On September 1st an important battle under the walls of Alexinatz resulted in the complete defeat of the Servian army. The great powers now interposed, but the negotiations for the suspension of hostilities were delayed by an ill-advised step which Prince Milan, at the instigation of General Tchernayeff, was induced to take. On September 16th he was proclaimed king of Servia at Deligrad. War broke out again, and the Servian army though largely reinforced by Russian volunteers—men as well as officers—was ignominiously beaten. On October 31st the Turks captured the town of Alexinatz, and on the following day Deligrad was captured, thus leaving the road to Belgrade completely open. A peace was now concluded between Turkey and Servia on favorable terms to the latter. When, however, Russia made war upon Turkey, Prince Milan saw an opportunity of gaining complete independence, and a proclamation of the Servian Government, dated December 14, 1877, made known that the Servian army was immediately to cross the Turkish frontier, which it did on the following day, under the command of Generals Lesjanin and Benitzki. After the close of the war the independence of Servia was recognized, and its boundaries defined by the treaty of Berlin (July 13, 1878). Prince Milan married, October 17, 1875, Natalie, daughter of the late Russian Colonel Keschko, by his wife Pulcheria, princess of Stourdza. Servia was proclaimed a kingdom under King Milan I. on March 6, 1882. In 1885 King Milan declared war upon Prince Alexander of Bulgaria on the ground of the unlawful union of Bulgaria and Eastern Roumelia. His army had some success at first, but within a fortnight was driven back, defeated and crushed, within the Servian frontier. Milan and his wife disagreed, and she obtained a divorce from the patriarch of Servia. She was enthusiastically pro-Russian, and took no pains to hide her preferences. Finally, in March, 1889, King Milan was compelled to abdicate, which he did in favor of his son Alexander Obrenovitch, born August 14, 1876, who is now ruler of Servia. He died Feb. 11, 1901.

**MILBURN, WILLIAM HENRY**, "the blind preacher," was born in Philadelphia, September 26, 1823, and lost his sight by accident when a boy. In 1843 he became a traveling preacher of the Methodist Episcopal church and two years later he was elected chaplain of the United States congress. He held pastorates in Alabama, and in 1853 was elected chaplain of the thirty-third congress. He visited England and lectured there, and took orders in the Protestant Episcopal church in 1859, but he returned to the Methodist communion in 1871. In 1885 he again became chaplain of congress and held that position until 1893. He is a popular lecturer and author.



MILES, NELSON APPLETON, born in Massachusetts, August 8, 1839; entered the volunteer service in September, 1861, as lieutenant of infantry; engaged in the battles of the Peninsula and at Antietam, and was commissioned colonel in September, 1862. He was several times wounded while with the army of the Potomac; was made brigadier-general and brevet major-general of volunteers for his services at Chancellorsville and in the Wilderness, and was commissioned major-general in October, 1865, and mustered out of the volunteer service September 1, 1866. On July 28, 1866, he received an appointment as colonel of the 40th regular infantry, and in March, 1867, was brevetted brigadier-general and major-general of the United States army. He was transferred to the West and fought against the Comanches in the Staked Plain.

In 1876, after Custer was killed, Miles subjugated the hostile Sioux in Montana, and drove Sitting Bull over the border. He afterward captured Chief Joseph and his Nez Percés Indians. He received a brigadier-general's commission in 1880, commanded the department of the Columbia till 1885, and was transferred in succession to that of the Missouri and to Arizona. In September, 1886, he compelled Geronimo to surrender. The terms of the surrender guaranteed the Apache chief from capital punishment for his past crimes. General Miles was presented with a sword of honor. He was assigned to the department of the Pacific, and promoted major-general. Later he was transferred to the Division of the Missouri, having charge of the Indian war in 1891, and in 1894 to the Atlantic Division.

MILLAIS, SIR JOHN EVERETT, R. A., was born at Southampton, England, in 1829. The family of Millais has held for centuries a place among the lesser landlords in the island of Jersey, where the name doubtless existed long prior to the Norman conquest of England. He gained his first medal at the Society of Arts when only nine. *Pizarro Seizing the Inca of Peru*, his first exhibited picture, was at the Academy in 1846, followed by *Dunstan's Emissaries Seizing Queen Elgiva*, and a colossal cartoon at the Westminster Hall competition, *The Widow's Mite*, in 1847, and the picture of *The Tribe of Benjamin Seizing the Daughters of Shiloh*, at the British Institution in 1848. Keats' *Isabella* was the subject of his pencil in 1849. While a student in the Academy's schools, his taste had tacitly rebelled against the routine conventions of academic teaching, and he and his friends, William Holman Hunt and Dante Gabriel Rossetti, resolved to study nature as it appeared to them, not as it appeared in "the antique." These views were afterward adopted by Charles Collins and other young painters, who were termed, half in jest and half in earnest, the Pre-Raphaelite School. For a short time the artists tried to enforce their views by the pen as well as the brush, in a short-lived periodical, *The Germ, or Art and Poetry*, which appeared in 1850. The principal works executed by Mr. Millais under the influence of his new convictions are a mystical picture of *Our Saviour*, and *Ferdinand Lured by Ariel*, in 1850; *Mariana in the Moated Grange*, and the *Woodman's Daughter*, in 1851; and *The Huguenot* and *Ophelia*, in 1852. Mr. Ruskin came, in 1851, to the support of the new school with enthusiastic approval. Mr. Millais was elected an associate of the Royal Academy in 1853, and became R.A. in December, 1863. A large number of these, as well as some later pictures, were brought together in the exhibition of the artist's works held at the Grosvenor gallery in the early months of 1886. He was decorated with the Legion of Honor in 1878. In 1881 he was appointed a trustee of the National Portrait Gallery, in the place of the late Dean Stanley; and in 1882 he was elected a foreign associate of the

Académie des Beaux-Arts, in the place of the Italian sculptor Dupré. In 1885 he was made a baronet, on recommendation of Mr. Gladstone. He painted portraits of Gladstone, Bright, Salisbury, Mrs. Langtry, Cardinal Newman, and many other celebrities. His *Sweet Emma Morland*, *Halcyon Weather*, *The Last Rose of Summer*, *Shelling Peas*, *The Ornithologist* and *Bubbles* were exhibited at the World's Fair in Chicago in 1893. Died Aug. 13, 1896.

MILLER, CHARLES HENRY, born in New York city, March 20, 1842; graduated in medicine in 1864, but turned his attention to painting, and studied for several years in Germany. In 1873 he became an associate of the National Academy, and in 1879 an academician. He has produced chiefly landscapes, and has written on art topics.

MILLER, JOAQUIN, an American poet, whose real name is Cincinnati Heine Miller, was born in the Wabash district, Indiana, November 10, 1841. When he was thirteen years old his father immigrated to Lane county, Ore., whence the boy went three years later to try his fortune in California. After a wandering life of seven years, he returned home in 1860, and entered a lawyer's office at Eugene, Ore. The next year he was an express messenger in the gold-mining districts of Idaho, which he left to take charge of the *Democratic Register*, a weekly newspaper at Eugene, afterward suppressed by the authorities for its political sentiments. In 1863 he opened a law office in Cañon City, Ore. From 1866 to 1870 he served as county judge for Grant county, and during this time he began to write his poems. He published first a collection in paper covers called *Specimens*, and next a volume with the title *Joaquin et al.*, from which he derived his pseudonym. In 1870 he went to London, where he published in the following year, his *Songs of the Sierras*, and *Pacific Poems*. In 1873 appeared *Songs of the Sun Lands*, and a prose volume entitled *Life Among the Modocs: Unwritten History*. His later works are *The Ship in the Desert* (1875); *First Families in the Sierras* (1875, republished in 1881, under the title of *The Danites in the Sierras*); *The One Fair Woman* (1876); *Baroness of N. Y.* (1877); *Songs of Far Away Lands* (1878); *Songs of Italy* (1878); *Shadows of Shasta* (1881); *Memorie and Rime* (1884); *Forty-Nine, the Gold-Seeker of the Sierras* (1884); *My Own Story* (1890), and *The Building of the City Beautiful* (1893).

MILLER, SAMUEL FREEMAN, born in Richmond, Ky., April 5, 1816; graduated at Transylvania University in 1838, and practiced law in his native State until 1850, when he removed to Keokuk, Iowa. He was prominent as an abolitionist, and became a leader in the Republican party, but refused all State or local offices offered him, until in 1862 President Lincoln made him an associate justice of the United States Supreme Court. Justice Miller died in Washington, D. C., October 13, 1890.

MILLER, WILLIAM, born in Pittsfield, Mass., February 5, 1782, became a farmer, a captain of militia in the war of 1812, a county constable and a sheriff. He wrote poetry and was long an infidel, but about 1830 became interested in the study of the Bible, and joined the Baptist communion. In 1831 he persuaded himself that he had discovered the key to the mystical numbers in the book of Daniel and the Apocalypse. His calculation made it clear to him that the world would come to an end sometime between March 21, 1843, and March 21, 1844, and he proceeded to warn the people to make ready for the change. Multitudes listened to his lectures and accepted his doctrines. The dissolution of all things failed to occur within the appointed limits and Miller promulgated a new revela-



tion, fixing October 24, 1844, as the opening day of the millenium, and thousands of disciples sold their property, and gathered on hill-tops for the ascension. In spite of their disappointment they clung to their faith, and in 1845 enrolled themselves as a sect under the name of "Adventists." Miller died December 20, 1849.

MILLET, FRANCIS DAVIS, an artist and war correspondent of distinction, was born in Mattapoisett, Mass., November 3, 1846, graduated at Harvard, 1869, studied art abroad, was war correspondent of the London *Daily News* in the Russo-Turkish war, 1877-78, accompanying the Russian armies, and received numerous foreign decorations. He was juror of fine arts at the Paris World's Fair in 1878 and was superintendent of color at the World's Columbian Exposition in Chicago in 1893, having entire charge of the decorations of the buildings and executing many admirable mural paintings. Among his pictures hung in the Art Gallery were: *Antony Van Corlaer, the Trumpeter, Sweet Melodies, Old Harmonies, Rook and Pigeon, A Difficult Duet, Lacing the Sandal* and *The Window Seat*. Mr. Millet is a frequent contributor to newspapers and magazines.

MILLS, CLARK, sculptor, born in Onondaga county, N. Y., December 1, 1815; died in Washington, D. C., January 12, 1883. He made a bust of John C. Calhoun, for the city of Charleston, and was commissioned by congress to make an equestrian statue of Gen. Andrew Jackson from cannon captured by the hero, which was unveiled on January 8, 1853, in Lafayette square, Washington, D. C. Mr. Mills was the sculptor of the colossal equestrian statue of Washington, in the same city, and in 1863 he cast in bronze Crawford's colossal statue of liberty, which now crowns the dome of the capitol.

MILLS, LUTHER LAFLIN, born at North Adams, Berkshire county, Mass., September 3, 1848; was educated in the public schools of Chicago and the University of Michigan. He was admitted to the bar in 1871, and served as State's attorney for Cook county, Ill., from 1876 to 1884. In this capacity he prosecuted many cases of importance, and distinguished himself both as an efficient criminal lawyer and as an orator of convincing force and eloquence.

MILLS, ROBERT, born in Charleston, S. C., August 12, 1781; studied architecture under Latrobe, and became United States architect in 1830. He designed the United States post-office, patent office, and treasury building at Washington, and prepared the original design for the Washington monument in that city. The construction of this gigantic work was begun in 1848, but Mills died in 1855, thirty years before its completion. The monument, which was dedicated February 22, 1885, was the tallest structure ever erected by man, until excelled in height by the Eiffel tower in Paris. It is 555 feet 5 7/8 inches in height.

MILLS, ROGER Q., born in Todd county, Ky., March 30, 1832; settled in Texas and practiced law at Corsicana, and sat in congress as a Democrat from 1873 to 1892, introducing the tariff-reform bill known by his name in 1888. He was appointed United States senator in 1892 and elected for the term ending 1899.

MILLS, SEBASTIAN BACH, born in England in March, 1839; came to the United States in 1859, and established himself in New York city as a pianist. He is the author of numerous compositions for the piano.

MILNE, SIR ALEXANDER, G.C.B., was born in 1806, entered the naval service in 1817, rose to the rank of vice-admiral and commander-in-chief of the Mediterranean station in 1869, and served as junior lord of the admiralty, between 1847 and 1876. Died Dec. 29, 1896.

MILNE-EDWARDS, HENRY, born at Bruges,

October 23, 1800, died July 29, 1885. His researches in natural history, especially in the department of invertebrates, are of the utmost value to science.

MINGHETTI, MARCO, an Italian statesman, Cavour's disciple and successor as leader of the Italian Right, born September 8, 1818, died at Rome, December 10, 1886. In 1859-60 he was Cavour's secretary for foreign affairs, then minister of the interior, and in 1863, two years after Cavour's death, he became prime minister. He was then Italian minister in London, minister of agriculture and from 1873 to 1876 prime minister for the second time, and among many useful measures earned his country's gratitude by effecting the "parraggio" or financial equilibrium between her outlay and income. He wrote valuable economical treatises and also scholarly lectures and essays on Raphael and Dante.

MINIÉ, CLAUDE ETIENNE, CAPTAIN, French soldier, born in Paris in 1810, died in 1879. He devoted much thought to the perfecting of fire-arms, and in 1849 invented the Minié rifle, which was used by the Confederate armies in the Civil war.

MINTO, WILLIAM, born October 10, 1845, in Aberdeenshire, and educated at Aberdeen, where he was assistant to Professor Bain, wrote two biographical and critical books on *English Literature, English Prose Writers, and English Poets*. He contributed occasionally to the now extinct *Examiner*, of which journal he was appointed editor in 1874. He held that position for four years, and thereafter was on the leader-writing staff of the *Daily News* and the *Pall Mall Gazette*. Mr. Minto was appointed professor of logic in Aberdeen in 1880, and was the author of a novel, *The Crack of Doom*, first published in *Blackwood's Magazine* (1885); of *Defoe*, in Mr. John Morley's series of *English Men of Letters* (1879), and of various contributions to the British reviews and magazines. He died in March, 1893.

MINUIT, PETER, colonist, born in Wesel, Germany, about 1580; died in Fort Christina, Delaware, in 1641. Landing on Manhattan Island, May 4, 1626, he bought the island from the Indians for about sixty guilders, and built Fort Amsterdam. The population of the island soon increased to several hundred, by new arrivals from abroad, and settlers attracted from Albany, and friendly relations were established with the colonists of Plymouth. In August, 1631, Minuit was recalled by the Dutch East India Company for having shown too much favor to the patroons. After unsuccessful endeavors to recover his office, Minuit offered his services to Sweden, and in 1637 left Gönthenburg with a number of Swedish and Finnish colonists, on two vessels, the *Key of Calmar* and the *Griffin*. Sailing up Delaware Bay they bought of the Indians the land from the southern cape to the falls near Trenton, and in March, 1638, began to build Fort Christina, near the present city of Wilmington, the first permanent European settlement on Delaware river.

MIOLAN-CARVALHO, MADAME MARIE CAROLINE, singer, born at Marseilles, December 31, 1827, and died July 10, 1895. Making choice of music as a profession, she entered the Conservatoire of Paris, where she remained for two years, under Duprez. In 1853 Mademoiselle Miolan was married to M. Léon Carvalle, called Carvalho, director of the Théâtre Lyrique, of which establishment she at once became the prima donna, singing in *Fanchonette, Margot, La Reine Topaze, La Marguerite, Les Noces de Figaro*, and other new operas. On the death of Madame Bosio, in 1859, Mr. Gye was recommended by M. Meyerbeer to supply her place with Madame Miolan-Carvalho, who appeared, July 26th, in the character



of "Dinorah," and became a favorite. She was the original "Margarite" in Gounod's opera of *Faust*.

MIQUEL, JOHANNES, a German statesman, born at Neuenhaus, Hannover, Feb. 21, 1829; was a National Liberal member of the Prussian House of Deputies 1867-77, and of the imperial Reichstag 1870-73, and from 1887, and became Prussian Minister of Finance in 1890. Died April 1, 1900.

MISTRAL, FRÉDÉRIC, a Provençal poet, son of a peasant, born near Maillaune, September 8, 1830, published in 1859 the epic *Mirèio*, written in his native Provençal dialect, a charming representation of life in southern France which made his name famous throughout the country, and gained for him the poet's prize of the French Academy and the cross of the Legion of Honor. Mistral has since published a second epic, *Calendou* (1867); volume of poems, *Lis Iselod' Or* (1876); a novel *Nerto*, and a dictionary of the Provençal dialect.

MITCHEL, JOHN, born in county Derry, Ireland, November 3, 1815; died in Cork, March 28, 1875. A lawyer and newspaper writer, in May, 1848, he was convicted of treason-felony for his writings and speeches and sentenced to fourteen years' banishment in Van Diemen's Land. Escaping in 1853 to New York he published his *Jail Journal*, and established a paper, *The Citizen*, in which he defended human slavery. He edited other papers and returned to Ireland in 1874. He was elected to parliament but not allowed to take his seat.

MITCHEL, ORMSBY MCKNIGHT, born in Kentucky, July 28, 1809; died in South Carolina, October 30, 1862. He graduated at West Point in 1829, in the same class with Robert E. Lee and Joseph E. Johnston. He was assigned to the artillery, and until 1832 was assistant professor of mathematics in the United States military academy. He resigned from the army and became professor of mathematics, philosophy, and astronomy in Cincinnati College in 1836. In 1844 he succeeded in obtaining the construction of an observatory in Cincinnati, of which he was made first director. During his incumbency of this office, which extended over many years, he made many notable astronomical discoveries, and in 1859 he took charge of the Dudley University in Albany, N. Y. He became brigadier-general of volunteers in 1861, and served in the army of the Ohio in Tennessee and northern Alabama. He was promoted major-general of volunteers, April 11, 1862, and later given command of the department of the South. He died in South Carolina, of yellow fever.

MITCHELL, DONALD GRANT, author, born in Norwich, Conn., April 12, 1822; was graduated at Yale in 1841, and went to Europe, where he wandered over England on foot, and later visited the continent of Europe. In 1846 he returned to the United States; studied law; practiced at the bar for a short time, and made contributions to literature under his well-known pen-name of "Ik Marvel." In 1848 he again went abroad, traveling through Great Britain, France, and Switzerland, and on his return published *The Lorgnette*, a periodical in the manner of Irving's *Salmagundi*. He was United States consul at Venice, 1853-55, and has since lived on his estate of Edgewood near New Haven, Conn., engaged in literary pursuits. His first works *Reveries of a Bachelor* (1850) and *Dream Life* (1851) are still the most popular of his writings. He has also published *Seven Stories With Basement and Attic* (1864); *Wet Days at Edgewood* (1864); *Rural Studies* (1867); *English Lands, Letters and Kings* (two vols. 1889-90) and other works.

MITCHELL, MARGARET J. (MAGGIE), an American actress, was born at New York city about 1832, and made her first appearance when a child on the stage

of the old Bowery theater. She became prominent as a soubrette during 1852, and later acquired a national reputation as an actress in *Fanchon*, a part which she created. She also played with great success *Little Barefoot*, *The Pearl of Savoy*, and other dramas adapted to the requirements of her particular school. She has been twice married and is possessed of a fortune.

MITCHELL, MARIA, was born at Nantucket, Mass., August 1, 1818. For astronomy and its cognate sciences she had a strong predilection, and at an early age became an active assistant of her father, who was himself a teacher and an astronomer of some note. She carried on a series of independent observations, and in 1847 discovered a comet of small magnitude, for which she received a gold medal from the king of Denmark. She calculated the elements of this comet, and communicated the result to the Smithsonian Institution. She was subsequently employed on the coast survey and in the compilation of the American Nautical Almanac. She visited the principal observatories of Great Britain and the continent of Europe in 1857, and in 1865 was appointed professor of astronomy in Vassar College, Poughkeepsie, N. Y. She died at Lynn, Mass., June 28, 1889.

MITCHELL, PETER, a Canadian statesman, born January 4, 1824, at Newcastle, New Brunswick, served in the parliament and legislative council of his province, was an ardent advocate of union, and on the organization of the Dominion Government, in July, 1867, he was called to the cabinet as minister of marine and fisheries, which post he held until the resignation of the Macdonald administration, in 1873. Mr. Mitchell took an active part in the settlement of the fisheries dispute between the Dominion of Canada and the government of the United States, and more lately gave important aid in operations connected with the Canadian Pacific railway. In 1882 he was elected representative in the Dominion parliament for Northumberland county, New Brunswick.

MITCHELL, SAMUEL LATHAM, born in North Hempstead, L. I., August 20, 1764; died in New York city, September 7, 1831. In 1790 he was elected to the New York legislature, and in 1792 became professor of chemistry and natural philosophy at Columbia College, New York city. In 1794 he made a mineralogical survey of the State of New York, and in 1797 was one of the founders of the *Medical Repository*, which he edited for sixteen years. In 1801 he retired from his college professorship, and from December 1, 1801, until November 22, 1804, served as a Democrat in congress. Thereafter he was appointed to fill a vacancy in the United States Senate, and held that place until March 3, 1809. From 1820 to 1826 he was professor of botany, and materia medica in the New York College of Physicians and Surgeons. He became connected with other learned societies, and made numerous contributions to scientific periodicals.

MITCHELL, SILAS WEIR, born at Philadelphia, February 15, 1829, a distinguished physician and author, noted as a toxicologist. He wrote *Researches Upon the Venom of the Rattlesnake* (1860); *Injuries of the Nerves* (1873); *Lectures on Diseases of the Nervous System* (1881), and other technical works besides volumes of poems (1882 and 1887) and the following novels: *In War Time* (1885); *Doctor and Patient* (1887), and *Characteristics* (1891).

MIVART, ST. GEORGE, F.R.S., was born at London, November 30, 1827, and educated at Clapham Grammar School, Harrow School, King's College, London, and finally at St. Mary's College, Oscott, being prevented from going to Oxford (as intended) through having joined the Roman Catholic church



in 1844. He was called to the bar at Lincoln's Inn in 1851; appointed lecturer of St. Mary's Hospital Medical School in 1862; elected a fellow of the Royal Society in 1867; vice-president of the Zoological Society in 1869 and 1882; secretary of the Linnean Society in 1874; and professor of biology at University College, Kensington, in 1874; created a Ph.D. (Rome) in 1876, and M.D. (Louvain) in 1884. He has published *On the Genesis of Species* (1871), *Lessons in Elementary Anatomy* (1873), *The Cat* (1880), *Nature and Thought* (1882) and other works. Died April 1, 1900.

MODJESKA, HELENA (OPIDO), born at Cracow, Poland, about 1843, early manifested a desire for the stage, and after her marriage, at the age of seventeen, with her guardian (whose name she still bears on the play bills), a humble beginning was made with a company of strolling players. It was not, however, until after her husband's death in 1865, and her marriage three years later to Count Charles Bozenta Chlapowski that she became the theatrical star and favorite of Warsaw, a position which she held until about 1876, when she and her husband emigrated to America. Their experiences on a Californian farm were highly unprofitable. The only course open to her was to act in English and after six months' study, she appeared in August, 1877, in *Adrienne Lecouvreur* at San Francisco, soon winning great popularity by her finished and sympathetic acting, in this rôle and as "Camille," "Frou-Frou," "Mary Stuart," "Rosalind," "Juliet" and many others. She starred jointly with Edwin Booth and became a favorite in Europe. In 1894 while playing in Warsaw she was interdicted by the Czar from appearing in a popular Polish play.

MOE, JORGEN E., was born at Hole, in Sigdal, Norway, April 22, 1813, and was educated at the University of Christiania. From 1845 to 1853 he was professor of divinity in the National Military School, and in 1875 was appointed bishop of Christiansund. He was the author of *Songs and Ballads*, and of many folk-songs. He died March 27, 1882.

MOHR, KARL FRIEDRICH, born at Coblenz, Germany, November 4, 1806; studied at Heidelberg, Berlin, and Bonn, and became extraordinary professor of pharmacy at the latter university. He wrote extensively on the correlation of forces and on the nature of heat. He died in October, 1879.

MOLESWORTH, WILLIAM N., born in Hampshire, England, November 8, 1816; graduated at Cambridge, and was for many years rector of an English parish. In addition to his writings on astronomy and on social and political questions he was the author of a standard *History of England*, and of a *History of the Church of England*. He died December 10, 1890.

MOLESCHOTT, JACOB, born at Bois-le-Duc, in the Netherlands, in 1822; was educated at Heidelberg and settled as a physician at Utrecht. In 1847 he became professor of physiology and anthropology at Heidelberg, and in 1855 was made professor of physiology at Zurich. Among his works, are *Light of Life*, *Chemistry of Food and Diet* and the *Doctrine of Aliments*. He died May 20, 1893.

MOLTKE, HELLMUTH, COUNT VON, chief marshal of the German empire, chief of the general staff, was descended from a well-known Mecklenburg family, and was born at Parchim, October 26, 1800, in the neighborhood of which place his father, a former officer of the Mollendorf regiment, possessed the estate of Gnewitz. Soon after Hellmuth's birth his parents settled down in Holstein; and thus the boy, in his twelfth year, went to Copenhagen, in order to devote himself, in the barracks there, to the military profession. In 1822 he entered the Prussian service, as a lieutenant in the 8th

infantry regiment, and studied in the Military Academy. After having spent some time in the School of Division of Frankfurt-on-the-Oder, Moltke was entered into the general staff. In 1835 he undertook a tour in Turkey, which brought him under the notice of the Sultan Mahmoud, who advised with the young Prussian officer on the reorganization of the Turkish army. Moltke remained several years in Turkey, and in 1839 took part in the campaign of the Turks in Syria against the, Viceroy Mehemed Ali of Egypt and his adopted son Ibrahim Pasha. In 1845, having returned to Prussia, and published an account of his Turkish experiences, he became adjutant to Prince Henry of Prussia, then resident in Rome, and after his death, in 1847, he was engaged in connection with the general command on the Rhine, becoming, in 1848, a member of the grand general staff, and, in 1849, chief of the staff of the fourth army corps, in Magdeburg. In 1858 he was advanced to the rank of chief of the grand general staff of the Prussian army, and in 1859 became a lieutenant-general. In the Austro-Italian war Moltke was present in the Austrian headquarters. After the conclusion of peace he spared no pains that he might fully develop the capacities of the Prussian general staff and the Prussian army. When the war of 1864 against Denmark broke out, Moltke sketched the plan of the campaign, and assisted in its execution, acting similarly in the case of the Austro-Prussian war of 1866. The whole plan of the Bohemian campaign was due to the lieutenant-general, who was personally present in the battle of Königgrätz, which he led, and in like manner he arranged the bold advance of the Prussian columns against Olmütz and Vienna, and negotiated the armistice and the preliminaries of peace. For these services he received the order of the Black Eagle, and a national dotation. To "Father Moltke" (Vater Moltke), as he is familiarly termed in the German army, and his brilliant strategy are ascribed the splendid victories of the German arms in the Franco-German war. He was practically the commander-in-chief. The whole plan of the campaign was due to him. In recognition of his unrivaled services, Moltke was made the chief marshal of the German empire (September, 1871), again received a national dotation, and was created count, 1872. The illustrious marshal, who was generally considered the first strategist of the day, received from the czar the order of St. George, the highest military decoration of Russia, in October, 1870; and from his own sovereign the grand cross of the order of the Iron Cross, March 22, 1871. An English translation of his *Observations on the Influence that Arms of Precision have on Modern Tactics*, was published in 1871. He died April 24, 1891.

MÖMMSEN, THEODOR, born at Garding, in Schleswig, November 30, 1817, studied at the University of Kiel, and traveled from 1844 till 1847. On his return he wrote numerous articles for the *Schleswig-Holstein Journal*, which he conducted, and was made professor of law at Leipsic. Having been dismissed on account of the part he took in political affairs, he was made titular professor of law at Zurich in 1852, at Breslau in 1854, and at Berlin in 1858. In 1875 he was appointed professor of jurisprudence in the University of Leipsic. He wrote numerous learned works; and edited a magnificent work on Latin inscriptions, published by the Prussian Academy of Sciences, and a work on *Roman Coins*. He is best known to American readers, by his *Earliest Inhabitants of Italy*, of which a translation by Robertson appeared in 1858, and his celebrated *History of Rome*, translated, and published in 1862-63. He became secretary of the Berlin Academy in 1873. In 1878 the king of Italy conferred on him the Grand Cross of the order of SS. Maurice and Lazarus.



**MONCK, VISCOUNT (THE RIGHT HON. CHARLES STANLEY MONCK)**, born at Templemore, county Tipperary, October 10, 1819, was educated at Trinity College, Dublin, and called to the bar in Ireland in 1841. He was returned one of the members for Portsmouth, in the Liberal interest, in July, 1852, was reelected in March, 1855, was defeated at the general election in March, 1857, and was an unsuccessful candidate for Dudley in April, 1861. He was a lord of the treasury from 1855 till 1858, and captain-general and governor-in-chief of Canada, and governor-general of British America, October 28, 1861. He was formally reappointed, under a fresh act of parliament, governor of the United Provinces of Canada, Nova Scotia, and New Brunswick in June, 1867, but resigned in November, 1868. In 1871 he was appointed a commissioner of national education in Ireland. On the disestablishment of the Irish Church in 1871 he was appointed a commissioner to carry into effect the provisions of the act; the other commissioners being Mr. Justice Lawson and the late Mr. G. A. Hamilton. He succeeded his father as fourth viscount in the peerage of Ireland, April 20, 1849, and was made a peer of the United Kingdom, July 12, 1866. He died Nov. 29, 1894.

**MONCREIFF, LORD (THE RIGHT HON. JAMES MONCREIFF)**, was born at Edinburgh, November 29, 1811. He was educated at the high school and at the University of Edinburgh, and was admitted an advocate at the Scotch bar in 1833. He was solicitor-general for Scotland from February, 1850, till April, 1851, when, on the elevation of Lord Rutherford to the bench, he was appointed the lord advocate, and continued to hold that office until the change of ministry in March, 1852. Soon after being appointed lord advocate he was returned to parliament as member for the Leith district, as a Liberal, and in favor of free trade. He retained his seat for the Leith district till April, 1859, when he was elected for Edinburgh, which city he continued to represent till 1868, when he was returned to parliament as representative for the universities of Glasgow and Aberdeen. He became lord advocate a second time in December, 1852, and occupied that position till March, 1858; a third time from June, 1859, till July, 1866; and a fourth time from December, 1868, till November, 1869, when he was appointed lord justice clerk and president of the second division of the court of session in Scotland. On this occasion he was sworn of the privy council, and took the courtesy title of Lord Moncreiff. He was elected lord rector of the University of Edinburgh in the early part of the year 1869; was created a baronet May 17, 1871; and was raised to the peerage of the United Kingdom as Baron Moncreiff, January 1, 1874. He died April 27, 1895.

**MOND, LUDWIG, F.R.S.**, chemist, born in Cassel, Germany, March 7, 1839, was a pupil of Kolbe and Bunsen, developed the Mond process of sulphur recovery from alkali waste in 1863, discovered a new process of extracting nickel from ore, acquired a fortune from these and other discoveries in practical chemistry and in 1894 gave \$500,000 for the establishment of the "Davy-Faraday Research Laboratory" at the Royal Institution, England.

**MONIER-WILLIAMS, SIR MONIER**, Sanscrit scholar, born at Bombay in 1819; educated at King's College and Balliol, Oxford, gained first prizes in Oriental subjects at Haileybury College, India, and was professor of Sanscrit there from 1844 till the abolition of the institution, in 1858, when he removed to Cheltenham, and superintended the Oriental studies at the college for two years. In December, 1860, after a long contest, he was elected Boden Sanscrit professor at Oxford. He died April 11, 1899.

**MONROE, JAMES**, born in Plainfield, Conn., July 18, 1821; graduated at Oberlin College, Ohio, in 1846, and from 1849 until 1852 taught there. He was a member in succession of both houses of the Ohio legislature, and from 1863 to 1869 was consul-general at Buenos Ayres. From 1871 to 1881 he sat in congress as a Republican, and has since filled the chair of political science and modern history at Oberlin.

**MONTAGU, LORD ROBERT**, second son of the sixth duke of Manchester, born January 24, 1825, and educated at Trinity College, Cambridge, where he graduated M.A. in 1848, was returned in April, 1859, one of the members, in the Conservative interest, for Huntingdonshire, which county he represented till February, 1874, when he was returned for the county of Westmeath, as a "Conservative, but in favor of home rule." The home rule he professed was, however, essentially different from that of the Irish party. He withdrew from the home rule organization in June, 1877. He ceased to be a member of parliament in March, 1880. He had been vice-president of the committee of council on education, privy counselor and first charity commissioner 1867-68. He joined the Roman Catholic Church in 1870, and renounced it on June 11, 1882. He wrote *Home Rule, Rome Rule* (1886) and numerous other works.

**MONTCALM, LOUIS JOSEPH, MARQUIS DE**, born near Nîmes, France, February 29, 1712; died in Quebec, Canada, September 14, 1759. He was carefully educated, and at the age of fifteen entered the French army as an ensign, serving both in Italy and Germany, and in 1743 he was promoted colonel. In 1746, at Piacenza, he received five saber-cuts, and was made prisoner. Later he was exchanged, promoted to brigadier-general, and again wounded. In 1755 he was sent to Canada to succeed General Dieskau, and in 1756 sailed from Brest. In August, 1756, Montcalm captured Fort Ontario, at Oswego, and in the following year took Fort William Henry with 2,500 men and 42 guns. In 1758 he occupied and strengthened Ticonderoga. On July 8th of that year, with an army of 3,500, he repulsed General Abercrombie's forces of 15,000 men. In 1759 General Wolfe, with about 8,500 troops, ascended the St. Lawrence river, accompanied by a large naval force, when Montcalm mustered his army on the Montmorency to oppose the English. Quebec, with the opposite shore of Beauport, was occupied by a motley crowd of French defenders, consisting of regulars, militia and Indians. Montcalm shared the command with Vaudreuil, and on the first attempt of the British general to scale the heights of Montmorency he met with a disastrous repulse. On the morning of September 13th General Wolfe, with about 5,000 men, scaled the heights that border the St. Lawrence, gained the plateau of Quebec, and formed for battle on the Plains of Abraham. Montcalm left his camp on the Beauport shore, crossed the river St. Charles, and at 10 o'clock in the morning advanced to attack the enemy. The forces were about equal in number. Montcalm personally led the charge; but the French lines soon broke in disorder. General Wolfe, leading the pursuit, was mortally wounded, and died on the field. Montcalm vainly tried to rally his forces, but was carried away by the tide of fugitives, when a bullet passed through his body.

**MONTEFIORE, SIR MOSES**, born October 24, 1784; died in Ramsgate, England, July 28, 1885, in his 101st year. He was the first Jew to be elected sheriff of London (1837), was knighted the same year, and became a baronet in 1846. Sir Moses Montefiore, who was a representative of a historic Jewish family, was distinguished by a philanthropy which knew no



bounds of sect, creed, or race. (See *The Life of Sir Moses Montefiore*, Chicago, 1890).

MONTÉGUT, EMILE, a French writer, was born at Limoges, June 24, 1826. His first publication was an article in the *Revue des Deux Mondes* for August, 1847, on the philosophy of Emerson, which was followed by a series of studies of English and American literature. In 1857 he succeeded Gustave Planché in the reviewing department of the *Revue*, which position he filled until 1862, when he transferred his services to the *Moniteur Universel*. He was nominated a chevalier of the Legion of Honor, August 12, 1865. He died Dec. 11, 1895.

MONTÉPIN, XAVIER AYMON DE, French writer, was born at Apremont, March 18, 1824, made himself conspicuous as an anti-revolutionary journalist in 1848, and since then has devoted himself to literature. His novels and plays, mostly of a sensational and melodramatic kind, are exceedingly numerous.

MONTEZ, LOLA, born in Ireland in 1824, died in Long Island, N. Y., June 30, 1861. She became famous as a ballet dancer, and about 1846 acquired an ascendancy over the imbecile King Louis of Bavaria, which resulted in his abdication and her banishment. She became an actress and lecturer in this country, and died in an insane asylum at the age of thirty-seven.

MONTEZUMA I., seventh king of Mexico, born in Tenochtitlan, Mexico, in 1390; died there in 1464. He was the son of Huitzilhuilitl, and added to the empire the districts of Tequizquiac and Chalco. In 1436 Montezuma was chosen king; his coronation was celebrated with festivity and human sacrifices from among the captured enemies of his nation. In 1446 the lake of Tezcoco overflowed and inundated the city of Tenochtitlan and its surroundings, which was followed by famine and pestilence. To prevent a return of this calamity, immense dams were built, the remains of which, in the San Lorenzo valley, are a marvel to engineers.

MONTEZUMA II., eleventh king of Mexico, born in Mexico in 1466; died there in June, 1520. He was a son of Axayácatl, the eighth king of that country, and on September 15, 1502, was chosen king. He improved his capital; in 1507 made war on the people of Guatemala, and conducted expeditions to Honduras and Nicaragua. In 1519, when Cortez arrived in Mexico, he was met by an embassy from Montezuma with presents, and when he, with his followers, advanced to the capital, Montezuma lodged him in one of his palaces. Thereafter, Montezuma became, practically, a prisoner of the Spaniards, and lost the respect and control of his own subjects. In June, 1520, when his people rose against the Spaniards, he ordered them to desist: but they attacked him also, and severely wounded him with a stone, and he died three days afterward.

MONTGOMERY, RICHARD, soldier, born near Feltrim, Ireland, December 2, 1736; died in Quebec, Canada, December 31, 1775. His father was a member of parliament; the son was educated at Trinity College, Dublin. At the age of eighteen he entered the British army as an ensign, and in 1757 was sent to Halifax, Nova Scotia. In 1758 he served at the siege of Louisburg under Gen. James Wolfe, and also in an expedition under Gen. Jeffrey Amherst, in 1759, to reduce the French forts on Lake Champlain. In 1762 he was promoted to a captaincy, and within that year was actively employed in expeditions against Martinique and Havana. In 1772 he sold his commission in the British army, and in 1773 settled in New York city, where he bought an estate. After being a member of the New York provincial congress in 1775, through the influence of R. R. Livingston, his father-in-law, he was appointed

brigadier-general in the Continental army, and sent against Canada under General Schuyler. When the latter fell ill the leadership of the expedition devolved on General Montgomery. After capturing St. Johns and Montreal in 1775, his little army of about 400 men joined that of Gen. Benedict Arnold, before Quebec, in December. At about that time he was promoted major-general. Before moving Montgomery called a council of war, at which it was decided to carry the city by assault. The attack was made on December 31, 1775, at two o'clock in the morning, and during a snow-storm. However, it utterly failed; 400 prisoners were lost, Montgomery was killed and Arnold wounded.

MONTGOMERY, SIR ROBERT, K.C.B., born in Londonderry in 1809, and educated at Foyle College, in that city, was appointed to the Bengal presidency, and entered the service of the East India Company in 1828. Having served in various posts, in 1849 he was selected as one of the commissioners for the newly-annexed province of the Punjab, and on the dissolution of the board in 1853, was appointed judicial commissioner, superintendent of prisons, and director-general of police for the whole province. During the mutiny in May, 1857, he adopted measures for disarming the large native force stationed at Lahore, was appointed chief commissioner of Oude in 1858, and for his services in aiding the armies under Lord Clyde and restoring tranquility to the province, received the thanks of both houses of parliament, and was created a knight commander of the Bath. In 1859 he was appointed lieutenant-governor of the Punjab, from which office he retired in 1865, after service in India of upward of thirty-six years. He was LL.D. of Trinity College, Dublin, and received the grand cross of the Star of India, February 20, 1866. He died December 28, 1887.

MONTI, LUIGI, born in Palermo, Sicily, in 1830; served in the revolutionary army in 1848-49, and fled to the United States on the suppression of the rebellion. He taught Italian at Harvard from 1854 to 1859, and from 1861 to 1873 was United States consul at Palermo. He is the "young Sicilian" of Longfellow's *Tales of a Wayside Inn*. Signor Monti published an Italian grammar, some novels and tales in English, and translations of various Italian works.

MONTPENSIER, DUC DE (ANTOINE MARIE PHILIPPE LOUIS D'ORLÉANS), born at Neuilly, July 31, 1824, fifth son of the late King Louis Philippe and Queen Marie Amélie, was educated at the Collège Henri IV., and after a special examination, was appointed lieutenant of artillery in 1842. He was sent to Africa in 1844, where he took part in the expedition against Biskara, and was wounded in the face during the campaign of Ziban. His services were rewarded with the cross of the Legion of Honor and promotion to the rank of major. Having accompanied his father on his visit to the queen of England in 1845, he rejoined the army in Africa, and distinguished himself against the Kabyles, after which he made a tour in Egypt, Syria, Constantinople, and Greece. On his return he married, at Madrid, October 10, 1846, the Infanta Marie Louise Ferdinande de Bourbon, sister of Queen Isabella II. of Spain. This marriage was regarded as a master-stroke of policy by Louis Philippe, and will long be remembered for the excitement and the irritation it caused, which nearly led to a rupture between France and England. After the revolution of February, 1848, the Duc de Montpensier, with the rest of his family, took refuge in England, and having remained a short time in that country, went to Holland, where he embarked for Spain, and afterward resided at Seville, occasionally making excursions abroad, or visiting his rel-



atives at Claremont, England. He received the title of Infante of Spain, and was made captain-general of the Spanish army, October 10, 1859. During the political events which preceded the flight of Queen Isabella, the duke left Spain at the request of the minister Gonzales Bravo, and before doing so renounced his rank in the army, his title of Infante, and sent back to the queen the decorations he had received from her. After the triumph of the revolution of September, he recognized the provisional government, obtained permission to return to Seville, and became a candidate for the vacant throne. All chance, however, of his being elected king of Spain was destroyed by his fatal duel with his cousin, the Infante Don Enrique de Bourbon. The ill-blood between the combatants was of long-standing, and had been added to not a little by Don Enrique's letter to the regent, dated January 14th, soliciting restoration to his naval rank and pay, of which the government of Narvaez had despoiled him years previously, for his avowal of liberal sentiments. In that letter he made some bitter allusions to Montpensier and his followers. The Duc de Montpensier, galled beyond measure, sent a challenge to his cousin, and a hostile meeting took place on March 12, 1870, at the artillery ground near Carabanchel, about three miles from Madrid. The combatants stood at ten paces from each other. Enrique fired his first shot in the air; Montpensier imitated the example. Somewhat wildly Enrique fired his second shot, which went close to Montpensier's head at the right side. Montpensier's second shot struck the butt-end of Enrique's pistol and split it in two. Enrique fired a third time, missing his adversary, who took careful and deadly aim. The ball entered Don Enrique's head, and in three minutes he expired. Montpensier was tried by a court-martial and sentenced to one month's banishment, and to pay \$6,000 to the family of the deceased. Montpensier had three sons and four daughters. His eldest daughter married the Comte de Paris, May 30, 1864; and his third daughter, the Princess Maria de las Mercedes, was the first wife of the late king of Spain. He died in February, 1890.

MONTT, JORGE, born in Santiago, Chili, 1847, son of the following, was a naval officer, sided with congress against Balmaceda in 1891, was temporary commander of the congressional forces and a member of the governing junta, and was elected president of Chili, November 6, 1891, for five years.

MONTT, MANUEL, born in Chili, September 5, 1809; died March 13, 1881. In 1836 he became assistant secretary of state; in 1839 president of congress, and afterward held cabinet offices under several administrations. He was elected president of Chili by the Conservatives in 1851, and was reelected in 1856. From 1844 until his death (except while serving as minister or president) he was president of the Supreme Court.

MONTUFAR, LORENZO, born in Guatemala, March 11, 1823; practiced law, and in 1849 removed to Costa Rica, where he became judge of the Supreme Court, and afterward minister of foreign affairs. He served as Costa Rican minister to the United States, and to Peru, and in 1870 again became minister of foreign affairs, and later minister to Spain. He held cabinet offices and foreign missions up to 1885, when he was expelled from the country, but was recalled in 1887 to resume his old position in the foreign office. He is the author of a life of William WALKER (q.v.), the filibuster.

MOODY, DWIGHT LYMAN, born at Northfield, Mass., February 5, 1837; worked on a farm until the age of seventeen, when he became a clerk in a shoe store in Boston. In 1856 he went to Chicago, and while engaged in active business there entered zealously

into missionary work among the poorer classes. During the Civil war he was in the service of the Christian commission, and afterward became a lay-missionary of the Young Men's Christian Association of Chicago. In 1873, accompanied by Mr. Sankey, an effective singer, he went to England, and the two instituted a series of week-day religious services, which attracted large and enthusiastic audiences. They returned to America in 1875, where they organized similar meetings all over the country. They again visited England in 1883. In addition to the many printed accounts of his meetings and reports of his addresses, Mr. Moody has published *Arrows and Anecdotes*, 1877; *Heaven*, 1880; *Secret Power*, 1881; and *Way to God and How to Find It*, 1884. He died Dec. 22, 1899.

MOODY, GRANVILLE, born in Portland, Me., January 2, 1812; became in 1833 a local preacher in the Methodist Episcopal Church. In the Civil war he served as an army chaplain and was brevetted brigadier-general for gallant conduct at the battle of Stone River. After the war he resumed his ministerial functions, and died June 4, 1887.

MOORE, DANIEL, M.A., a native of Coventry, England, was educated in the grammar school of that city, and entered at St. Catherine's College, Cambridge, in 1837 (B.A. 1840; M.A. 1844). He gained the Norrisian prize in 1837 and 1839, and the Hulsean prize in 1840. He died May 15, 1899.

MOORE, EDWARD MOTT, born in New York State July 15, 1814; graduated in medicine at the University of Pennsylvania and became professor of surgery at Woodstock, Vt., Berkshire, Mass., and Starling Medical College, Columbus, Ohio. For many years he was president of the State Board of Health of New York, and has been president of the Medical Society of New York. Doctor Moore took high rank as an authority on diseases of the heart.

MOORE, GEORGE HENRY, born in Concord, N. H., April 20, 1823; graduated at the University of New York, was connected with the New York Historical Society's library from 1841 to 1872, and in the latter year became superintendent of the Lenox library in New York. He was LL.D. of his university and published several historical works. He died June 3, 1892.

MOORE, HARRY HUMPHREY, born in New York city July 2, 1844; studied under Gérôme in Paris, and spent some years in Spain and Morocco. He returned to the United States in 1875 and since 1881 has resided in Paris. His works are chiefly illustrations of Spanish, Moorish, and Japanese subjects.

MOORE, JOHN, born in Indiana, August 16, 1826; entered the United States army as a surgeon in 1853, served in Florida and Utah, and was assigned to the army of the Potomac in 1862 as medical director. He held a similar position in the army of the Tennessee, and was brevetted colonel for services in the Atlanta campaign. In November, 1886, he was appointed surgeon-general of the army with rank of brigadier-general.

MOORE, THOMAS, F.L.S., botanist and horticulturist, born at Stoke-next-Guildford, England, May 29, 1821; was appointed, in 1843, curator of the ancient Botanic Garden of the Society of Apothecaries at Chelsea. He was a member of the Lindley Library, and also of the Veitch Memorial Prize Fund. He was the author of *Cultivation of the Cucumber and Melon*, *Handbook of British Ferns*, *Ferns and Allied Plants*, *Ferns of Great Britain and Ireland—Nature-printed* (folio), *Illustrations of Orchidaceous Plants*, and *Index Filicum*, *Nature-printed Ferns*, 2 vols., the *Field Botanist's Companion for the British Isles*, and *Elements of Botany*. He died January 1, 1887.

MOORHOUSE, JAMES, D.D., bishop of Manches-



ter, was born in that town in 1826. He received his education at St. John's College, Cambridge. In May, 1876, was appointed bishop of Melbourne, and in 1885 was appointed by Lord Salisbury to the bishopric of Manchester.

MORA, FRANCIS, born in Spain, November 25, 1827; came to California in 1856, and was ordained in the Roman Catholic priesthood. After holding pastorates at Monterey and Los Angeles, he was, in 1865, appointed vicar-general of the diocese, and in 1873 was consecrated as coadjutor bishop, with right of succession. In May, 1878, he succeeded to the see of Monterey and Los Angeles.

MORAES, PRUDENTE JOSÉ DE, third president of Brazil, was born in 1844 in Sao Paulo, a Brazilian state; studied law, entered politics, from 1871 was a prominent advocate of republican principles and was one of the three republicans elected to the imperial parliament of 1885. After the peaceful revolution of 1889 in which he aided, he was elected governor of Sao Paulo, was a candidate for president against Fonseca in 1891, was president of the National Senate, 1893, and was elected president of the Republic, February 28, 1894, for four years. He took his seat November 15, 1894.

MORALES, JUAN BAUTISTA, Mexican lawyer and politician, born in Guanajuato, August 29, 1788; died in Mexico, July 29, 1856. He was several times senator; in 1837 was chosen judge of the Federal Supreme Court, and later became editor of the *Siglo XIX*. He was an instigator of the revolution of 1844, that removed Santa Anna from power, and became governor of Guanajuato. In 1855 he was again president of the Supreme Court. He defended the Church party, and wrote a pamphlet against religious toleration.

MORAN, EDWARD, born in England in 1829, removed to this country in 1844, studied art in Philadelphia and in England; settled in New York, 1869, removed to Paris, 1877, is an associate of the National Academy, and is best known by his admirable marine paintings. His *Life Saving Patrol, Jersey Coast; The White Squadron's Farewell to Commodore John Ericson* and *Melodies of the Sea* were shown at the World's Columbian Exposition in Chicago in 1893. Died June 1, 1901.

MORAN, PATRICK FRANCIS, D.D., Roman Catholic bishop of Ossory, born at Leighlinbridge, county Carlow, Ireland, September 16, 1830; was consecrated coadjutor bishop of Ossory on March 5, 1872, and succeeded, a few months later to that see. Doctor Moran has labored to promote the study of Irish history and antiquities. In 1885, he became an Australian cardinal.

MORAN, THOMAS, painter, born in Bolton, England, January 12, 1837. He came to the United States in 1844; was apprenticed to a wood engraver in Philadelphia, and began painting landscapes in water colors in 1850. His earliest attempt in oil was an illustration of Shelley's *Alastor* (1860). In 1862 Moran went to Europe for study, and spent some time in London, Paris, and Italy. In 1871 he accompanied Professor Hayden's expedition to the Yellowstone river, and in 1873 Major Powell's expedition to the Colorado river, where he painted *The Grand Canon of the Yellowstone* and *The Chasm of the Colorado*, both purchased by congress to adorn the capitol, at a cost of \$10,000 each. In 1872 he removed from Philadelphia to New York City. In 1884 he became a National Academician, and is a member of the New York Water Color Society, the Society of Painters and Etchers, in London, and the Philadelphia Academy of Design. As an artist he is also skilled in etching, engraving, and lithography. Among his works are *The Pass of Glencoe*,

*The Mountain of the Holy Cross, A Dream of the Orient* and *Ponce de Leon*.

MORENO, FRANCISCO, born in Buenos Ayres, October 7, 1827; graduated at the University of Cordova, and after 1872 made a series of explorations in Patagonia, tracing the course of several rivers till then unknown, and discovering the volcano Chalteu. He is a director of the Anthropological Museum of Buenos Ayres, and a member of several scientific societies.

MORGAN, CHARLES HALB, born in New York State, November 6, 1834; died in California, December 20, 1875. He was graduated at West Point in 1857, was assigned to the artillery, and took part in the Utah expedition of 1859. In 1862 he became chief of artillery in the second corps of the army of the Potomac, and acted as chief of staff during the campaign before Richmond. He was brevetted brigadier-general United States army in March, 1865, and was made full brigadier-general of volunteers in the following May. After the war he served in the regular artillery, and at the time of his death was in command at Alcatraz Island, California.

MORGAN, DANIEL, born in Hunterdon county, N. J., in 1736; died in Winchester, Va., July 6, 1802. He was of Welsh extraction; removed to Charlestown, Va., in 1754, and in the year following began his connection with the army as a teamster in General Braddock's army, where he brought away the wounded. Later he became attached to the quartermaster's department. After he defeated a small force of French and Indians, Governor Dinwiddie gave him an ensign's commission. He had several narrow escapes from the Indians, in one of which he was shot in the neck by a musket ball. Before the war of the Revolution he had become a substantial farmer, a few miles east of Winchester, Va. In Pontiac's war he served as lieutenant, and in 1773 he served as captain in Lord Dunmore's war on the frontier. In 1775, as captain of a company of riflemen, he went to Cambridge, Mass., arriving there in the middle of July. Here he joined Arnold's expedition to Quebec, marching through the wintry wilds of Maine, and, after great hardships, was made prisoner. On being exchanged, he was appointed colonel of a rifle corps, on November 12, 1776. In September, 1777, Colonel Morgan served under General Gates at Saratoga, and later joined General Washington near Philadelphia. On June 30, dissatisfied and suffering from impaired health, he sent in his resignation and retired to his Virginia farm. After the defeat at Camden he was again induced to join the American army at Hillsborough, and on October 13, 1780, was commissioned brigadier-general under General Greene. Morgan held a detached command, and on January 17, 1781, won a victory at Cowpens over the British colonel, Tarleton. There were about 1,000 men engaged on each side, and when the battle had terminated the American force held the ground. It was found that the enemy had lost 230 in killed and wounded, and 600 prisoners, and the Americans 73 killed and wounded, with a number of prisoners. In 1795 he commanded the army that put an end to the whisky insurrection in Western Pennsylvania, and in the following year was elected to congress as a Federalist.

MORGAN, EDWIN DENNISON, governor of New York, was born at Washington, Mass., February 8, 1811. After a successful career as a merchant, in Hartford, Conn., and New York city, he served in the New York State Senate (1850-53), and was chairman of the Republican national committee (1856-64). Elected governor of New York in 1858, he served through the year 1862, supervising the raising and equipment of



about 220,000 soldiers. He was United States senator, 1863-69. He died February 14, 1883.

MORGAN, SIR GEORGE OSBORNE, born in England, May 8, 1826, and educated at Shrewsbury School, and afterward at Balliol College, Oxford, where, in addition to other honors, he obtained the Craven University scholarship, while still at school, the Eldon law scholarship, the Newdigate and Chancellor's prizes, the Stowell civil law fellowship, and a first class in classics. He was called to the bar in 1853, made a queen's counsel in 1869, and for many years enjoyed an extensive practice at the chancery bar. Mr. Morgan represented the county of Denbigh from 1868 to 1885, when he was returned for East Denbighshire. He was appointed judge-advocate-general in 1880, and under secretary of state for the colonies in 1886. Died August 25, 1895.

MORGAN, GEORGE WASHINGTON, born in Pennsylvania, September 20, 1820; studied at West Point, but resigned without graduating and practiced law in Ohio. He had previously served in the Texan army, in which he rose to the rank of captain. In the Mexican war he commanded a regiment of Ohio volunteers, and later a United States infantry regiment. He was wounded at Churubusco, and was brevetted brigadier-general. In 1856 he became United States consul at Marseilles, France, and from 1858 to 1861 he was minister at Lisbon. In November, 1861, he was appointed brigadier-general of volunteers, and in March, 1862, commanded the seventh division of the army of the Ohio. He was with Sherman at Vicksburg, but in June, 1863, was compelled by ill-health to resign. In 1866 he was elected to congress from Ohio as a Democrat, but in June, 1868, his seat was awarded to Columbus Delano, who had contested it. Morgan was again elected and served from 1869 to 1873. He died July 27, 1893.

MORGAN, HENRY JAMES, born in Quebec, Canada, November 14, 1842; entered the civil service and rose to be chief clerk in the State department. He is the author of *The Canadian Parliamentary Companion* and *The Dominion Annual Register*, and is an honorary fellow of the Royal Colonial Institute.

MORGAN, JAMES APPLETON, born in Portland, Me., October 2, 1850; graduated at Racine College, Wisconsin, and Columbia Law School, and practiced law in New York city. He has written exhaustively on Shakespeare; and founded the Shakespeare Society of New York.

MORGAN, JOHN HUNT, born in Huntsville, Ala., June 1, 1826; killed in Tennessee, September 4, 1864. He raised a body of cavalry for the Confederacy and attained a national notoriety as the leader of raids into Kentucky, Ohio, and Indiana. He received a major-general's commission in the Confederate service, but was practically uncontrolled by the war department. On one of his raids in 1863 he was captured with most of his command and was imprisoned in the Ohio penitentiary, at Columbus. From this he escaped by tunneling under the walls, and while leading another raid into Tennessee was shot by Federal troops.

MORGAN, JOHN TYLER, born in Tennessee, June 20, 1824; practiced law in his native State, and entered the Confederate service as a private. He commanded a regiment in Alabama, was commissioned brigadier-general in November, 1863, and commanded a division under Longstreet, Joseph E. Johnston, and John B. Hood. In 1877 he was sent to the United States Senate, reelected in 1883, and again in 1889.

MORGAN, LEWIS HENRY, born in Aurora, N. Y., November 21, 1818; graduated at Union College in 1840, and practiced law in Rochester, N. Y. He served in 1861 in the State legislature, and in 1868 in the Senate. Doctor Morgan, who was LL.D. of Union, a member

of the National Academy of Sciences, and at one time president of the American Association for the Advancement of Science, devoted many years to the study of the history of the American aborigines. He was adopted into the tribe of the Senecas, and wrote *The League of the Iroquois, Houses and House-Life of the American Aborigines*, and many works on American anthropology. He died December 17, 1881.

MORGAN, MATTHEW S., artist, born in London, England, April 27, 1839; died in 1890. About 1860 he established a satirical paper in London, which became known by its bitter caricatures of Napoleon III., and of the English royal family. Later he established the *London Fun*. In 1870 he came to the United States, acted as manager and principal scene painter of several theaters, and did a great deal of meritorious artistic work. He painted a series of panoramic pictures representing battle scenes.

MORGAN, MICHAEL RYAN, born in Halifax, Nova Scotia, January 18, 1833; removed to the United States when a boy, and was graduated at West Point in 1854. In the Civil war he had charge of the commissariat department. He was brevetted brigadier-general and, after the war, became commissary-general of various departments.

MORGAN, PHILIP HICKY, born in Baton Rouge, La., November 9, 1825; practiced law in New Orleans, and, from 1855 to 1861, was judge of the district court. He was appointed United States district attorney by President Johnson, and served until 1873, when he resigned to become justice of the State Supreme Court. From January, 1880, until March, 1885, he was United States minister to Mexico.

MORIER, SIR ROBERT BURNETT DAVID, K.C.B., was born in England in 1827, and graduated at Balliol College, Oxford, taking his bachelor's degree as a second class in classics in 1849. He served in the educational department of the Privy Council Office in 1851-52, and was afterward successively unpaid attaché at Vienna, and paid attaché at Berlin. In 1859 he accompanied Mr. (now Sir Henry) Elliot's special mission to Naples, and in 1860 he acted as assistant private secretary to Lord John (afterward earl) Russell at Coburg. Mr. Morier was appointed a second secretary in the diplomatic service in 1862. In 1866 he was appointed secretary of legation at Darmstadt; he was nominated *chargé d'affaires* at Stuttgart in 1871, and was transferred to Munich in 1872. He was promoted to be envoy extraordinary and minister plenipotentiary to the king of Portugal in 1876, to Madrid in 1881, and to St. Petersburg in 1884. He died November 16, 1894.

MORISON, JAMES COTTER, was born in London, April 20, 1831, and educated at Lincoln College, Oxford, where he received the degree of M.A. He was the author of *Life and Times of St. Bernard* (1863), several times reprinted; *Irish Grievances Shortly Stated* (1868); *Gibbon* (in *English Men of Letters* series, 1878); *Macaulay* (in the same series, 1882); *Madame de Maintenon* (1885), and several essays in the *Fortnightly* and other reviews. He died February 26, 1888.

MORLEY, ALBERT EDMUND PARKER, THIRD EARL OF, only son of the second earl, was born at Kent House, Knightsbridge, June 11, 1843, and educated at Eton and at Balliol College, Oxford, where he took a first class in classics in 1865. He succeeded to the title in 1864, and was lord-in-waiting to the queen from 1868 to 1874. He was under-secretary of state for war in Mr. Gladstone's government from 1880 to 1885, and on the formation of the new cabinet in February, 1886, became first commissioner of works, but resigned in April through disagreement with Mr. Gladstone's Home Rule Bill.



**MORLEY, ARNOLD, M.P.**, fourth son of the late Mr. Samuel Morley, was born in 1849, and educated at Trinity College, Cambridge. He was called to the bar at the Inner Temple in 1873, and first entered parliament in 1880 as member for Nottingham. He represented that borough until 1885, when he was returned for its eastern division. He is vice-president of the "Eighty Club," and was one of the party who accompanied Mr. Gladstone in the *Sunbeam* to Norway. He has several times represented the home office at inquiries relating to accidents in mines. In Mr. Gladstone's administration of 1886 Mr. Arnold Morley was appointed political secretary to the treasury and first "whip" of the Liberal party.

**MORLEY, EDWARD WILLIAM**, born in Newark, N. J., January 29, 1838; graduated at Williams College, and became professor of chemistry and geology in Western Reserve College and in the Cleveland Medical College. He has made many experiments on the velocity of light and the atomic weight of oxygen.

**MORLEY, HENRY**, son of Henry Morley, Esq., of Midhurst, Sussex, born in London in 1822; was educated at King's College, London, of which college he has since been made an honorary fellow. He practiced medicine at Madeley, Shropshire, from 1844 till 1848. He has written *How to make Home Unhealthy, A Defence of Ignorance*, *Life of Palissy*, *the Potter*, *Life of Jerome Cardan*, *Life of Cornelius Agrippa*, *Life of Clement Marot*, essays in *Household Words*, reprinted as *Gossip*, and *Memoirs of Bartholomew Fair*, two volumes of *Fairy Tales*, *English Writers before Chaucer* (1867), and *Journal of a London Playgoer, from 1857 to 1866*. He edited, with notes, Steele and Addison's *Spectator* in 1868, and published *Tables of English Literature, A First Sketch of English Literature, A Library of English Literature*, and a sketch of *English Literature in the Reign of Victoria*. From 1865 he was long professor of the English language and literature at University College, London. He was examiner in English language, literature, and history to the University of London, from 1870 to 1875, and during a second term of five years from 1878 to 1883. Since 1878 he had been also professor of the English language and literature at Queen's College, London. In 1879 the honorary degree of LL.D. was conferred upon him by the University of Edinburgh. In 1882 he became principal of University Hall, London. He died May 14, 1894.

**MORLEY, JOHN, M.P.**, born in England, December, 1838; was educated at Cheltenham College and at Lincoln College, Oxford, where he graduated B.A. in 1859, and M.A. in 1874. He was called to the bar at Lincoln's Inn in 1859. He was for some years editor of the *Literary Gazette*, the title of which was subsequently altered to the *Parthenon*. Mr. Morley was editor of the *Fortnightly Review* from 1867 to October, 1882. He was also editor of the *Pall Mall Gazette* from May, 1880, till August, 1883, and of *Macmillan's Magazine* from 1883 to 1885. He unsuccessfully contested the borough of Blackburn in 1869 in the Liberal interest, and the city of Westminster in 1880; but in February, 1883, at a bye-election, he was returned as an advanced Liberal by the borough of Newcastle-upon-Tyne, defeating his Conservative opponent, Mr. Gainsford Bruce, by a majority of 2,256 (9,443 votes against 7,187). Mr. Morley presided over the great conference of Liberals held at Leeds in October, 1883. On the formation of Mr. Gladstone's "Home Rule" cabinet, February, 1886, Mr. Morley was appointed chief secretary for Ireland; and throughout the debate on the bill (for which he was in a great measure responsible) he was the prime minister's right-hand man. As almost the only cabinet minister who had been a consistent

home ruler, Mr. Morley commanded the respect of his opponents. He was returned for Newcastle in July, 1886 and in 1892, then becoming chief secretary for Ireland again. His works are: *Edmund Burke, a Historical Study* (1867); *Critical Miscellanies* (1871, 2d series, 1877); *Voltaire* (1872); *On Compromise* (1874); *Rousseau* (1876); *Diderot and the Encyclopedists* (2 vols., 1878); *Life of Richard Cobden* (1881); and he is the editor of the *English Men of Letters* series. Mr. Morley is an honorary LL.D. of the University of Glasgow.

**MORPHY, PAUL CHARLES**, chess-player, born in New Orleans, La., June 22, 1837; died there July 10, 1884. His father was judge of the Supreme Court of Louisiana. The son was graduated at St. Joseph's College, Alabama; studied law, and in 1858 was admitted to practice. In early youth he displayed eminent talent as a chess-player. In the autumn of 1857, at the chess congress in New York city, he met the most noted players of the day, and vanquished them. In January, 1858, he vainly challenged all others to a test, offering the odds of a pawn and first move. Later he exhibited his ability in playing simultaneously a number of games, without seeing the board, and in June, 1858, went to Europe, for the purpose of contending with the eminent players of Great Britain and the continent. In London, Mr. Staunton, the English champion, declined to meet him; but in Germany he met the noted champion Adolph Anderssen, when he won seven games and lost two. After having vanquished the famous chess-players of Paris, in 1859 he was given a farewell banquet. Returning to London he repeated his former victories, and thereafter sailed for home. Later he practiced law in New Orleans, and occasionally visited Mobile, Ala., and Richmond, Va. Several years later his mind became disordered.

**MORRILL, JUSTIN S.**, born in Orange county, Vt., April 14, 1810; served in congress as a Republican from December, 1855, to March 3, 1867, and was the author of the tariff bill of 1861, known by his name. In 1867 he was elected United States senator, from Vermont, which office he still holds. Died Dec. 28, 1898.

**MORRILL, LOT MYRICK**, born in Kennebec county, Me., May 3, 1813; died January 10, 1883. In 1854 he was elected to the State legislature, as a Democrat, subsequently entered the senate, of which he became president (1856), and a year later, having broken with the Democratic party on the Kansas question, was elected governor by the Republicans. He was twice reelected, and in 1861 succeeded Hannibal Hamlin in the United States Senate. Reelected in 1863 he served until 1869, but was then defeated in caucus; served a part of Wm. Pitt Fessenden's term, 1869-71, and was again elected senator in 1871. In June, 1876, he became secretary of the treasury in succession to Benjamin H. Bristow, and held that office until March, 1877. President Hayes appointed him collector of customs for the district of Portland, Me., which office he held until his death.

**MORRIS, CLARA**, actress, born in Cleveland, Ohio, about 1846. At the age of fifteen she became a ballet-girl at the Academy of Music in her native city. In 1869 she joined the company at Wood's theater in Cincinnati, Ohio. In 1870 she played at Daly's theater in New York city as a stock actress, in small parts, and made her first prominent success as "Anne Sylvester" in *Man and Wife*. Thereafter she appeared in the plays of *Divorce*, *Camille*, and others of a similar kind, with undiminished success. Subsequently she appeared in the Union Square theater, and also filled an engagement at San Francisco. In 1874 she was married to Frederick C. Harriot.

**MORRIS, CHARLES**, born in Connecticut, July 26, 1784; entered the United States navy as a midshipman



in 1799; served in the war against Tripoli, and was wounded in the fight between the *Constitution* and the *Guerrriere* in August, 1812. He was promoted to the command of a twenty-eight gun vessel, and cruised in the North Atlantic. Afterward he commanded a squadron in the South Pacific, and in 1825 was in command of the *Brandywine*, in which Lafayette returned to France. For many years Captain Morris had charge of the Annapolis Naval Academy, and from 1851 until his death, on January 27, 1856, he was chief of the bureau of ordnance and hydrography.

MORRIS, CHARLES D'URBAN, born in England, February 17, 1827; died in Baltimore, February 7, 1886. He graduated at Oxford, England, and became a fellow of Oriel. In 1853 he came to the United States; was professor in the University of the City of New York; and in 1876 became professor of Latin and Greek in Johns Hopkins University, where he remained until his death. Professor Morris wrote extensively on philology, and published a Latin grammar and other text-books.

MORRIS, THE REV. FRANCIS ORPEN, B.A., was born March 25, 1810, and educated at Brinsgrove School and Worcester College, Oxford, where he graduated a second class in classics in 1833. He held the living of Nunburnholme, Yorkshire; was chaplain to the late Duke of Cleveland; and he wrote *A History of British Birds*, *A Bible Natural History*, *A Book of Natural History*, *A Natural History of the Nests and Eggs of British Birds*, and *A Natural History of British Butterflies*, *Anecdotes in Natural History*, *Natural History of British Moths*, *Records of Animal Sagacity and Character*, and several smaller works. He died February 10, 1893.

MORRIS, GEORGE PERKINS, born in Philadelphia, Penn., October 10, 1802; died in New York city, July 6, 1864. He removed to New York city in early life, and at the age of fifteen sent occasional contributions to the *New York Gazette* and the *American*. In 1823 he became connected with the *New York Mirror*. Some of his ballads became general favorites. Among them are *Woodman, Spare that Tree*, and *Near the Lake where Drooped the Willow*.

MORRIS, GOUVERNEUR, born in Morrisania, N. Y., January 31, 1752; died there November 6, 1816. He was half-brother to Lewis, the signer of the Declaration of Independence, and was graduated at King's College in New York city in 1768; studied law, and in 1771 was admitted to practice. At an early age he began to write political articles, and in 1776 served as a member of the Continental congress. When the American army lay at Valley Forge he was appointed one of a committee to examine into its condition. In May, 1780, Mr. Morris was thrown from his carriage in Philadelphia, and his leg was so seriously injured that it had to be amputated. In 1781 he was appointed an assistant to Robert Morris (of whom he was no relation), in the treasury department. In 1787 he was one of the delegates that framed the Constitution of the United States. In December, 1788, Mr. Morris sailed for France, where for two years he attended to private business, and in 1791 was appointed United States agent to the British Government for the adjustment of several minor differences. At that time he was also appointed United States minister to France, and in 1794 made an extensive tour throughout Europe. In 1798 he returned home, and in the early part of the following year was sent to fill a vacancy in the United States Senate, serving from May 3, 1800, until March 3, 1801. Retiring from political life, he finally appeared in 1810 as the chairman of the commissioners of the Erie canal, and continued as such until the time of

his death. He was the author of *Observations on the American Revolution* (1779); *An Address to the Assembly of Pennsylvania* (1785); *An Address in Celebration of the Deliverance of Europe from the Yoke of Military Despotism* (1814); and several addresses and funeral orations.

MORRIS, JOHN, was born in India, in the Madras Presidency, July 4, 1826. While pursuing his studies at Trinity College, Cambridge, he became a Roman Catholic, and repairing to Rome entered the English College. After receiving orders he spent three years in the diocese of Northampton and was made canon. He then returned to Rome, and for three years held the office of vice-rector of the English College; at the expiration of this period he entered the archdiocese of Westminster, was made canon penitentiary of the metropolitan chapter, and acted as secretary to Cardinal Wiseman, and to his successor, Cardinal Manning. He left the archdiocese in 1867 to join the Society of Jesus. He died October 22, 1893.

MORRIS, LEWIS, a signer of the Declaration of Independence, was born in Morrisania, N. Y., in 1726, and died there January 22, 1798. He was graduated at Yale, and was among the first to give utterance to the sentiments that led to the war of American independence. He was a delegate to the Congress of 1775, and served on a committee to devise ways and means to supply the colonies with ammunition and military stores. At the close of the session he was sent among the Indians to induce them to make common cause with the colonists against the British, but resumed his seat in congress in 1776. When he signed the Declaration of Independence, he knew that a British army had landed near his estate, and he was not surprised when his extensive possessions were laid waste and his family driven from home. He resigned his seat in congress in 1777, and afterward served as a member of the New York legislature, and as major-general of the State militia. At the close of the war he returned to agricultural pursuits.

MORRIS, SIR LEWIS, was born in Carmarthen, Wales. He was educated at Cowbridge and Sherborne schools and Jesus College, Oxford, where he graduated in 1855 as first-class in classics and chancellor's prizeman; M.A., 1858; was called to the bar at Lincoln's Inn in November, 1861, when he obtained a certificate of honor of the first class; practiced chiefly as a conveyancing counsel until 1880; was elected an honorary fellow of Jesus College in 1877. Mr. Morris is perhaps best known for his contributions to the poetical literature of the time. In 1871-74-75, appeared the three volumes of *Songs of Two Worlds*, now collected, and in an eleventh edition. In 1876 appeared Book II., and in 1877, Books I. and III., of *The Epic of Hades*, now in a 26th edition. In December, 1878, appeared *Gwen, a Drama in Monologue*; in March, 1880, *The Ode of Life*, and in October, 1883, *Songs Unsung*.

MORRIS, MARY PHILIPSE, born in the Highlands of the Hudson, N. Y., 1739; died in York, England, in 1825. She was the wife of Col. Roger Morris, a noted Loyalist, and the daughter of Frederick Philipse, the owner of an immense landed estate. She was carefully educated by private teachers, and was attractive in her personal appearance, besides being the heiress to a large estate. In 1776 Mrs. Morris was under suspicion as a Loyalist. In the autumn of 1776 her property was confiscated and she was at once compelled to fly with her family to Beverly on the Hudson, the country seat of Col. Beverly Robinson. In 1809 the children of Roger Morris and his wife sold their reversionary interest for \$100,000, and the British government made them



an additional compensation of \$85,000. Mrs. Morris finally went to England with her husband. Two sons, Henry G. and Amherst, afterward became captains in the British navy.

MORRIS, PHILIP RICHARD, A.R.A., was born at Devonport, England, December 4, 1838. He owed his first regular training to Mr. Holman Hunt, and, by the advice of that eminent artist, studied the Elgin marbles at the British Museum. He next entered the schools of the Royal Academy, where his first success was made by gaining the silver medal for the best drawing from the life. In 1858 he won the gold medal for the best historical picture, the subject being *The Good Samaritan*, and subsequently competed successfully for the travelling studentship. Among his best known pictures are *The Shadow of the Cross*, *Prison Fare*, and the large picture of a *Procession at Dieppe*, exhibited in 1877. Mr. Morris was elected an associate of the Royal Academy, June 18, 1877. He makes a specialty of portraits, and is particularly successful with those of children.

MORRIS, ROBERT, born in Massachusetts, August 31, 1818; died in Kentucky, July 31, 1888. He was president of Oldham College, Kentucky, and was prominent in Freemasonry, on which he lectured and wrote in prose and verse.

MORRIS, SIR MICHAEL, born in Ireland in 1827. He received his education at Erasmus Smith's College, Galway, and at Trinity College, Dublin, where he graduated in 1847, first senior moderator and gold medalist. He was called to the bar in Ireland in June, 1849, and made a queen's counsel in February, 1863. Mr. Morris, who was high sheriff in 1849-50, held the office of recorder of Galway from 1857 till 1865. He was first elected as one of the members in parliament of the borough of Galway, on independent principles, in July, 1865; was subsequently twice reelected without opposition, on his appointment as solicitor-general for Ireland (July, 1866), and as attorney-general (November, 1866), in Lord Derby's government; and retained the seat until he was raised to the bench, as one of the judges of the common pleas in Ireland, in 1867. He was appointed lord chief justice of the common pleas in 1876, and was created a baronet in August, 1885.

MORRIS, WILLIAM, was born near London in 1834. He was educated at Forest School, Walthamstow, at Marlborough, and Exeter College, Oxford. He studied painting, but did not succeed in that profession. In 1853 he published a small volume entitled *The Defense of Guenevere*, and other poems. In 1863, with several partners, he started in London an establishment for the artistic designing and manufacture of various articles, especially wall-paper, stained glass, tiles, and household decorations. At this business Mr. Morris has ever since wrought as a designer, devoting his leisure to the composition of poetry. He published *The Life and Death of Jason*, a narrative poem, in 1867, and *The Earthly Paradise* (4 parts), 3 vols., 1868-70. The latter poem is made up of twenty-four legendary and romantic tales in verse, recited by a company of travelers who had sailed westward from Norway to find the earthly paradise. Of late years Mr. Morris has declared himself a socialist, and has written and spoken much in support of socialist doctrines. Died Oct., 1896.

MORRISON, WILLIAM R., born in Illinois, September 14, 1825; studied law, and was admitted to the bar. In the Mexican war he served as a private, and at the beginning of the Civil war he organized a volunteer regiment. He had previously served in the State legislature and as speaker of the House (1859), and while still in the field with his regiment was elected to congress as a Democrat. He served from 1863 to 1865, and again from 1873 to 1887. During 1873-75

he was chairman of the committee of ways and means, and in 1885 he introduced a tariff reform bill, which was defeated. In 1887 he was appointed a member of the inter-state commerce commission.

MORSE, DAVID APPLETON, born in Ohio, December 12, 1840; graduated at Cleveland Medical College, and from 1862 to 1865 served as an army surgeon under Rosecrans and Sherman. He devoted himself to the study of insanity, and became professor of nervous disorders in Starling Medical College. Doctor Morse has contributed papers on insanity to the *Lancet* and *Observer*, and other medical journals.

MORSE, EDWARD SYLVESTER, born in Portland, Me., June 18, 1838; became assistant at the Lawrence Scientific School at Harvard. He established the *American Naturalist*, made investigations of brachiopods, which he classed among worms, and held professorships of zoology and comparative anatomy at Bowdoin and Salem. In 1881 he was appointed director of the Peabody Academy of Sciences. He is a member of the National Academy of Sciences; has been president of the American Association for the Advancement of Science, and has written works on zoology and other scientific subjects.

MORSE, HENRY DUTTON, born in Boston, Mass., April 20, 1826; died in Jamaica Plain, Mass., January 1, 1888. He learned the art of engraving, and became a jeweler. In 1861 he turned his attention to diamond cutting, and organized the Morse Diamond-Cutting Company. His partner had been in the African mines, and brought with him a number of diamonds in the rough, with which they began their operations. At first the firm employed Holland experts for cutting and polishing, who worked in secret, with closed doors, and dictated terms to their employers. But Morse discovered their methods and appliances, and imparted his knowledge to a number of intelligent apprentices. The Hollanders were discharged and their places filled with native workmen.

MORSE, JOHN TORREY, born in Boston, Mass., January 9, 1840; graduated at Harvard in 1860, sat in the Massachusetts legislature and has written lives of Adams, Jefferson, and other American statesmen.

MORTON, HENRY, scientist, born in New York city, Dec. 11, 1836; graduated at the University of Pennsylvania, held the chair of physics and chemistry there, became president of the Stevens Institute of Technology, and was president of the light-house board, 1878-85.

MORTON, JOHN, born in Pennsylvania, 1724, held judicial offices in that State, was a member of the Continental congress and of the committee which prepared the articles of confederation and gave the casting-vote of Pennsylvania for the adoption of the Declaration of Independence. He died in April, 1777.

MORTON, JULIUS STERLING, born in New York, April 22, 1832; was elected to the Nebraska territorial legislature, 1855, was four times the Democratic candidate for governor, drew up the Arbor Day legislation, since adopted by forty-four States, and was appointed Secretary of Agriculture by President Cleveland in March, 1893. Died April 27, 1902.

MORTON, LEVI PARSONS, born in Shoreham, Vt., May 16, 1824; engaged in business in Boston, in 1854, founded a banking house in New York which had a branch in London, England, that acted as fiscal agent for the United States Government, 1873-74; served in congress as a Republican in 1878-81, and as minister to Paris, 1881-85. On November 6, 1888, he was elected vice-president of the United States on the ticket with Benjamin Harrison. In November, 1894, he was elected Governor of the State of New York, over David B. Hill, Democrat, by a plurality of 156,108.



**MORTON, OLIVER PERRY**, one of the leaders of the Republican party, was born in Wayne county, Ind., August 4, 1823. He was admitted to the bar in 1847, and was elected a circuit judge in 1852. He had been a Democrat, but became a Republican in 1855, and was the Republican candidate for the governorship in 1856. He was defeated, and in 1860 was nominated for the office of lieutenant-governor, with the understanding that the candidate for governor was to be sent to the United States Senate, if possible. This arrangement took effect, and Morton was left to fill the office of governor throughout the Civil war. He was active and successful in raising troops for the support of the Federal Government, and bold, almost to recklessness, in his means of action. He knew, or at least believed, that his political opponents in the State were determined to support the Confederacy by refusing to supply any more troops to the Federal Government; and the meeting of a hostile legislature in 1863 brought matters to a head. The Republicans left the legislature, thus leaving their opponents without a quorum; the governor ordered money for war expenses to be borrowed on the credit of the State; the Democratic attorney-general and the State Supreme Court held that this was illegal, but the indomitable governor borrowed the money on his personal responsibility, and managed the State Government without a legislature. The borrowed money was afterward repaid by the State. In 1866 he was elected to the United States Senate, and remained there till his death, taking a prominent part in every debate, and exercising a strong influence on the party policy. He introduced the resolution for the repeal of the twenty-second joint rule, which had governed the count of the electoral votes since 1865. He died at Indianapolis, November 1, 1877.

**MORTON, THOMAS C.**, born in England about 1580; died in Agamenticus, Me., in 1646. He was a lawyer in London, and in 1622 led a colony to Weston, Mass., but soon returned to England. In 1625 he came back with Captain Wallaston, who settled part of his followers at Braintree, Mass. Morton taught the savages the use of fire-arms, for which misdemeanor he was arrested by Capt. Miles Standish, and imprisoned. He escaped from durance by night, was recaptured, and sent to England. He returned to America in the following year, and in 1630 was again arrested for "mischievous behavior," his house torn down, and himself seized and transported. He came to Massachusetts for the fourth time in 1643, when he published a "scandalous book," as the Puritans called it, and was imprisoned for a year in Boston jail.

**MORTON, WILLIAM T. G.**, born at Charlton, Mass., August 19, 1819; died in New York city, July 15, 1868. He became a dentist, studied chemistry, and laid claim to the discovery of the use of sulphuric ether as an anæsthetic. The French Academy of Sciences awarded him one of the Monthyon prizes for this discovery.

**MOSBY, JOHN SINGLETON**, born in Powhatan county, Va., December 6, 1833. He entered the University of Virginia, where he wounded a student who had assaulted him. For this he was imprisoned; studied law during his confinement; was eventually admitted to the bar, and practiced in Bristol, Va. At the beginning of the Civil war he enlisted in a cavalry company, and served under Gen. Joseph E. Johnston in the Shenandoah Valley and around Manassas. On February 14, 1862, he was made adjutant of his regiment. Later he served as scout and partisan ranger under Gen. James E. B. Stuart, and did effective service. In March, 1863, he was made major, and before the close of the war he received a colonel's commission. His troops

stood on the same footing as the Confederate cavalry of the line, and received the same pay, besides being permitted to retain captured spoils. After the close of the war he settled at Warrentown, Va., and returned to the practice of his profession. He exerted himself to quiet Southern dissatisfaction, and at that time declined all favors offered him by the national government. Under President Hayes he was appointed United States consul at Hong Kong, remaining there for more than six years. Later he located in San Francisco.

**MOSELEY, HENRY NOTTIDGE, M.A., LL.D., F.R.S.**, was born at Wandsworth, England, November 14, 1844, and educated at Harrow and Exeter College, Oxford. He subsequently studied medicine at University College, London, and in Vienna and Leipsic. In 1871 he served as a member of the English Government eclipse expedition to Ceylon and southern India, and made successful observations near Trincomali. In the autumn of 1872 he was appointed one of the naturalists to the *Challenger* expedition, and served on board H.M.S. *Challenger*, during the entire voyage round the world till May, 1876. On his return he was elected fellow of Exeter College, and resided there several years, working out some of the scientific results of the expedition and preparing for the press his book entitled *Notes by a Naturalist on the Challenger*, 1879. He became a fellow of the Royal Society in 1877, and was for a number of years a member of the council. In 1884 he was president of the section of biology at the meeting of the British Association at Montreal, when the McGill University conferred on him the degree of LL.D. During the *Challenger* expedition he undertook the entire collection of plants at the various regions visited. Besides the *Notes by a Naturalist on the Challenger* he also published a small work entitled *Oregon, its Climate, Resources, People, and Productions* (1878), and contributed to the transactions of the Royal Society, and other learned bodies, many papers on natural history subjects. He died November 10, 1891.

**MOSS, LEMUEL, D.D., LL.D.**, born in Kentucky, December 27, 1829; graduated at Rochester, N. Y., and was ordained in the Baptist ministry. In 1863-65 he served as secretary of the Christian Commission, afterward held the chair of theology at Lewisburg, and in Crozier Seminary, Philadelphia; became president of the University of Chicago, and, from 1875 to 1884, president of Indiana University. He is D.D. and LL.D. of Rochester; edited the *National Baptist* (1868-72), and has published articles on religious subjects.

**MOTT, LUCRETIA**, reformer, born on Nantucket Island, Mass., January 3, 1793; died near Philadelphia, Penn., November 11, 1880. She was the wife of James Mott, a noted philanthropist. When she was eleven years of age she went to Boston, Mass., and at the age of fifteen became a teacher. In 1817 she took charge of a small school, and soon became conspicuous for her eloquent discourses at the Quaker meetings. In 1827, when the denomination divided, she united with the Hicksite branch. She made many preaching tours in the Middle States and New England, advocating peace-principles and opposing slavery. In 1833 she was prominent in organizing the American Anti-slavery Society of Philadelphia. In 1840 she went to London as a delegate to the World's Anti-slavery Convention; but was not admitted to its deliberations. On her return to the United States Mrs. Mott became greatly interested in improving the condition and political standing of woman, and labored with speech and pen on behalf of the Woman's Medical College in Philadelphia.

**MOULTON, LOUISE CHANDLER**, born in Connecti-



cut, in April, 1835; married a Boston publisher in 1855, and has contributed sketches, essays, stories, and poems to the leading magazines.

MOULTRIE, WILLIAM, born in England in 1731; died in Charleston, S. C., September 27, 1805. His father was a Scottish physician who settled in Charleston. In 1761 the son served as captain of a militia regiment raised to defend the South Carolina frontier against the Cherokee Indians. In 1775 he was a member of the provincial congress, and on June 17th of that year was made colonel of a regiment. In March, 1776, he was ordered to take charge of a fort then being erected on Sullivan's island; it was built of palmetto logs and filled in with sand, having 26 guns and a garrison of 435 men. On June 28, 1776, this fort was attacked by a British fleet of eight vessels, with 262 guns, under Sir Peter Parker, assisted by a land force, under Sir Henry Clinton. The action lasted eight hours, when the fleet withdrew with a loss of 205 men; the Americans lost only 37. In commemoration of Moultrie's bravery, the fort subsequently received his name. On September 16, 1776, he was made a brigadier-general, and commanded a body of North Carolina troops. In April, 1779, General Augustine Prevost advanced on Charleston with a force of British regulars and Tories, when Moultrie, stationed on the north side of the Savannah river, with 1,200 militia, compelled the British general to fall back on Savannah. In the early part of 1780, when Charleston was attacked by a strong land and sea force Moultrie shared in the capitulation of the Americans. He was kept in confinement for two years, and in February, 1782, exchanged for General Burgoyne. On October 15, 1782, he was made major-general, and in 1785-86 and 1794-96, was governor of South Carolina. While a prisoner of war he wrote his *Memoirs of the American Revolution*.

MOUNT, WILLIAM SIDNEY, born in Long Island, in 1808, died in 1868. He achieved popularity as a painter of rural and domestic life, and his *Farmers' Nooning*, *Husking Corn* and *Raffling for a Goose* are well known through reproductions.

MOUNT-STEPHEN, LORD (GEORGE STEPHEN), was born February 5, 1829, emigrated, in 1850, to Canada, became a merchant in Montreal; became president of the Bank of Montreal, and president of the St. Paul, Minneapolis and Manitoba railroad in 1878 and was first president of the Canadian Pacific Railway Company, 1881-88. In 1887, as a memorial of the Queen's jubilee, he gave \$500,000 to found the Victoria Hospital at Montreal. He was created a baronet in 1886 for his public services in connection with the Canadian Pacific Railway, and raised to the peerage in 1891.

MOWAT, SIR OLIVER, born at Kingston in 1820, was called to the bar of Upper Canada, 1842; appointed a queen's counsel, 1856, and became a member of the senate and an LL.D. of Toronto University. From 1856 to 1859 he was a commissioner for consolidating the public general statutes of Canada and Upper Canada. He entered political life in 1858, as representative of South Ontario; was provincial secretary, postmaster-general, 1863-64, and vice-chancellor of Upper Canada from 1864 to 1872 when he formed a new administration in Ontario, and became premier and attorney-general for the province, and representative of North Oxford in the legislature. He drafted the judicature bill for the fusion of law and equity in the courts of Ontario, and in 1897 was appointed lieutenant-governor of Ontario.

MOWATT, ANNA CORA OGDEN, daughter of a New York merchant, born in Bordeaux, France, 1819; died in London, England, July 28, 1870. She married

James Mowatt, a New York lawyer, and from 1836 to 1845 wrote numerous forgotten satires and stories and the comedy *Fashion*, and in the latter year made her debut at the Park theater, New York, as "Pauline" in *The Lady of Lyons*, scoring an immediate popular success. In 1847 she wrote her second play *Armand*, which was well received. In 1848, in company with E. L. Davenport, she made her first appearance in England as "Julia" in *The Hunchback*, and became very popular. She returned to the United States in 1851, in which year her husband died, retired from the stage in 1854 on her marriage to William Ritchie of Richmond, Va., and went to Europe in 1860.

MOWBRAY, SIR JOHN ROBERT, M.P., born at Exeter, England, 1815; educated at Westminster and Christ Church, Oxford, called to the bar, and elected, in 1853, as a Conservative for the city of Durham, which he continued to represent until 1868, has since represented the University of Oxford. He was judge-advocate general in Lord Derby's second and third administrations in 1858 and 1866, and was second church estates commissioner from August, 1866, to December, 1868. His son, Mr. Robert G. L. Mowbray, was, in 1886 and 1892, elected Conservative member for the Prestwich division of Lancashire. Died April 22, 1899.

MOYLAN, STEPHEN, born in Ireland, 1732, died in Philadelphia, April 11, 1811. He settled in Philadelphia as a merchant, was among the earliest to enlist in the cause of the colonies, joining the army before Boston in 1775, and being placed in charge of the commissariat department at the suggestion of John Dickinson. General Washington appointed Moylan his aide-de-camp in 1776, and recommended him for quarter-master general. This post he resigned to raise the First Pennsylvania regiment of cavalry which he commanded at Valley Forge, on the Hudson river, in Connecticut, and in the Southern campaign, doing gallant service in nearly all of Washington's battles and campaigns, and making many daring and successful raids on the enemy. He was commissioned brigadier-general before his retirement.

MOZIER, JOSEPH, sculptor, born in Burlington, Vt., August 22, 1812, died in Switzerland, in October, 1870. His *Pocahontas*, *Truth*, *Silence*, *Rebecca at the Well*, *Esther*, *Jeppthah's Daughter* and *The Peri* were among his most admired statues.

MÜELLER, BARON (SIR FERDINAND VON, K.C. M.G., M.D., Ph.D., F.R.S.), son of the late Frederick Müller, of Rostock, Germany, was born at Rostock, 1825, educated in Schleswig, studied also in Kiel, and examined extensively the vegetation of Schleswig and Holstein from 1840 to 1847, when, on account of hereditary inclination to phthisis, he emigrated to Australia. He traveled through the extensive territory of South Australia, mainly for researches on plants, from 1848 till 1852, at his private expense. In 1852 he accepted the newly-created office of government botanist for Victoria; explored there till 1855, examining also the whole mountain vegetation of Australia, previously utterly unknown, ascended and named Mount Hotham, the Barkly ranges, and many other mountains; joined, as phytographic naturalist, the expedition sent out under Augustus Gregory, by the duke of Newcastle, to explore the river Victoria, and other portions of the north parts of the Australian continent; was one of the four who reached Termination lake in 1856; accompanied all of the other parts of the same expedition, conducted overland by Gregory to Moreton bay and accepted the directorship of the botanical garden of Melbourne in 1857, which office he held till 1873. He was one of the commissioners for the industrial ex-



hibitions in Melbourne in 1854, 1862, and 1867; has issued eight volumes of his *Fragmenta Phytographia Australia*; two volumes, profusely illustrated, on the *Plants of Victoria*, irrespective of several other publications, and contributed to the *Flora Australiensis*, of which six volumes have appeared. He died October 9, 1896.

MÜHLENBERG, WILLIAM AUGUSTUS, clergyman, born in Philadelphia, September 16, 1796; died in New York city, April 8, 1877. He was graduated at the University of Pennsylvania in 1814; studied theology under Bishop White, and became assistant in Christ church, Philadelphia. On October 22, 1821, he took charge of St. James church, Lancaster, Penn., remaining six years, and in 1828 founded a school at Flushing, L. I., which afterward became St. Paul's College, and for eighteen years was its principal. In 1846 he was rector of the free church of the Holy Communion, erected by his sister. In 1858 Doctor Mühlénberg became superintendent of St. Luke's hospital, which he had been active in founding, and in 1852 organized the first Protestant sisterhood in the United States. In 1866 he also established an industrial Christian settlement at St. Johnland, L. I. Doctor Mühlénberg was the author of numerous hymns, of which *I Would not Live Always* is the best known.

MÜHLENBERG, JOHN PETER GABRIEL, born in Trappe, Penn., October 1, 1746; died near Philadelphia, Penn., October 1, 1807. His father was a clergyman. At the age of sixteen years, in company with two brothers, he was sent to Halle, Germany, to be educated. While there he rashly enlisted in a company of soldiers, but was released through the intervention of friends. In 1766 he returned to America, studied theology, and became pastor of Lutheran churches in New Germantown and Bedminster, N. J. In 1772 he settled in Woodstock, Va., left his former denomination in consequence of the Virginia laws, and obtained Protestant Episcopal ordination from the bishop of London. He continued his ministry there for three years, and in 1775 accepted a colonel's commission in the American army. After he had preached his last sermon to his congregation, and given the benediction, he removed his gown, and stood in the pulpit in full military uniform. Proceeding to the door of his church he ordered drums to be beaten, and at once about 250 of his congregation volunteered as recruits. After having formed his "German Regiment," he marched with 300 men to the relief of Charleston, S. C., took part in the southern campaigns, and in 1777 was promoted brigadier-general. Subsequently he was engaged in the battles of Brandywine, Germantown, Monmouth, Stony Point, and Yorktown, and at the close of the war was made major-general. In 1785, when Benjamin Franklin was chosen president of Pennsylvania, General Mühlénberg became vice-president, and in 1801 for a short time was a member of the United States Senate. In 1803 he was made collector of the port of Philadelphia. His statue, by Blanche Nevins, is in the capitol at Washington, D. C.

MUIR, SIR WILLIAM, K. C. S. I., LL. D., son of Mr. William Muir of Glasgow, was born in 1819. He was educated at the universities of Edinburgh and Glasgow; entered the Bengal civil service in 1837; has been secretary to the government of India in the foreign department; was appointed provisional member of the governor-general's council in India in December, 1867, and lieutenant-governor of the Northwest Provinces in 1868; was invested with the Order of the Star of India in 1867; appointed an ordinary member of the council of the governor-general of India in 1847; and retired in 1876; member of the council of India,

1876 to 1885; principal of the University of Edinburgh, 1885, in succession to the late Sir Alexander Grant. He was created an honorary D. C. L. of the University of Oxford in 1882.

MUKHTAR-PACHA, GHAZI AHMED, was born in 1837, and was brought up by his grandfather, who sent him, in 1849, to the preparatory military school of his native city. He manifested a remarkable aptitude for military studies, and at the expiration of five years he passed from the school first of his class. Entering the military academy at Constantinople, he remained four years as pupil, and was promoted, while still pursuing his studies, to the grade of lieutenant. When he left he was made captain on the staff, and in that capacity he, in 1860, joined the headquarters of the Sirdar Ekrem Omar Pacha, in Montenegro, where he soon distinguished himself. After a time Ahmed Mukhtar returned to the military academy, where he was appointed to the post of professor of astronomy, military architecture, and fortification. In 1863 he was sent as binbashi or major and chief of the staff of the division of Islaheye—a division of organization—at Alexandretta, under the command of Dervish Pacha, now mushir at Batoum. At the end of 1864 the young soldier was appointed caimakan, or lieutenant-colonel, and tutor to Prince Youssef Issedin, the eldest son of Sultan Abdul Aziz.

When Ali Pacha, the minister of war, died, Essad Pacha became Seraskier, and Mukhtar was promoted to Mushir (or full general) and the governorship of Yemen, in 1871, at the age of thirty-three. He also received the Osmanli of the first class in brilliants. After the taking of Sana he was further decorated with the first class of the Medjidie. In 1873 he returned to Stamboul, where he was appointed minister of public works, but he did not take up the post, as a few days afterward he was named governor of Crete. On March 25, 1877, he learnt that for the first time the prospects of peace were judged hopeless by Turkish statesmen, and making an immediate application for a ship he left in a man-of-war on the 26th for Trebizonde, where he arrived on the 30th, proceeding, after three days' hard work, in the organization of land transport, etc., to Erzeroum and Kars. He had only three weeks to provide for the defense of Armenia when the war broke out, and in less than a week from his arrival in Kars that fortress was invested, and Mukhtar retired on the Soghanly Dag. His gallant conduct has become a matter of history. On the evening of October 1, 1877, he received the news that the Sultan had conferred on him the title of Ghazi, one of the greatest honors that can be given to an Ottoman. The word originally meant fanatic, but in its modern acceptation it is both defender of the faith and conqueror. In April, 1878, he was appointed grand master of artillery, and in November of the same year, commandant of Janina.

MULHALL, MICHAEL G., born 1836; is third son of the late Thomas Mulhall, lawyer, St. Stephen's Green, Dublin. He was educated at the Irish college, Rome. He has published the following works: *Progress of the World*, 1880; *Balance-Sheet of the World*, 1881; *Dictionary of Statistics*, 1884; *History of Prices*, 1885, besides numerous essays in the *Contemporary Review*, and papers read in Section F. of the British Association. Died Dec. 12, 1900.

MULLIGAN, JAMES A., born in Utica, N. Y., June 25, 1830; graduated at the University of St. Mary of the Lake in Chicago, in 1850, practiced law and edited a Catholic weekly paper. At the beginning of the Civil war he raised the 23rd Illinois volunteer regiment, of which he became colonel. He defended Lexington, Mo., against a large Confederate force under Sterling Price; was captured and exchanged, and fought in Vir-



ginin, 1863-64. He was fatally wounded at the battle of Winchester, Va., July 26, 1864.

MUNK, HANS, Danish navigator, was born in Elsinore in 1589, and died in the Arctic Ocean, June 3, 1628. Like his father, he was a pilot, and as such made many voyages from Denmark and Norway to the northern shores of America. Under the patronage of the king of Denmark and Norway he was commissioned in 1619 to find the northwestern route to China and the Indies. He left Elsinore on May 16, 1619, with two vessels and 644 men, and penetrated Davis Strait as far north as 69°. On his charts Davis Strait is called Tretum Christianeum. In 1620 exposure, sickness, and famine had gradually reduced his followers to two men. They then set sail for the coast of Norway, where they arrived at the end of September, 1620. In March, 1621, Munk sailed anew on the former errand, reached 75° N. latitude, and on his return, in June, 1623, reported that he had seen, farther north, an open sea. He organized a third expedition for Arctic discovery, and on that voyage died at sea.

MUNK, WILLIAM, M.D., F.S.A., was educated at University College, London, and the University of Leyden, where he graduated doctor of medicine, June 23, 1837. He was admitted a member of the Royal College of Physicians in 1844, and a fellow in 1854; elected Harveian librarian of the college in 1857; and was senior censor in 1882. Doctor Munk died December 20, 1898.

MUNKÁČZY, MIHALY, painter, born in Hungary in 1846; studied painting at Vienna, Munich, and Düsseldorf, and exhibited for the first time at Paris in 1870. His chief works are *The Last Day of the Condemned* and *Christ Before Pilate*. Died May 1, 1900.

MUNROE, CHARLES EDWARD, born in Cambridge, Mass., May 24, 1849; graduated at the Lawrence Scientific School, and became a tutor there. From 1874 to 1886 he was professor of chemistry at the Annapolis Naval Academy, and afterward became chemist to the United States torpedo corps. He is a member of many home and foreign scientific societies, and has written on the higher explosives.

MURDOCH, JAMES EDWARD, actor, was born in Philadelphia, January 25, 1811. On October 13, 1829, he appeared at the Arch Street theater, Philadelphia, as "Frederick" in Kotzebue's play of *Lovers' Vows*. After acting in several Southern cities he appeared in 1838 in New York city. In 1840 he became stage-manager of the Chestnut Street theater in Philadelphia, and two years later relinquished the stage to lecture on Shakespeare and teach elocution. In 1845 he returned to acting. In 1856 he performed at the Haymarket theater in London. During the Civil war he gave readings and recitations in aid of the United States sanitary commission. After that time he was professor of elocution at the Cincinnati College of Music. In 1882 he gave a farewell series of recitations in the principal American cities. He died May 19, 1893.

MURE, DAVID, called by courtesy Lord Mure, a Scotch judge of session, third son of the late Colonel Mure, of Caldwell, and brother of the eminent historian of Greece, born in 1810; was educated at Westminster and the University of Edinburgh. Having been called to the Scotch bar in 1831, he was appointed solicitor-general for Scotland in 1858, lord advocate in April, 1859, and was raised to the Scotch bench in January, 1865. He represented Buteshire, in the Conservative interest, from April, 1859, till he was made a judge; is a deputy-lieutenant for Buteshire, and was sheriff of Perthshire in 1853-58.

MURRAY, ALEXANDER, born in Perthshire, Scotland, June 2, 1811; served in the British navy, and in

1837 settled in Canada. He was engaged for many years in the geological survey of Canada and of Newfoundland, and wrote on the geology and mineralogy of the provinces. He died in January, 1885.

MURRAY, ALEXANDER S., keeper of Greek and Roman Antiquities in the British Museum, was born in 1841, and educated at the Royal High School, Edinburgh, the University of Edinburgh, and the University of Berlin. He was appointed assistant in the British Museum in 1867, and keeper in 1886. He is best known by a learned and careful work on the *History of Greek Sculpture* (2 vols., 1880 and 1883), and he has also contributed numerous articles to the *Nineteenth Century*, *Contemporary Review*, *Revue Archéologique*, and *Journal of Hellenic Studies*, etc. He is an active and prominent member of the Hellenic Society.

MURRAY, LOGAN CRITTENDEN, was born in Breckinridge county, Ky., in 1845. Both his father and mother were of Scotch-Irish Presbyterian line of descent. He took a course at Princeton College, New Jersey, leaving there in 1866, and has the degree of M.A. from that college. In 1866 also he assumed the management of the Kentucky National Bank of Louisville, which, from his devotion to its interests, was placed in the first position of all the banks of the South. In 1880 he was called to the management of the United States National Bank of New York city, and continues its president. In addition to the presidency of the bank, he is connected with many of the living activities of the metropolis in church business and social affairs. In Boston, in 1886, he was made president of the American Bankers' Association, and was reelected the following year at Pittsburgh.

MURRAY, WILLIAM HENRY HARRISON, born in Connecticut, April 26, 1840; graduated at Yale, and held pastorates (Congregational) in Boston, and other New England cities. He resigned his pastorate in 1874, and has lectured and written on horses, sporting in the Adirondacks, and other subjects.

MURRAY, LINDLEY, was born near Lancaster, Penn., April 22, 1745; died near York, England, February 16, 1826. His father was a rich Quaker merchant in New York city; and the son continued a member of that denomination. In 1761 he was admitted to the bar. When the Revolution began, as a Quaker non-combatant, he retired for four years to Islip, L. I. In 1779 he returned to New York city, and made several profitable business ventures. In 1784 he sailed for England, and settled in Holdgate, about a mile from the city of York, where he devoted his time to literary pursuits. He there published *The Power of Religion on the Mind* (1787), which passed through seventeen editions; and the *English Grammar* (1795), which had an extraordinary success. The grammar was introduced into all English and American schools, and made his name a household word. Later he devoted much time to the study of botany, and his garden, in the variety and rarity of its plants, surpassed the royal gardens at Kew, England.

MURSKA, ILMA DE, born in Buda-Pesth, Hungary, in 1843; died in Munich, Bavaria, January 14, 1889. She first sang in public at Florence, Italy, in 1862, and appeared in London in May, 1865, as "Lucia" in *Lucia di Lammermoor*. In 1873 she sang in opera at New York, and her last appearance in this country was in 1887.

MUSURUS PACHA, CONSTANTINE, diplomatist, was born at Constantinople, February 18, 1807, his father, Paul Musurus, having been a native of Retimo, in Crete, and a descendant of an ancient patrician family. He received, at Constantinople, a very careful education, comprising the classical literature of Greece and Rome, the sciences, and several European languages.

In 1832 he was appointed secretary to the prince of Samos (Stephen Vagorides), and in 1833 accompanied the commissioners of France, England, and Russia, sent to exhort the Samians to make their submission to the Porte. In 1840 he was sent to Athens as envoy extraordinary and minister plenipotentiary, a difficult mission for an Ottoman diplomatist. It was signalized by a rupture of diplomatic relations between the two courts, by the triumph of Ottoman policy, and by an attempted assassination of M. Musurus. At the end of 1848 he was recalled from Athens to represent Turkey at the Austrian court, where his able management of matters connected with the demand for the surrender of Hungarian refugees increased his reputation. He was appointed minister at London, 1851, became ambassador, 1856, and pacha, on the Sultan's visit to London, 1867, and retained the embassy until 1885. He died February 11, 1891.

MUTSU HITO, Mikado or Emperor of Japan, born in 1852, ascended the throne in 1867. His reign has been marked by the abolition of the feudal system, the introduction of Western arts and ideas and a material progress, the extent of which was abundantly shown by the prowess and unbroken victories of the Japanese army and navy in the war which he waged with China, in 1894 and 1895.

MYER, ALBERT JAMES, born in Newburg, N. Y., September 20, 1827; died August 24, 1880. He graduated at Hobart and at Buffalo, and in 1854 entered the United States army as a surgeon. In 1860 he joined the signal service corps, and served under General McClellan in all the battles from Bull Run to Antietam. In 1863 he took charge of the United States signal department, but his appointment was revoked in July, 1864. In July, 1866, he was reappointed with rank as colonel, and in June, 1880, was promoted brigadier-general as a reward for the improvements which he had introduced in the signal service. Under his administration the existing system of "weather probabilities" was inaugurated and perfected.

MYLNE, THE RIGHT REV. LOUIS GEORGE, D.D., bishop of Bombay, son of Maj. Charles David Mylne, H.E.I.C.S., was born at Paris in 1843, and educated at Merchiston Castle School, Edinburgh, at the University at St. Andrews, and at Corpus Christi College, Oxford (B.A. first class in classics, 1866; M.A., 1870; D.D., 1876). He was curate of North Moreton, Berkshire, from 1866 to 1870, and senior tutor of Keble College from 1870 to 1876. He was appointed bishop of Bombay in succession to the late Doctor Douglas, and was consecrated in St. Paul's Cathedral, London, by the archbishop of Canterbury, May 1, 1876.

## N.

NACHTIGAL, GUSTAV, born in Prussian Saxony in 1834; died in 1885. He studied at Berlin and Halle; served as an army surgeon, and practiced as a physician in Algeria and Tunis. He made extensive explorations of the Soudan.

NAGLEE, HENRY MORRIS, born in Philadelphia, January 15, 1815; died in California, March 5, 1886. He was graduated at West Point in 1835, and assigned to the infantry, but resigned to become a civil engineer. He served in the Mexican war as a captain of volunteers, and, until the beginning of the Civil war, engaged in banking in San Francisco. In February, 1862, he entered the volunteer service as brigadier-general, took part in the Peninsular campaign, and, in 1863, commanded the seventh army corps. He was mustered out April 4, 1864.

NANSEN, FRITHJOF, a Norwegian zoologist and scientific explorer, born at Christiania in 1861. He is curator of the zoological department of the Bergen Museum and is known as the leader of a scientific expedition across Greenland in 1889, and as the originator of a plan for the discovery of the North Pole by drifting. He led an expedition to the North Pole in 1893.

NAPIER AND ETTRICK, LORD (FRANCIS NAPIER, K.T.), eldest son of the eighth baron, born September 15, 1819, succeeded his father October 11, 1834. He was made attaché to the embassy at Vienna in 1840, and held diplomatic posts at Teheran and Constantinople, to which place he returned as secretary of embassy in 1854, after having been secretary of legation at Naples and St. Petersburg. In 1857 he was appointed British minister at Washington, whence he was removed, December 13, 1858, to the Hague; going December 11, 1860, to St. Petersburg; and September 15, 1864, to Berlin. He was governor of Madras from January 31, 1866, till January, 1872, and was then acting viceroy of India *pro tempore*, after the assassination of Lord Mayo. Having returned to England he acted as president of the Social Science Association at the meeting held at Plymouth in the autumn of 1872. He was

chairman of the crofter commission, and is believed to have written the celebrated report, which caused so much indignation in the minds of the duke of Argyll and other Highland landlords. Died Dec. 19, 1898.

NAPIER OF MAGDALA, LORD (ROBERT CORNELIUS NAPIER, G.C.B., G.C.S.I.), son of Maj. C. F. Napier, Royal Artillery, was born in Ceylon in 1810. He received his education at the military college, Addiscombe, entered the corps of Bengal engineers in 1828, and served with distinction in the Sutlej campaign, at the conclusion of which, having attained the rank of major, he was selected by the late Sir Henry Lawrence for the post of engineer to the Durbar of Lahore. He was promoted to the rank of colonel, and named Chief Engineer under the new Punjab administration. During the mutiny of 1857 he served in the capacity of chief engineer with the army of Sir Colin Campbell, and the part he played in the suppression of the rebellion greatly enhanced his previous high reputation. His services in China as second in command under Sir Hope Grant are well known, and he was rewarded by being made major-general, a K.C.B., and successor to the late Sir J. Outran, as a military member of the Council of India. This post he resigned in January, 1865, when he was nominated to succeed Sir W. Mansfield as commander-in-chief at Bombay, with the local rank of lieutenant-general; and in 1867 he received the appointment to command the expedition intended to rescue the Abyssinian captives, and was made a knight grand commander of the Star of India. He achieved a brilliant success. King Theodore was thoroughly defeated in an engagement on the heights of Islamigie, April 10, 1868, and soon afterward released his prisoners. The English commander followed up this victory by the storming of Magdala on the 13th, when Theodore, in despair, committed suicide. On Sir Robert Napier's return to England, in July, he received the thanks of parliament; the sum of \$10,000 per annum was settled on him and his next heir, in consideration of his services; he was elevated to the peerage by the title of Baron



Napier of Magdala (July 14th); was presented with the freedom of the city of London, and a sword of the value of 200 guineas (July 21st); and received other marks of honor. He was elected a fellow of the Royal Society, December 16, 1869. In January, 1870, he was appointed to succeed Sir Wm. Mansfield as commander-in-chief of the forces in India, with the local rank of general. He was appointed governor of Gibraltar in June, 1876. In February, 1878, he was selected by the government to be the commander-in-chief of the English expeditionary force in the event of that country declaring war against Russia—a contingency which was averted by the treaty of Berlin. In 1886 he was appointed constable of the Tower of London. He died in May, 1890, and was buried with great pomp in St. Paul's Cathedral.

**NAPOLEON, PRINCE NAPOLEON JOSEPH CHARLES PAUL BONAPARTE**, cousin to the late emperor Napoleon III., and second son of Jerome Bonaparte, by his second marriage with the Princess Frederika of Würtemberg, was born at Trieste, September 9, 1822. His youth was passed at Vienna and Trieste, Florence and Rome, occasionally in Switzerland, England, and Spain. In 1845 he obtained permission to visit Paris under the name of the Comte de Montfort, but was soon afterward compelled to leave on account of his intrigues with the extreme Democrats. After the revolution of February, 1848, Prince Napoleon returned, and the Corsicans elected him a member of the constituent assembly, in which he became leader of the extreme Republican party known as the Mountain. His views, however, underwent a change, and in 1849 he was appointed minister plenipotentiary at Madrid, but was shortly recalled for having quitted his post without authority. He was made a French prince, with a seat in the Senate and Council of State, December 23, 1853, and at the same time received the grand cross of the Legion of Honor and the rank of general of division. In 1854 he was appointed to a command in the expedition to the Crimea, and commanded an infantry division of reserve at the battles of Alma and Inkermann. On account of his sudden retirement from this post, ill health being the excuse, the sobriquet of *Plon-plon* was given him by his countrymen. In 1855 he was named president of the imperial commission of the Universal Exhibition. In June, 1858, he was placed at the head of the new ministry for Algiers and the colonies, but speedily resigned his appointment. He married the Princess Clotilde, daughter of Victor Emmanuel, late king of Italy, January 30, 1859, by whom he had two sons, Napoleon Victor Jerome Frederick, born July 18, 1862, and Napoleon Louis Joseph Jerome, born July 16, 1864, and one daughter, Maria Létitia Eugénia Catherine Adelaide, born December 20, 1866. In the Italian campaign of 1859 he commanded the French army of reserve in the north of Italy, but was not engaged in any of the great battles. In the Senate in 1861 he made an attack upon the Orleans family, which was answered with spirit by the Duc d'Aumale. Prince Napoleon, to the disgust of a great portion of the French army, declined to accept the challenge sent him by the duke on that occasion. He was president of the French commission to represent France in the Great Exhibition at Kensington in 1862. In 1865 Prince Napoleon was appointed president of the commissioners for the Universal Exhibition at Paris in 1867, but resigned the post in consequence of a reprimand which he received from the emperor for a speech delivered in Corsica at the unveiling of a statue of the Emperor Napoleon I., May 27, 1865. On war being declared with Prussia, in July, 1870, Prince Napoleon asked his cousin to appoint him to

a military command. The emperor, however, declined to do so. After the fall of the empire he spent some months in Brussels and in other continental cities, but ultimately he fixed his residence in England. After May 24, 1873, he obtained permission to return to France. After the death of the emperor, Prince Napoleon claimed to be the chief representative of his family, and endeavored, though without success, to organize a party of his own in opposition to the adherents of the Empress Eugénie and the Prince Imperial. At the general election of February 20, 1876, Prince Napoleon came forward as a candidate in the arrondissement of Ajaccio, against M. Rouher. Prince Napoleon was defeated on the second ballot, but the chamber invalidated the election of his adversary, and on May 14th the prince was elected. He took his seat on the benches of the Left, though he did not identify himself with any particular group. On December 24, 1876, he delivered a speech in which he made a violent attack on the clerical party. At the election of October 14th he was defeated in the arrondissement of Ajaccio by Baron Haussmann. On January 16, 1883, a manifesto by the prince appeared in the *Figaro*, and was extensively placarded on the walls of Paris. In this document, which was an indictment against the republic, he posed as champion of the church, and advised the nation to have recourse to a *plebiscite*. A meeting of the cabinet was immediately convened, and the prince was arrested and imprisoned. The Chambre des Mises en Accusation unanimously decided, however, that the prince had in reality committed no offense, and accordingly, after a month's detention, he was set at liberty. He was included in the expulsion law of 1886. He died March 16, 1891.

**NAPPER TANDY, JAMES**, born near Dublin in 1747; became prominent in the rebellion of 1798, when he invaded Ireland with a body of French troops. He was captured and sentenced to death, but was released after two years, and died in 1803.

**NARBONNE, PETER REMI**, born in Canada in 1806; hanged at Montreal, January, 26, 1839. He took an active part in the Canadian rebellion of 1837, was defeated and imprisoned, and upon his release again joined the insurgents (1838). He was tried at Montreal for high treason, convicted, and executed.

**NARES, SIR GEORGE STRONG, K.C.B., F.R.S.**, was born in 1831, and educated at the Royal Naval College, New Cross, England. He saw some service in H.M.S. *Canopus*, forming part of the channel squadron, and afterward in H.M.S. *Havannah*, on the Australian station. He was a mate on board the *Resolute* in the Arctic expedition of 1852-54. In the spring of 1853 he was auxiliary to Lieutenant Mechem, and traveled over 665 miles in 69 days. In 1854 he started in the intense cold of March and went over 586 miles in 56 days. On the return of this Arctic expedition he served in H.M.S. *Glatton* during the last year of the Crimean war; afterward in H.M.S. *Conqueror* on the Mediterranean station. In 1854 he was promoted to the rank of commander, being attached also to the training-ship *Boscawen*. In 1866-67 he was employed at the antipodes in command of the *Salamander* in surveying the eastern and northeastern coasts of Australia and Torres Straits. In 1869 he was sent in H.M.S. *Shearwater* to survey and report upon the Gulf of Suez. From 1872 down to the end of 1874 Captain Nares was in command of H.M.S. *Challenger*, employed in making extensive soundings on the coast of China, in the Eastern and South Pacific Oceans, and in other parts of the world. He was then ordered home and appointed to the command of the Arctic expedition. The two ships composing the expedition, H.M.S. *Alert* and H.M.S.

*Discovery*, commanded respectively by Captains Nares and Stephenson, left England in May, 1875, with the hope of reaching the north pole. The expedition reached the mouth of Lady Franklin Bay on August 27th. Here Captain Nares left the *Discovery* to take up her quarters for the winter, while the *Alert* continued her course along the western shore of Robeson Channel. This course she held until, on September 1st, the *Alert* herself attained the highest latitude. Lieutenant Rawson, of the *Discovery*, with his sledge-crew of eight men, had accompanied the advance ship with the object of returning to the *Discovery* during the autumn with news of the *Alert's* progress. This journey, however, he was never able to accomplish. The *Discovery* therefore knew nothing of her consort's position until the ensuing spring. On October 12th the sun finally disappeared, leaving the *Alert* in total or partial darkness for 142 days, and the *Discovery* for almost the same period. After the return of daylight, sledge expeditions were arranged. A party, numbering in the aggregate fifty-three persons, led by Commander Markham and Lieutenant Parr, made a gallant attempt to reach the pole. They were absent seventy-two days from the ship, and on May 12th succeeded in planting the British flag in latitude  $83^{\circ} 10' 26''$  N. From this position there was no appearance of land to the northward, but, curiously enough, the depth of water was found to be only seventy-two fathoms. The men suffered intensely from the extreme cold, many were attacked by scurvy, and it was with great difficulty that the sledging party made their way back to the ship. Captain Nares now resolved to return home, as, with the whole resources of the expedition, he could not hope to advance more than about fifty miles beyond the positions already attained. The expedition arrived at Valentia, October 27, 1876. In reward for his services Captain Nares was appointed a K.C.B. (December 1st). He was afterward again placed in command of the *Alert*, which sailed from Portsmouth, September 24, 1878, for a two-years' survey of the South Pacific. He has written interesting accounts of his voyages in polar seas.

NASMYTH, JAMES, engineer, born at Edinburgh, August 19, 1808; son of Alexander Nasmyth, a well-known landscape painter. He was the youngest of a family of eleven, the eldest being Patrick, also a well-known artist. James gave very early evidence of a decided taste for mechanical pursuits. In 1829 he went to London to offer his services to Henry Maudslay, the founder of the celebrated engineer firm in London. The evidences of his efficiency as a workman were so satisfactory to Mr. Maudslay that he appointed him his assistant in his private workshop. Here he remained till Mr. Maudslay's death in 1831, after which he returned to Edinburgh for the purpose of constructing a set of engineering tools, wherewith he started business in Manchester in 1834. This site was soon covered by an extensive series of workshops, named the Bridge-water Foundry. Here many mechanical tools were invented and manufactured which are now doing good service in the workshops of the world. Conspicuous among them is the steam hammer, which, since its invention in 1839, has had no small influence in advancing the progress of the mechanical arts. The application of his steam hammer as a means for driving piles for the foundation of bridges and great dock works was one of his most successful inventions, and was hailed as a most valuable agent in carrying out such great works as the High Level bridge at Newcastle-upon-Tyne, the Borders bridge at Berwick-upon-Tweed, the great coffer dam required for the construction of great docks at Keyham, near Devonport, and many other such works at home and abroad. Among other inventions of his

which have been extensively adopted owing to their high practical utility may be named his safety foundry ladle double-faced wedge sluice valve, a suction fan for effecting the perfect ventilation of mines; a reversible rolling mill in which all need of a fly-wheel is dispensed with, and by which simple arrangement enormous plates and bars of iron and steel can be rolled with vast saving of labor; a form of steam engine derived from that of his steam hammer, and now almost universally adopted for screw steamships; and a spherical safety valve. He died May 7, 1890.

NASON, ELIAS, born in Massachusetts, April 21, 1811; died June 11, 1887. He graduated at Brown University in 1835, and removed to Georgia, where he edited a newspaper. He afterward became a Congregational minister in his native State. He was a voluminous author, and a member of several scientific societies.

NASON, HENRY BRADFORD, born in Massachusetts, June 22, 1831; graduated at Amherst in 1855, and studied chemistry at Göttingen. He became professor of natural history at the Rensselaer Institute, Troy, N. Y., in 1858, and professor of chemistry and natural sciences in Beloit College, Wis., 1858-66. In the last named year he accepted a similar chair at the Polytechnic Institute. He is M.D. of Union, and LL.D. of Beloit.

NASR-ED-DEEN, Shah of Persia, son of the late Mehemet Shah, by Queen Veliat, of the Kadjar tribe, and grandson of Abbaz Mirza, born in 1829, was called to the throne in 1848. The shah is well versed in Persian and Turkish, is acquainted with history, and has traveled in Europe. At the beginning of the war between Russia and Turkey, in 1853, he declared his neutrality, but shortly before its close entered into a treaty with Russia. In the following year, in consequence of the occupation of Herat by Persian troops, the government of India declared war against him (November 1, 1856). After a few months of hostilities, during which General Outram captured Kurrach, Bushire, and other places, a treaty of peace was signed at Paris by Lord Cowley and the Persian ambassador. In which ample satisfaction was given to England. Subsequently the shah had wars with several neighboring states, and was successful in an expedition against the Turcomans. In 1866 a treaty for establishing telegraphic communication between Europe and India through Persia was signed at Teheran. The shah's visit to Europe in 1873 is a strong argument as to the moderation and popularity of his rule, for although he was absent from his kingdom from May 12th till September 6th, not one breath of sedition disturbed the political calm that reigned there. During this journey the shah kept a diary, which, on his return, was published in the original Persian. A verbatim English translation, by Mr. J. W. Redhouse, appeared in London in 1874. The shah has since paid a visit to Russia, entering the capital of that country in state, May 23, 1878, and in 1889 revisited England. Assassinated May 1, 1896.

NASSAU, ADOLPH WILLIAM CHARLES AUGUSTUS FREDERICK, DUKE OF, born July 24, 1817, assumed the sovereignty August 20, 1839. The duke married in 1844 the Princess Elizabeth, daughter of the Grand Duke Michael of Russia, who died January 28, 1845; and took, as a second wife, April 23, 1851, Adelaide Marie, daughter of Prince Frederick, of Anhalt-Dessau, by whom he has two children. A constitutional government had existed for many years before his accession to the throne, the nation being represented not in chambers elected by popular suffrage, but by the states of the dukedom. In 1848 a new constitution, upon a more liberal basis, was proclaimed; the duke declared his



intention of governing in a constitutional manner, and for a time the experiment promised to succeed. The duke was one of the sovereigns who joined the union of German states under the presidency of the king of Prussia, formed after the failure of the Frankfort constitution. This union was soon dissolved, and the duke joined the Austrian party in 1850, and voted with it in the diet. The constitution was annulled in November, 1851. This state was joined to Prussia by decree, September 20, 1866, and the Prussians took possession October 8th.

NAST, THOMAS, was born at Landau, in Bavaria, September 27, 1840. In 1846 his parents emigrated to America, and when very young he found employment in the office of Frank Leslie's *Illustrated Newspaper*. With only six months' art-instruction under Theodore Kaufmann, he began to furnish acceptable sketches and drawings for the engravers. In 1860-61 he was in Europe, employed as a traveling artist for British and American illustrated periodicals. Returning to America, he formed a connection with *Harper's Weekly*. During 1873 he lectured in a number of cities in the United States, illustrating his lectures by caricatures, drawn on the platform. In 1885 he again delivered some lectures, illustrating them in oil on canvas in the presence of the audience. He has illustrated, among other books, Dickens' *Pickwick Papers*, and *Pictures from Italy*, Nasby's *Swinging Round the Circle*, etc. As a political caricaturist, or rather satirist, he enjoyed much notoriety, and his productions were of great service to the Republican party.

NEAL, DAVID D., artist, born in Lowell, Mass., October 20, 1837; studied at Munich, and exhibited at the Royal Academy, London. One of his principal works is *The Meeting of Mary Stuart and David Rizzio*, exhibited in 1876.

NEAL, JOHN, born in Falmouth, Mass., August 25, 1793; died in Portland, Me., June 21, 1876. He studied law, and was admitted to the Maryland bar in 1819. In 1823 he sailed for England, where he wrote for the leading British magazines. After remaining there for four years he returned to Portland and opened a law office. At that time he wrote a portion of Paul Allen's *History of the American Revolution*.

NEELY, HENRY ADAMS, born in Fayetteville, N. Y., May 14, 1830; studied at Hobart, where he became a tutor, and was ordained in the Protestant Episcopal church in 1852. In 1867 he became bishop of Maine.

NEILL, THOMAS HEWSON, born in Philadelphia, April 9, 1826; died there March 12, 1885. He graduated at West Point in 1847, and served on the frontier in an infantry regiment. In February, 1862, he was made colonel of Pennsylvania volunteers; served in the Peninsula, and was brevetted major United States army for gallantry at Malvern Hill. He also took part in the battles of Chancellorsville and Gettysburg; served as acting inspector-general under Sheridan, and was brevetted brigadier-general United States army, and major-general of volunteers. After the war he commanded the 1st United States infantry, and in 1874-75 the 6th cavalry. He was commandant of cadets at West Point 1875-79; served as colonel of the 8th cavalry, and was retired in April, 1883.

NEILSON, LILLIAN ADELAIDE, born in Spain, March 3, 1850; died in Paris, August 15, 1880. She was of English parentage, and made her first appearance on the English stage in 1865. Seven years later she came to this country, playing "Juliet," "Rosalind" and other Shakespearean creations with great success. She married a Mr. Lee in 1872, but obtained a divorce from him a few years later.

NELATON, AUGUSTE, born in Paris in 1807; be-

came professor of surgery to the Faculty of Medicine in Paris, in 1851. In 1867 he became a member of the Academy of Sciences. He was the professional adviser of Napoleon III., and won fame by a skillful operation on General Garibaldi. He died in 1873.

NELSON, THOMAS, born in Yorktown, Va., December 26, 1738; died in Hanover county, Va., January 4, 1789. He was sent to Eton College at fourteen years of age, and later went to Cambridge University, England, where he was graduated. In 1761 he returned to the United States; a year later married, and inherited a large estate. On July 4, 1776, he signed the declaration of independence. In August, 1777, on the approach of the British fleet, he became commander-in-chief of the State forces. He was twice chosen a member of the Continental Congress, and on his personal security raised large sums of money for the continental treasury. These debts he was obliged to redeem, for which he received no compensation from the United States Government. He also advanced money to pay two Virginia regiments that had been ordered to the South, but had refused to march until their arrears were discharged. In 1781 he became governor of Virginia, and at the siege of Yorktown commanded the Virginia militia.

NELSON, WILLIAM, born in Maysville, Ky., in 1825, entered the United States navy in 1840, and rose to be lieutenant and master. At the beginning of the Civil war he had charge of the gunboats on the Ohio river, and in September, 1861, became brigadier-general of volunteers. He commanded a division of Buell's army, and in July, 1862, was appointed major-general of volunteers. He was shot by General Jefferson C. Davis in a Louisville hotel, and died September 29, 1862.

NEMOURS, LOUIS CHARLES PHILIPPE RAPHAEL D'ORLEANS, DUC DE, one of the Orleans princes, is the second son of King Louis Philippe, and was born at Paris, October 25, 1814. He received his education at the Collège Henri IV., and was still a child when Charles X., in accordance with ancient custom, appointed him colonel of the first regiment of Chasseurs de Cheval, at the head of which he made his entry into Paris, August 3, 1830. In February, 1831, he was elected king of the Belgians, but his father declined, on his behalf, this offer of the national congress, as he did also at a later period a similar offer of the throne of Greece. Subsequently the duc de Nemours served with distinction in the two Belgian campaigns and in Algeria, being in 1837 promoted to the rank of lieutenant-general. Premature decease of his elder brother, the duc d'Orléans (July 13, 1842), placed the duc de Nemours in a position of great importance. Contrary to the traditions of the old monarchy, which were in favor of the mother of the heir presumptive being declared regent, a bill was introduced, conferring the regency on the duc de Nemours, and carried in the chamber of deputies by a majority of 216 votes, and afterward in the peers by 163 to 14 votes. Public opinion, however, did not appear to ratify this law, which the general apprehension of danger caused to be abandoned in 1848. After the revolution of February the duc de Nemours quitted France, and joined the other members of the exiled family of Claremont; and he did not return to his native country until after the downfall of the empire in 1870. He married April 27, 1840, Victoire-Auguste-Antoinette, Duchess of Saxe-Coburg-Gotha (born February 14, 1822; died November 10, 1857), by whom he had two sons, Prince Louis Philippe Marie Ferdinand Gaston d'Orléans, comte d'Eu (q.v.); and Prince Ferdinand Philippe Marie d'Orléans, duc d'Alençon, born July 12, 1844; and two daughters, the eldest of whom, the Princess Marguerite Adelaide Marie d'Orléans, born Feb-



ruary 16, 1846, was married at Chantilly to Prince Ladislav Czartoryski, January 15, 1872. He was exiled with the other dynastic pretenders, and resides in England. He died June 25, 1896.

NETTLESHIP, HENRY, born at Kettering, in Northamptonshire, England, May 5, 1839, and educated at Charterhouse, gained scholarship at Corpus Christi College, Oxford, and became corpus professor of Latin literature in the University of Oxford in 1878. Professor Nettleship published and edited a large number of works on classical subjects. He died July 10, 1893.

NEUVILLE, ALPHONSE MARIE DE, the most popular of the later school of French painters of battle-scenes, born at St. Omer, May 31, 1836, died in Paris, May 20, 1885. After studying under Delacroix, he painted a series of successful pictures of French exploits in the Crimean war, Italy, and Mexico. He fought in the ranks in the Franco-German war and painted a series of graphic and powerful pictures. He excelled also as an illustrator of books.

NEVILLE, HENRY, born at Manchester, became an actor at an early age, and worked in the provinces before going to London, where he appeared as "Percy Ardent" in Boucicault's *Irish Heiress* at the Lyceum theater in October, 1860, and made a great success in H. Leslie's *Adrienne*. He played for a short season at the Operetta house in Edinburgh before appearing at the Olympic; and achieved a still greater success as "Brierly" in *The Ticket of Leave Man*, which was produced in May, 1863, and played for over 400 nights without intermission. After his engagement at the Olympic, Mr. Neville went to the Adelphi, where he once more made a decided hit in Watts Phillips' *Lost in London*, Mr. Charles Reade's *Dora*, and *Put Yourself in His Place*. He also appeared with Mr. Fletcher in the memorable production of *No Thoroughfare*. Subsequently he went back to the Olympic Theater, not alone as actor, but also as lessee and manager. Mr. Neville also published a work entitled *The Stage, Its Past and Present in Relation to Fine Art*, and contributed several stories to London serials.

NEVIN, JOHN WILLIAMSON, D.D., was born in Franklin county, Penn., in 1803, and died June 6, 1886. He was president of the Theological Seminary at Mercersburg and later of Franklin and Marshall College. Doctor Nevin pushed a number of theological works.

NEVIN, ROBERT J., D.D., son of the foregoing, was born at Allegheny, Penn., November 24, 1839, and graduated at Franklin and Marshall College. He served in the Federal army in 1862-65, and was ordained in the Protestant Episcopal Church in 1867. He has been for many years rector of St. Paul's church in Rome, Italy.

NEW, JOHN CHALFANT, born in Vernon, Ind., July 6, 1831; served during the Civil war and as quartermaster-general of Indiana, and was elected to the State Senate. He became president of the first national bank of Indianapolis, was made United States treasurer, 1875-76, and assistant secretary of the treasury, 1882-84. In 1878 he became proprietor of the *Indianapolis Journal*, and in 1889 United States consul-general at London.

NEWBERRY, JOHN STRONG, geologist, was born in Windsor, Conn., December 22, 1822. In 1846 he was graduated at the Western Reserve College, Ohio, and in 1848 at the Cleveland Medical College. From 1851 to 1855 he was settled in Cleveland, Ohio, as a physician. Thereafter he became assistant surgeon and geologist of the United States survey of northern California and Oregon. In 1857 he joined Lieut. Joseph C. Ives in exploring the Colorado river for 500 miles

from its mouth, and in 1859, under Capt. J. N. Maccomb, completed the exploration of this river and its branches. During the Civil War Doctor Newberry was connected with the United States sanitary commission, and directed its operations in the Mississippi valley. In 1866 he was made professor of geology and mines in Columbia College, N. Y., and in 1869 State geologist of Ohio. He also assisted in the New Jersey zoölogical survey. He was connected with the principal scientific societies of this country and of Europe. In 1867 he received the degree of LL. D. from Western Reserve College. He contributed many papers on natural history to scientific publications. His more important publications are found among the United States Government reports, and the State reports of New Jersey and Ohio. He died December 7, 1892.

NEWBERRY, WALTER LOOMIS, born in East Windsor, Conn., September 18, 1804; died November 6, 1868. In 1833 he came to Chicago, where he was very successful as a merchant and banker. By his will he left over \$2,000,000 to found a library in Chicago, to be known by his name. (See LIBRARIES.)

NEWCOMB, SIMON, LL.D., was born at Wallace, Nova Scotia, March 12, 1835. While a youth he came to the United States, and was for several years engaged as a teacher. In 1857 he was employed on the computations of the *National Almanac*. In 1858 he began his original investigations in astronomy, and in 1861 was appointed professor of mathematics in the United States navy, and was stationed at the naval observatory. He negotiated the contract for the great telescope ordered by congress, and supervised its construction. He was made secretary of the commission created by congress in 1871, to observe the transit of Venus (December 9, 1874). In 1872 he was elected an associate of the Royal Astronomical Society, and in 1874 received its gold medal for his tables of Neptune and Uranus. In the same year he was chosen a corresponding member of the Institute of France; and in 1875 he received the honorary degree of doctor of mathematics and physics from the University of Leyden. He is now superintendent of the *Nautical Almanac*, and he went to the Cape of Good Hope to observe the transit of Venus on December 6, 1882.

NEWELL, ROBERT HENRY, born in New York city, December 13, 1836; engaged in literary pursuits in New York, and published a series of papers under the name of "Orpheus C. Kerr," which attracted some attention during the Civil war. Died July 1, 1901.

NEWMAN, FRANCIS WILLIAM, son of John Newman, and younger brother of Cardinal Newman, born in London in 1805; was educated at a private school at Ealing, and at Worcester College, Oxford, where he obtained a double first class in classics and mathematics in 1826. In the same year he was elected fellow of Balliol. He gave up the idea of taking orders and resigned his fellowship in 1830 from conscientious scruples on the subject of infant baptism. He then went to Bagdad with the object of assisting the late Mr. Antony Norris Greaves in a Christian mission, but his further studies convinced him that he could not conscientiously undertake the work, and in 1833 he returned to England and became classical tutor in Bristol College, where he occupied some of his time in compiling a grammar. In 1840 he accepted the post of classical professor at Manchester, and in 1846 became Latin professor at University College, London, which post he resigned in 1863. He has published a number of works on religious subjects, of which the best known are *The Soul: its Sorrows and Aspirations*, 1849; *Phases of Faith: Passages from my own Creed, 1850; Theism, Doctrinal and Practical*,



1858. Professor Newman has long since ceased to call himself a Christian, but defines his own aim as "that of saving all that is spiritual, pure, and merciful in Christianity amid the wreck which erudition has made of its mythology." Professor Newman has also published works on political economy and history, mathematics, classics, and Oriental languages. He has always taken keen interest in politics, but adheres to no party. He died October 4, 1897.

NEWMAN, HENRY R., born in New York in 1833; became a painter, and exhibited water colors at the New York Academy of Design, 1861-69. He has since resided in Florence, Italy.

NEWMAN, JOHN HENRY, cardinal deacon of the Roman Catholic Church, elder brother of Francis William Newman, was born in London in 1801, and educated at Ealing School, whence he proceeded to Trinity College, Oxford, where he graduated B.A. 1820, taking classical honors, and was elected fellow of Oriel College. In 1825 he became vice-principal of St. Alban's Hall, then under the late Doctor (afterward Archbishop) Whately, and in 1826 tutor of his college, which post he held until 1831. In 1842 he quitted Oxford, and established at Littlemore an ascetic community on a mediaeval model, over which he presided for three years. He held the rectorship of St. Mary's from 1828 till 1843, where, by his preaching, he gained such influence over the younger members of the university, that he became, in conjunction with Doctor Pusey, a recognized leader of the High Church party. He took a leading part in the publication of the *Tracts for the Times*, to which he contributed the final tract, No. 90, which was severely censured by the university authorities as practically annulling the broad lines of demarcation between the English and Roman Catholic churches. In October, 1845, he seceded from the Established Church, was received into the Roman communion, and, after being ordained priest, became founder of the English Oratory and head of its Birmingham house. In 1854 he was appointed rector of the newly-founded Catholic University in Dublin, but resigned that post in 1858, and established a school for the sons of Roman Catholic gentry at Edgbaston, near Birmingham. Doctor Newman was elected an honorary fellow of Trinity College, Oxford, December 28, 1877. It has been frequently asserted that Doctor Newman did not believe in the doctrine of the infallibility of the Roman pontiff when speaking *ex cathedra* to the Universal Church on questions of faith or morals. In reply to a criticism to this effect, Doctor Newman wrote as follows (September 13, 1872): "He assumes that I did not hold or profess the doctrine of the Pope's infallibility till the time of the vatican council, whereas I have committed myself to it in print again and again from 1845 to 1867. And on the other hand, as it so happens—though I held it, as I ever have done—I have had no occasion to profess it, whether in print or otherwise, since that date. Any one who knows my writings will recollect that in so saying I state a simple fact." Doctor Newman was created a cardinal deacon by Pope Leo XIII. in 1879, and died August 11, 1890.

NEWMAN, JOHN PHILIP, born in New York, September 1, 1826; became a minister of the M. E. Church in 1849. He preached in New York State, and from 1864 to 1869 at New Orleans, and from 1869 to 1874 was chaplain of the United States Senate. He served three terms as a pastor in Washington, D. C., and twice in New York city. In 1888 he was elected bishop.

NEWPORT, CHRISTOPHER, born in England about 1565. He was one of the founders of Jamestown colony, Va., and had previously acquired notoriety in expeditions against the Spaniards in the West Indies.

On April 26, 1607, he passed Cape Henry and Cape Charles, which he named in honor of the sons of King James of Great Britain. On April 30th he landed, after having endured a severe storm, and called the place Point Comfort, and thirteen days later arrived at Jamestown. Returning to England in the following year, he again set sail for the colony with 120 settlers. The majority of them were goldsmiths and gentlemen, as Capt. John Smith remarked, "sent hither by their friends to escape ill destinies." Captain Newport soon made his way to the Indian chiefs, Powhatan and Opecanough, to obtain information and make exchanges of commodities. Some yellow mica having been discovered near the site of Richmond, Newport freighted his vessels with it, under the impression that it was gold, and took it to England. At the end of the same year he again visited the colony, bringing provisions and presents for Powhatan. In 1610 he made another and final voyage, when his vessels were wrecked on the Bermudas, but finally reached their destination.

NEWTON, HUBERT ANSON, born at Sherburne, N. Y., March 19, 1830; graduated at Yale in 1850, and in 1853 took charge of the mathematical department of that college. He is regarded as one of the very highest living authorities on meteors and their orbits. He is LL.D. of the University of Michigan, and original member of the National Academy of Sciences, an associate of the Royal Astronomical Society, and a fellow of the Royal Philosophical Society. Died Aug. 12, 1896.

NEWTON, ALFRED, M.A., F.R.S., born at Geneva, Switzerland, in 1829; entered Magdalene College, Cambridge, and graduated B.A. in 1852, being afterward chosen traveling fellow of that college, in which capacity he visited Lapland, Iceland, the West Indies, North America, and other countries. In 1864 he accompanied Sir Edward Birkbeck to Spitzbergen, and was elected by the University of Cambridge to the professorship of zoölogy and comparative anatomy on its establishment in 1866. In 1877 he was reelected fellow of Magdalene College. Professor Newton has published *The Zoölogy of Ancient Europe* (1862); *Ootheca Wolfsyana* (1864); and edited the *Ibis*, second series; *Zoölogical Records* (1871-72); and the fourth edition of *Varrell's British Birds*.

NEWTON, SIR CHARLES THOMAS, C.B., D.C.L., born in 1816; was educated at Shrewsbury School and Christ Church, Oxford, of which he was a faculty student, and where he graduated B.A. in 1837, and M.A. in 1840. In May, 1840, he was appointed one of the assistants in the department of antiquities at the British Museum, which post he held until 1852, when he obtained the appointment of vice-consul at Mitylene. After having spent several years in exploring the Archipelago, he discovered at Budrum (the ancient Halicarnassus) the site of the Mausoleum erected by Artemisia, and carried on extensive excavations at Cnidus and at Branchidæ, between October, 1856, and April, 1859. The results of his discoveries consist of a fine collection of sculptures from the Mausoleum and other places, deposited in the British Museum, which is indebted to Mr. Newton for a most interesting collection of Greek inscriptions, vases, coins, and other antiquities, acquired in Asia Minor and the Archipelago, by purchase or in the course of excavation. In May, 1860, he was appointed British consul at Rome; in 1861 keeper of the Greek and Roman antiquities in the British Museum; and in 1880 professor of archæology at University College, London. Mr. Newton was elected an honorary fellow of Worcester College, Oxford, November 27, 1874. He was made an honorary D.C.L. of Oxford in 1875; a companion of the Bath in the same year; and an honorary LL.D. of



Cambridge in 1879. He is also a member of the Roman Accademia dei Lincei; a corresponding member of the French Institute; has received the honorary degree of Ph.D. from the University of Strasbourg; and holds the honorary post of antiquary to the Royal Academy. He died Nov. 28, 1894.

NEWTON, GILBERT STUART, painter, born in Halifax, Nova Scotia, September 27, 1797; died in Wimbledon, England, August 5, 1835. He came to Boston, Mass., with his widowed mother in 1803. After having learned drawing and elementary painting, young Newton went to Italy for study, where he remained about a year. Here he acquired considerable proficiency in his art, and thereafter visited England, where he was admitted a student at the Royal Academy. In 1828 he became an associate, and in 1831, an academician. In the last named year he was ill, and in October sailed for the United States, to derive the benefit of a sea-voyage. In August, 1832, he was married in Boston, in October returned with his wife to England, and three years later died, leaving a widow and daughter. Mr. Newton always considered himself an Englishman: his entire artistic career was English. He was an excellent portrait and genre painter, a remarkably fine colorist, and had an innate sense for humor. His earliest subject picture was *A Poet reading his Verses to an impatient Gallant*. His portraits include likenesses of Walter Scott, Thomas Moore, Sidney Smith, and Washington Irving.

NEWTON, ISAAC, civil engineer, born in New York city, August 4, 1837; died there September 25, 1884. He studied civil engineering at the University of the City of New York. He was employed at the Novelty iron-works and the Delamater works in New York city, and served as assistant-engineer on Hudson river steamboats, and as engineer on the Collins line of steamers between New York and Liverpool. When the Civil war began he was appointed first assistant-engineer in the United States navy, and in 1861 was assigned to the *Roanoke*. In the contest between the *Merrimac* and *Monitor*, on March 9, 1862, he had charge of the engines and turret. Later, in New York city, he supervised the building of iron-clads for the government, and on February 8, 1865, resigned from the United States navy. Subsequently he assisted Gen. George B. McClellan as engineer, and in 1881 was appointed chief engineer of the department of public works.

NEWTON, JOHN, was born in Virginia in 1823, and graduated from the United States Military Academy at West Point in 1842. Until the outbreak of the Civil war he was principally occupied in the construction of fortifications on the Atlantic and Gulf coasts. In August, 1861, he was made a brigadier-general of volunteers, and given command of a brigade in the defenses of Washington. He led his brigade in many engagements until 1862, when a division was given him, and he was promoted to a major-generalship of volunteers. At Gettysburg he succeeded to the command of a corps, which he retained until the reorganization of the army in March, 1864, when he was transferred to the West, and led a division in the campaign which ended in the capture of Atlanta (September, 1864). From 1864 to 1866 he was in charge of various districts in Florida. He then returned to his engineering corps as a lieutenant-colonel in the regular army, and was afterwards engaged in various important engineering duties in the neighborhood of New York, principally in removing obstructions in the channel at HELL GATE (*q. v.*) and Flood Rock. In 1879 he was made a colonel, and in 1884 a brigadier-general and chief of engineers. In 1887 he was appointed commissioner of public works of New York city. He died May 1, 1895.

NEWTON, ROBERT SAFFORD, born in Cincinnati, Ohio, September 2, 1855; graduated in medicine in New York, and studied in London, Paris, and Vienna. In 1881 he became professor of diseases of the skin, throat, and eye, and dean of the faculty of the New York Eclectic Medical College. He edited the *New York Medical Eclectic*, 1877-85.

NICHOL, JOHN, LL.D., only son of J. P. Nichol, late professor of astronomy, was born at Montrose, Forfarshire, September 8, 1833, and educated in the University of Glasgow and Balliol College, Oxford. In 1861 he was appointed professor of English literature in the University of Glasgow. He took some part in political questions, and advocated the cause of the North in the American Civil war, secular education, and broad church theology. He died October 11, 1894.

NICHOLAS I., reigning prince or hospodar of Montenegro, born October 7, 1841, and educated at Trieste and Paris, succeeded his uncle, who had been assassinated, in August, 1860. He married, in the same year, Princess Milona, daughter of the Vice-President of the Council of State. During 1890 the thirtieth anniversary of his accession was celebrated.

NICHOLAS II., Czar of Russia, eldest son of Czar Alexander III., was born at St. Petersburg, May 18, 1868, and succeeded to the throne November 1, 1894, on the death of his father. The Czar saw some military service before his accession, and in 1891, during the famine, worked hard for the relief of starving Russians in the volunteer capacity of president of the Committee of Succour. He had formed a *liaison* with, and subsequently married, a beautiful actress, but discarded her and on November 26, 1894, married Princess Alix, of Hesse-Darmstadt, the bride who had been selected for him by his father. He signaled his accession by pardoning 25,000 prisoners.

NICHOLAS (GRAND DUKE) NICOLAIEVITCH, third son of the Czar Nicholas I., born July 27 (August 8), 1831, entered active service at the age of sixteen; was at Sebastopol in 1855; was commander in chief of the army, with General Todleben as his assistant and in the war against Turkey commanded the army of the Danube, which invaded Roumania in 1877. He married, February 6, 1856, Princess Alexandra, of Oldenburg. He died in 1891.

NICHOLLS, HENRY ALFRED ALFORD, M.D., F.L.S., born in London on September 27, 1851; began to study for the medical profession at St. Bartholomew's Hospital, where he gained great distinction. After three years he proceeded to the University of Aberdeen, and graduated with honors as master in surgery, and bachelor of medicine in 1873. In the same year Doctor Nicholls gained the membership of the Royal College of Surgeons of England, since which time he has resided in Dominica, W. I., as government medical officer. Here Doctor Nicholls has for a number of years carried on important investigations into the nature of the disease known as Yaws. He has established a reputation as a naturalist, and has published some treatises on tropical agriculture. He is a fellow of the Linnean Society, a corresponding member of the New York Academy of Sciences, and of the Chamber of Agriculture of the French Colony of Guadeloupe.

NICHOLS, WILLIAM RIPLEY, born in Boston, Mass., April 30, 1847; died in Germany, July 14, 1886. He was graduated in 1869 at the Massachusetts Institute of Technology, where he became professor of chemistry in 1872. He wrote a number of papers on the water supply of cities and on experimental chemistry.

NICHOLSON, JAMES W. A., born in Massachusetts, March 10, 1821; died in New York city, October 28, 1887. He entered the United States navy in



1838 and served in the Mexican war, and under Perry in the Japanese expedition. In the Civil war he engaged in the Port Royal expedition, was promoted commander and had charge of a monitor at Mobile Bay. In 1873 he was made commodore, and in October, 1881, was commissioned rear-admiral. He retired in March, 1883.

NICHOLSON, HENRY ALLEYNE, M.D., F.G.S., was born at Penrith, Cumberland, England, September 11, 1844, and died January 19, 1899. He was Baxter scholar in natural science (1866), Ettles scholar in medicine, and gold medalist of the University of Edinburgh (1867). He was appointed lecturer on natural history in the Medical School of Edinburgh in 1869; professor of natural history and botany in the University of Toronto in 1871; professor of biology and physiology in the University of Durham (College of Physical Science, Newcastle) in 1874; professor of natural history in the University of St. Andrews in 1875; and Swiney lecturer on geology to the British Museum in 1877. In 1882 he was appointed regius professor of natural history in the University of Aberdeen, which appointment he now holds. He is the author of original scientific works, principally geological and paleontological, and of various educational works, such as *Manual of Zoology*; *Manual of Palæontology*; *Introduction to the Study of Biology*, and *Ancient Life-History of the Earth*.

NICHOLSON, SIR CHARLES, BART., D.C.L., LL.D., born 1808; was educated at Edinburgh, where he graduated as M.D. in 1833. He became a resident in New-South Wales in 1834, and was one of the original representative members for Port Phillip (now the colony of Victoria) in the first legislative council established in New South Wales in 1843, of which body he became chairman of committees, and subsequently speaker from 1846 to 1856. He filled the post of vice-provost, and subsequently that of chancellor of the University of Sydney, and received the honor of knighthood in 1852, and that of baronet in 1859. He received also the honorary degree of D.C.L. from the University of Oxford, and that of LL.D. from the University of Cambridge. He is the author of various official papers and reports, and has also written articles in the *Transactions of the Royal Society of Literature*, containing an account of exploration in Upper Egypt, and at Memphis, with descriptions of remains of "Disk Worshipers," now deposited in the museum of the University of Sydney.

NICHOLSON, SIR FRANCIS, colonial governor, born about 1664; died in London, England, March 5, 1728. He had been an officer in the British army, was lieutenant-governor of New York under Gov. Edmund Andros, and governor from 1687 until 1689. From 1690 until 1692, and from 1699 to 1705, he was governor of Virginia, and from 1694 until 1699 governor of Maryland. During the second term of his administration of Virginia, its capital was transferred from Jamestown to Williamsburg. He commanded the soldiery that captured Port Royal, Nova Scotia, in 1710, after which he went to England in company with five Iroquois Indians to urge on measures for the conquest of Canada. He then returned to America, commanded an unsuccessful expedition against Canada, and served as governor of Nova Scotia from October, 1712, until August, 1717. In 1720 he was knighted, from 1721 until 1725 served as governor of South Carolina, and in 1725 returned to England, where he was made a lieutenant-general.

NICOL, ERSKINE, A.R.A. (retired), was born at Leith, Scotland, in 1825, and received his art-education in the Trustees' Academy, Edinburgh, under Sir William Allan and Mr. Thomas Duncan. In 1846 he went

to reside in Ireland, where he remained three or four years. Most of his subsequent pictures have been Irish in subject. From Ireland he returned to Edinburgh, and after exhibiting for some time, he was ultimately elected a member of the Royal Scottish Academy. In 1862 he settled in London, and after that date contributed regularly to the exhibition of the Royal Academy, of which body he was elected an associate in June, 1866. Mr. Nicol entered on the retired list of the Royal Academy in 1885, on account of ill-health.

NICOLAY, JOHN GEORGE, born in Bavaria, February 26, 1832, and died Sept. 26, 1901. He early came to this country and settled in Illinois. He soon became assistant to the secretary of state at Springfield, and in 1860 secretary to Abraham Lincoln. He went with President Lincoln to Washington and served as his secretary until his death. From 1865 until 1869 he was United States consul in Paris, and from 1872 to 1887 was marshal of the United States Supreme Court. He has written *The Life of Abraham Lincoln*, in connection with John Hay, and also published *The Outbreak of Rebellion in Campaigns of the Civil War*.

NICOLL, JAMES CRAIG, born in New York city, November 22, 1846; exhibited in 1868 at the National Academy of Design, of which he became an associate in 1880 and an academician in 1885. He was secretary of the Etching Club, was elected president of the Artists' Fund Society in 1887, and was one of the founders of the American Water Color Society.

NICOLLS, SIR RICHARD, British governor of New York, was born in Amptill, England, in 1624, and died at sea, May 28, 1672. He served as a captain, and on the failure of the king's cause retired to Holland, and entered the service of the duke of York in the continental wars. In 1664 he was appointed chief of the commission to settle affairs between Great Britain and the colonies, and to acquire New Netherland from the Holland Government. On May 15, 1664, he sailed with a fleet from Portsmouth, and landed at Boston, Mass., for conference with Governor Winthrop. On August 25, 1664, he reached Gravesend Bay, Long Island, and demanded the surrender of the Holland colony. The surrender was agreed to on September 6th, and confirmed in writing within a day or two by both parties. Nicolls named the city and province "New York;" Long Island and Westchester "Yorkshire;" the northern part of the province "Albania;" and its principal town "Albany." On October 25th and 26th the chief men of the colony took the oath of allegiance to Charles II. as their king, and the duke of York as their proprietor, acknowledging Nicolls as deputy-governor. On March 8, 1665, Governor Nicolls published, *The Duke's Laws*, and on June 12, 1665, appointed a mayor, aldermen, and sheriff to govern the city. In 1666 he regulated affairs with the French and Indians; in 1668 returned to serve under the Duke and was killed in a naval battle May 28, 1672.

NICOTERA, BARON GIOVANNI, Italian statesman, born at San Biase, Calabria, September 9, 1828, was, in his youth, a member of "Young Italy," took part in the Calabrian revolution of 1848, served under Mazzini and Garibaldi and was minister of the interior in 1876-77 and again in 1891-92. He died at Vico Equesne, near Naples, June 13, 1894.

NIEMEYER, JOHN HENRY, artist, born in Bremen, Germany, June 25, 1839; removed to the United States when a boy, and settled in Cincinnati. He studied in Paris, and in 1871 became professor of drawing in the Yale school of fine arts. He has exhibited portraits and genre pictures in New York.

**NIGHTINGALE, FLORENCE**, a lady whose name has been rendered illustrious by her philanthropic efforts to alleviate the sufferings of wounded soldiers, was born at Florence in May, 1820. She enjoyed all the advantages which fall to the lot of the children of the affluent and refined; and her command of different languages and other branches of a truly "liberal education" stood her in good stead in her after career. It was not long before her philanthropic instincts, exercised among the poorer neighbors of her English home, led her to the systematic study of the ameliorative treatment of physical and moral distress. The inefficiency and mismanagement of the military hospitals in the Crimea led to an outburst of public feeling. Various plans of help were suggested, the most popular of which was the sending forth a select band of ladies. At the request of the late Lord Herbert, then secretary of war (whose letter crossed one from Miss Nightingale, offering to go), she undertook the organization and conduct of this body. No eulogy can do justice to the talent, energy, and devotion she constantly displayed in her self-imposed task. By instituting order where confusion had before reigned, and by affording care and consolation, she alleviated the sufferings of all, saved the lives of many, and earned the blessings of the sick and wounded, as well as the gratitude of her country. A testimonial fund amounting to fifty thousand pounds, subscribed by the public in recognition of her noble services, was at her special request devoted to the formation of an institution for the training of nurses, now carried out at St. Thomas' Hospital, in the "Nightingale Home." Her writings are intended to disseminate practical knowledge on the subject in which she is so well versed. *Notes on Hospitals*, a valuable work which had a very large circulation, appeared in 1859; *Notes on Nursing*, of which nearly a hundred thousand copies have been sold, in 1860; and *Observations on the Sanitary State of the Army in India*, in 1863. During the Civil war in this country, she was frequently consulted on questions affecting the health of the army, and assistance for the wounded in the field. Her name is as well known in America as in England. During the Franco-German war she was similarly appealed to by the German authorities.

**NIGRA, COUNT CONSTANTINO**, an Italian diplomatist, born at Castellemonte, June 12, 1827; studied law at the University of Turin, and took part, as a volunteer, in the war against Austria in 1848. Being severely wounded at the battle of Rivoli, he abandoned the military career, entered the diplomatic service, and acted as secretary to Count Cavour at the congress of Paris in 1856. He took part in the negotiations between Piedmont and France which preceded the war of 1859, at which he was present with the general staff of Napoleon III. He was secretary to the Italian plenipotentiaries at the Zurich Congress, after which he was nominated, on Cavour's recommendation, minister plenipotentiary, first of Sardinia, and afterward of the kingdom of Italy, at Paris. On the war of 1870 breaking out, he was among those who made efforts to prevent it, and then showed himself to the end, at least personally, devoted to the emperor and empress. He was one of the few persons who, on September 4th, were by the side of the menaced and fugitive sovereign. After having represented Italy at Paris for fifteen years as minister plenipotentiary, he was in May, 1876, appointed to fill the same post at St. Petersburg. He was nominated Italian ambassador in London in November, 1882, on which occasion King Humbert conferred upon him the title of count. Count Nigra has published several works on the dialects and popular poetry of Italy. In 1885 he resigned the embassy in London, and was succeeded by Count Corti.

**NILES, JOHN MILTON**, born in Windsor, Conn. August 20, 1787; died May 31, 1856. He was admitted to the bar in 1817, and in 1820 became judge of the Hartford county court. He established the *Hartford Times* and edited it for many years. In 1835 he was appointed United States senator, elected to the same position twice, and served from 1835 to 1839 and from 1843 to 1849. In 1840-41 he was postmaster-general under Van Buren.

**NILSSON, CHRISTINE**, daughter of a laboring man, born at Wederslöf, near Wexjö, in Sweden, August 3, 1843; at an early age evinced great taste for music. She became proficient on the violin, learned the flute, and attended fairs and other places of public resort, at which she sang, accompanying herself on the violin. While performing in this manner at a fair at Ljungby, in June, 1857, her extraordinary powers attracted the attention of Mr. F. G. Tornérhjelm, a gentleman of influence, who rescued her from her vagrant life, and placed her at school, first at Halmstad and afterward at Stockholm, where she was instructed by M. Franz Berwald. She made her first appearance at Stockholm in 1860, went to Paris, continued her musical education under Masset and Wurtel, and came out at the Théâtre Lyrique, October 27th, as "Violetta" in *La Traviata*, with such success that she was engaged for three years. She made her first appearance in London at Her Majesty's theater in 1867, proved the great operatic attraction at that establishment during the season, and has since performed there with constantly increasing success. In 1870 she paid a visit to the United States. After a transatlantic trip of two years she reappeared at Drury Lane theater, May 28, 1872, in *La Traviata*. She was married at Westminster Abbey, August 27, 1872, to M. Auguste Rouzard, the son of an eminent French merchant. (He died at Paris, February 22, 1882.) Madame Nilsson made a farewell appearance in New York, April 16, 1883, before a crowded audience, thus closing the most successful concert tour ever conducted in the United States. Madame Nilsson in 1886 married again.

**NINEGRET**, Indian sachem, born about 1616 in New England; died there about 1670. He was the uncle of Miantonomo, and became known to the colonists under different names. He was of the tribe of Narragansetts, did not participate in the Pequot war of 1632, and eventually aided the English. After the death of Miantonomo he formed a plan, in connection with other tribes, to expel the colonists. With this purpose in view Ninegret approached Waiandance, sachem of the Long Island Indians. Later, Ninegret was suspected of having gone among the western tribes and the settlers of New Amsterdam to rouse them against the English. About 1652 Ninegret was at war with the Long Island tribes. The colonists declared war against Ninegret, who, on the approach of their troops, fled into a distant swamp. Eventually, however, he came to terms.

**NISARD, JEAN MARIE NAPOLÉON DESIRÉ**, journalist, born at Châtillon-sur-Seine, March 20, 1806; was educated at Sainte Barbe, joined the staff of the *Journal des Débats* in 1826, and afterward became connected with the *National*. He was appointed to a post in the École Normale, which he filled till 1844, and held other important posts; succeeded M. Villemain in the chair of French eloquence, and was made director of the École Normale Supérieure in 1857. This latter position he retained till 1867, when he was raised to the dignity of a senator. He was made a member of the Académie Française in 1850; officer of the Legion of Honor in 1845, and commander, June 16, 1856. He superintended the publication of a collection of Latin classics,



with a translation in French, begun in 1839. He died March 25, 1888.

NOAH, MORDECAI MANUEL, journalist, born in Philadelphia, Pa., July 14, 1785; died in New York city, May 22, 1851. He studied law, and practiced in Charleston, S. C. In 1811 he was made United States consul at Riga, and in 1813 was transferred to Tunis, with a special mission to Algiers. On his return he settled in New York city, where he founded and edited several newspapers, one of which, *The Sunday Times*, is still being issued, and is the oldest Sunday weekly published in that city. In 1832 Mr. Noah was appointed surveyor of the port; later, he became a judge of the court of sessions, sheriff, and a major of the militia. He was usually spoken of as "Major" Noah. His earnest devotion to his co-religionists, the Hebrews, was shown in 1820, in his endeavor to establish a Jewish colony, a kind of Occidental Jerusalem, for the gathering of the tribes on Grand Island in the Niagara river. He there raised a monument on which the place was designated "Ararat, a city of refuge for the Jews." Major Noah published *Travels in England, France, Spain, and the Barbary States* (London, 1819); *Gleanings from a Gathered Harvest* (New York, 1845); *A Translation of the Book of Jasher* (1840). Among his printed pamphlets is one on the *Restoration of the Jews* (1845). He wrote a number of plays, some of which were performed.

NOIRE, LUDWIG, German philosophical writer, was born at Alzey, in Hesse, March 26, 1829. He studied from 1846 to 1848 at Giessen, and then became a schoolmaster at Mainz. The study of the works of Spinoza, Schopenhauer, and Lazarus Geiger led him to devote himself to philosophy; in 1874, he published *Die Welt als Entwicklung des Geistes*; *Der Monistische Gedanke* (1875); *Die Doppelnatur der Kausalität* (1875); *Der Ursprung der Sprache* (1877). He also published, in English, *Historical Sketch of the Development of Philosophy before Kant* (1881). He died in Mayence (Mainz), March 26, 1889.

NORDENSKJÖLD, BARON (ADOLF ERIK), a Swedish naturalist and explorer, was born at Helsingfors, the capital of Finland, November 18, 1832. He first went to the gymnasium at Borgo, and on entering the University of Helsingfors in 1849 devoted himself almost entirely to scientific studies, spending his vacations in excursions to the rich mineral localities of Finland. He soon became eminent in this particular branch of science. He settled in Sweden, and in 1851 first entered on his Arctic travels by accompanying Torell to Spitzbergen. On his return to Stockholm, Nordenskjöld was nominated director of the Riks Museum, but in 1861 he went again to Spitzbergen with Torell, to obtain the measurement of an arc of the meridian. The work was not then finished, and accordingly, three years later, Nordenskjöld headed an expedition which successfully completed the measurement, and mapped the southern part of Spitzbergen. Nordenskjöld now endeavored to organize a fresh expedition, and he eventually started in 1868 in the government steamer *Sofia*, which managed to attain the high latitude of 81° 42'—a latitude only exceeded by Hall's and Greely's American and Nares' British Arctic expeditions. This success convinced Nordenskjöld that he could reach a much higher latitude by wintering in Spitzbergen and utilizing sledges. Accordingly, after an interval—during which he sat in the Swedish diet, and traveled in Greenland to ascertain the respective values of dogs and reindeer as beasts of burden for sledge journeys—Nordenskjöld sailed in the *Polhem* in 1872, accompanied by two tenders. The winter was unusually early, and the ice shut in the

tenders, which were to have returned home, thereby straitening the provisions through extra mouths; the reindeer were lost, and the men suffered greatly from scurvy. Nevertheless, Nordenskjöld and Lieutenant Palander successfully surveyed part of Northeast Land, and in the following July the vessels were extricated from their winter quarters, Mussel Bay, on the north coast of Spitzbergen, and returned home. Nordenskjöld now turned his attention to Siberian exploration, and in 1875 sailed through the Kara Sea to the Yenisei, and ascended the river in a small boat, returning home overland. He repeated this voyage in the following year, after a flying visit to the Philadelphia exhibition, but this time came back from the Yenisei by sea. These experiences gave Nordenskjöld a reasonable hope of accomplishing the northeast passage. The king of Sweden, Mr. Oscar Dickson, and Mr. Sibirakoff at once lent their aid to the project, and in July, 1878, Professor Nordenskjöld started in the *Vega*. She was the first vessel to double the most northern point of the Old World, Cape Tchelyuskin; she wintered in Behring's Straits; and, once more free, in July, 1879, reached Japan on September 2d. On his arrival in Europe, Nordenskjöld was enthusiastically welcomed, and laden with honors. He was created a baron (April, 1880); and appointed a commander of the Legion of Honor, and a foreign knight of the Prussian Ordre pour le Mérite. He died Aug. 12, 1901.

NORDHOFF, CHARLES, born in Westphalia, August 31, 1830; came to the United States when a boy, and served in the United States navy and in the merchant service. He then entered a publishing house in New York and from 1861 to 1871 was on the staff of the *Evening Post* of that city. Subsequently he was with the *Tribune* and the *Herald*, as correspondent, now representing the latter paper in Washington. He has written books about California, Oregon, the Sandwich Islands, and published *The Communistic Societies of the United States*. Died July 15, 1901.

NORDICA, LILLIAN (NORTON), famous soprano singer, was born in Farmington, Maine, in 1858. She studied at the Boston Conservatory, and in 1879 in Italy, singing for three years with great success, in opera, in Europe, and retiring on her marriage with Mr. Gower, who soon afterwards met his death in a balloon ascent. She returned to the stage in 1887 at Covent Garden, London, and since then has been a leading operatic favorite and well received in oratorio. She has made several concert tours in the United States and in 1895 sang in grand opera in the leading cities, achieving great popularity.

NORFOLK, DUKE OF (HENRY FITZALAN HOWARD), premier duke and earl, hereditary earl-marshal, and chief butler of England, oldest son of the seventeenth duke, was born in London, December 27, 1847, and succeeded to the peerage November 25, 1860. A zealous Roman Catholic he takes great interest in church matters and is president of the Catholic Union of Great Britain. He opposed home rule, thus bringing himself into collision with the Irish hierarchy.

NORMAN, HENRY, born in Leicester, England, about 1850, was educated at Harvard College, in France and at Leipzig, explored unknown parts of China, Korea, Japan and the Malay peninsula, became literary editor of the London *Daily Chronicle*, 1892, and has written *An Account of the Harvard Greek Play* (1881); *The Real Japan* (1891), and *The Peoples and Politics of the Far East* (1894).

NORMANBY, MARQUIS OF (GEORGE AUGUSTUS CONSTANTINE PHIPPS), born July 23, 1819, entered the Scots Fusilier guards in 1838, as Lord Mulgrave, was member for Scarborough in the Liberal interest,



1847-51, and 1852-57, and was governor of Nova Scotia from 1858 to 1863, when he succeeded his father as second Marquis. He was appointed captain of the corps of gentlemen-at-arms, 1869, and in 1871 became governor of Queensland; governor of New Zealand, 1874, and governor of Victoria, 1878. He died April 3, 1890.

NORMAN-NERUDA, WILHELMINE, violinist, was born March 21, 1840, at Brünn, in Moravia, where her father was organist of the cathedral. She was a pupil of Jansa, made her first appearance at Vienna in 1846, came to London in 1849 to play at the Philharmonic in a concert of De Bériot's, played on the Continent with much success, married Ludwig Norman, a Swedish musician, in 1864, and since 1869 has played in London annually, usually in the recitals of Sir Charles Hallé, the eminent pianist, whom she married in 1888, some years after the death of her first husband.

NORQUAY, JOHN, born in Manitoba, May 8, 1841; was elected to the first Manitoba parliament in 1870, and the next year became minister of public works and agriculture, which office he held for three years. In 1876 he was again minister of public works, and in October, 1878, became premier. He sat in the Manitoba parliament in 1874, and again from 1878 to 1888. In 1886 he became railroad commissioner, and resigned in 1888. He died July 5, 1889.

NORRIS, WILLIAM EDWARD, a popular novelist, born in England, November 18, 1847. His novels, which are usually descriptive of life of the English aristocracy, are notable for their bright dialogue and have many readers in the United States. Among the best are *Heaps of Money* (1877), *Matrimony*, *A Deplorable Affair* and *A Victim of Good Luck* (1894).

NORTH, SIR FORD, judge of the high court of justice of England, is son of Mr. John North, of Liverpool, and was born there January 10, 1830. He was educated at Winchester School, and at University College, Oxford, where he graduated as B.A. in 1852, taking a second class in classics. He was called to the bar at the Inner Temple in 1856, was appointed a queen's counsel in 1877, and obtained a large practice in the equity courts, and at the Lancaster Chancery Palatine Court. He was appointed a judge of the queen's bench division of the High Court of Justice in 1881, on the removal of Mr. Justice Lindley to the Court of Appeal; and was transferred to the chancery division of the same court in 1883.

NORTHBROOK, EARL OF (THE RIGHT HON. THOMAS GEORGE BARING), eldest son of the first baron, who was long known as Sir Francis Baring, was born in 1826, and received his education at Christ Church, Oxford, where he graduated (second class in classics) in 1846. He was successively private secretary to Mr. Labouchere at the board of trade, to Sir George Grey at the home office, to Sir Charles Wood at the India board, and at the admiralty till 1857, when he was returned to the House of Commons for Penryn and Falmouth, which constituency he continued to represent in the Liberal interest till he became a peer on the death of his father in 1866. He was a lord of the admiralty from May, 1857, to February, 1858; under-secretary of state for India from June, 1859, to January, 1861; and under-secretary for war from the latter date till June, 1866. On the accession of Mr. Gladstone to power, in December, 1868, Lord Northbrook was again appointed under-secretary for war; and after the assassination of the earl of Mayo he was appointed to succeed that nobleman as viceroy and governor-general of India, in February, 1872. He resigned in February, 1876, and was succeeded by Lord Lytton. In recogni-

tion of his distinguished services he was created Viscount Baring of Lee in the county of Kent, and earl of Northbrook in the county of Southampton. On the formation of Mr. Gladstone's cabinet, in May, 1880, his lordship was appointed first lord of the admiralty; but in 1886 he was one of those who opposed the home rule policy of the premier.

NORTHROP, LUCIUS B., born in South Carolina, September 8, 1811; graduated at West Point in 1829, and left the army to practice medicine. He was reinstated by Jefferson Davis when the latter became secretary of war, but resigned to join the Confederacy, and became commissary-general, which office he held until near the close of the war. Common repute, both in the North and the South, placed upon Northrop the blame for much of the neglect and starvation of Union prisoners in Libby, and elsewhere. Several attempts were made by members of the Confederate Congress to obtain his removal from office, but all these efforts were defeated by Jefferson Davis, who supported Northrop throughout. Northrop was arrested in July, 1865, and was held prisoner until November, but was never tried.

NORTHUMBERLAND, DUKE OF (ALGERNON GEORGE PERCY), was born in 1810, and was educated at Eton and at St. John's College, Cambridge, of which university he was created a doctor of laws in 1842. He first entered parliament as M.P. for the borough of Beeralston (disfranchised under the first reform act), and represented the northern division of Northumberland in the Conservative interest from 1852 down to 1865. He held office in 1858-9, first as a lord of the admiralty, and afterward as vice-president of the board of trade. He was appointed lord privy seal, on the earl of Beaconsfield resigning that office in February, 1878. In August of that year he was appointed to preside over the royal commission, which had been charged with conducting an inquiry into the parochial charities of the city of London. He went out of office with his party in April, 1880. He is president of the Royal Institution, and honorary colonel of the Northumberland militia; and he was created an honorary D.C.L. of Oxford in 1870. His eldest son, Earl Percy (born in 1846), was long Conservative member for North Northumberland, and in 1885, after the enfranchisement of the agricultural laborers, he was defeated by Sir Edward Grey. He died July 2, 1899.

NORTON, CHARLES LEDYARD, born in Connecticut, June 11, 1837; graduated at Yale in 1859. He entered the Union army as private in a New York regiment, was promoted to a colonelcy, and commanded in Louisiana during the early days of reconstruction. After the war he became editor of the *Christian Union*, and later of the *Continent* magazine.

NORTON (LORD), CHARLES BOWYER ADDERLEY, K.C.M.G., was born in August, 1814, and educated at Christ Church, Oxford, of which he was a gentleman commoner, and where he graduated B.A. in 1838. He was elected in the Conservative interest, in 1841, to represent the northern division of Staffordshire. Mr. Adderley was president of the board of health, and vice-president of the committee of the privy council on education under Lord Derby's second administration of 1858-59, and under-secretary for the colonies under Lord Derby's third administration (July, 1866, to December, 1868). He is a trustee of Rugby School and chairman of the royal sanitary commission. In 1869 he was made a knight-commander of the Order of St. Michael and St. George. On the return of the Conservatives to power, in February, 1874, he was appointed president of the board of trade. He resigned this office in April, 1878, when he was raised to the peerage of the United Kingdom by the title of Baron Norton.



**NORTON, JOHN PITKIN**, born in Albany, N. Y., July 19, 1822; died in September, 1852. He studied at New Haven, and from 1847 until his death was professor of agricultural chemistry at Yale.

**NORTON, LEWIS MILLS**, born in Massachusetts, December 26, 1855; studied at the Massachusetts Institute of Technology, and in Paris, Berlin, and Göttingen. In 1883 he became professor of organic and industrial chemistry in the Institute of Technology.

**NORTON, SIDNEY AUGUSTUS**, born in Ohio, January 11, 1835; graduated at Union College, became professor of chemistry in Miami Medical College, and in 1873 accepted a similar position in the Ohio State University. He has written extensively on chemistry and physics, and is LL. D. of Wooster College and Ph. D. of Kenyon.

**NOTT, ELIPHALET**, educator, born in Ashford, Conn., June 25, 1773; died in Schenectady, N. Y., January 29, 1866. He entered Brown University in 1795; studied theology, and served as a missionary in northern New York. At Cherry Valley he became pastor of a Presbyterian congregation, and established an academy. From 1794 until 1804 he preached in Albany, and in 1804 was chosen president of Union College. More than 3,700 students eventually graduated during his presidency. Before his death he found means to endow the college with property worth \$500,000. He was an ardent advocate of the temperance cause.

**NOVELLO, CLARA ANASTASIA (COUNTESS GIGLIUCCI)**, fourth daughter of Vincent NOVELLO (*q.v.*), musical composer, born in London, June 10, 1818; at an early age displayed so much musical talent as to induce her father to give her a thoroughly professional education. Her progress repaid the care bestowed upon her, for at the early age of eleven years she won, by competition, her admission as a pupil into the Conservatoire de Musique Sacrée at Paris, where, for two years, she studied assiduously. On the closing of the institution, in the revolution of 1830, she returned home fitted to take a prominent part among the singers of the day, at the concerts of the Philharmonic Society and other leading musical entertainments. When only seventeen years of age she was elected an associate of that society; and soon afterward accepted an invitation from Mendelssohn to take part in the Leipsic gewandhaus concerts. In Berlin and Vienna she was equally well received. Her success at Vienna induced her to take part in the musical festivals at Lombardy, and she felt anxious to follow her wishes, but, owing to engagements at St. Petersburg and in Germany, could not carry out this plan until 1839-40. She appeared at Padua in 1841 in the character of "Semiramide," with such success, that engagements at Bologna, Modena, and Genoa followed, and in 1842 both Rome and Genoa endeavored to secure her for the *fêtes* of the carnival. In 1843 she returned to England, and sang in London and Manchester; and, having married Count Gigliucci, she withdrew from the stage in 1844. Circumstances, however, induced her to return in 1850; and she constantly appeared in concerts, oratorios, and operas, on the Continent and in London, until 1860, when she finally retired.

**NOVELLO, JOSEPH ALFRED**, son of Vincent Novello, organist and composer, was born in 1810. A friend and admirer of Felix Mendelssohn, Mr. Alfred Novello eagerly introduced to English auditors the works of that great master, and aided him in translating *St. Paul*, *Lobgesang*, and other compositions. In 1849 he associated himself with the energetic men who

relieved England from "taxation on knowledge," and for years was the active treasurer of their society, the object of which was the repeal of the advertisement duty (accomplished in 1853), the repeal of the newspaper stamp (accomplished in 1855), duties on paper and foreign books, and the repeal of the security system. In 1856 he retired from business and established himself in Italy, but died July 17, 1890.

**NOYES, EDWARD F.**, born in Haverhill, Mass., October 3, 1832; graduated at Dartmouth, and practiced law in Cincinnati. At the beginning of the Civil war he was commissioned major of volunteers, served under Pope and in the Atlanta campaign, and was severely wounded at Ruff Mills. He was mustered out as brigadier-general, and became city solicitor of Cincinnati, and in 1867 probate judge of Hamilton county, Ohio. In 1871 he was elected governor of Ohio as a Republican, but was defeated for reelection, and in 1877 was appointed United States minister to France. He resigned in 1881 and resumed the practice of law in Cincinnati. He died September 4, 1890.

**NOYES, JOHN HUMPHREY**, born in Vermont, September 6, 1811; died in Canada April 13, 1886. He graduated at Dartmouth in 1830, and subsequently studied theology at Andover and Yale, and began to preach about 1833. He invented or discovered a semi-communist and semi-polygamous system of religion and morals which he styled Perfectionism. The experiment of communal living with its "free love" attachment was tried for twelve years in Putnam county, Vt., but finally the "Perfectionists" were driven out by the force of public opinion. They removed to Oneida, in Madison county, N. Y., where they practiced their system of "plural marriage," and became possessed of nearly \$500,000 worth of property. After Noyes' death the community went to pieces.

**NUNEZ, CASTO MENDEZ**, a Spanish sailor, was born in Galicia about 1830, and died in 1880. He entered the Spanish navy and by 1864 had risen to the rank of commodore. Being given command of the Peruvian fleet he, on March 31, 1866, bombarded the city of Valparaiso, Chili, and inflicted \$10,000,000 damage on that city. He afterward attacked Callao, where he was severely wounded and was promoted vice-admiral.

**NUNEZ DE ARCE, GASPER**, was born at Valladolid, August 4, 1834. He studied at Toledo, where he took the degree of Doctor of Philosophy. He has written *Como se empena un Marido*, a comedy in one act, and in verse, 1860; *Ni tanto ni tan poco*, a comedy in three acts, 1865; *Discursos leídos ante la Real Academia Española*, 1876; *El Haz de Leña*, a drama in five acts, 1882; *Las Mujeres del Evangelio*, 1884. His lyric poems have gained him the name of "the Tennyson of Spain."

**NUNEZ, RAFAEL**, born in Carthagena, Colombia, in September 1825, was elected to congress from Panama in 1851, and from 1855 to 1857 was secretary of the treasury. He afterward resided for several years in New York, and from 1865 to 1874 was Colombian consul at Havre and Liverpool successively. In 1875 he became governor of the State of Bolivar, served in 1878 in the Colombian senate, and in 1879 was elected president of the United States of Colombia. After a short intermission he was reelected in 1884, and in 1886 was again chosen for a term of six years, and reelected in 1892. Señor Nuñez was a brilliant writer both of prose and verse. He died September 18, 1894.

## O.

**OAKELEY, SIR HERBERT STANLEY**, Mus.D., D.C.L., was born at Ealing, Middlesex, England, in July, 1830. He was educated at Rugby School and at Christ Church, Oxford (B.A. 1853, M.A. 1855). After having graduated he went abroad to complete his studies in music, for which, from earliest childhood, he had shown a marked predilection. At Leipsic he studied pianoforte-playing under Professors Moscheles and Plaidy, and at Bonn organ-playing under Doctor Breidenstein, professor of music in that university, and later under the great organist, Dr. Johann Schneider, of Dresden. While resident in London he acted for some years as musical critic and correspondent. In 1864 he was enrolled, in Rome, as member of the Society of "Quirites." In 1865, on the death of Professor Donaldson, he was elected professor of music in the University of Edinburgh. In 1871 he received *ex officio* the degree of doctor of music. In recognition of musical services for Scotland, the honor of knighthood was conferred on him in August, 1876. In 1879 his own university, Oxford, gave him the degree of Mus.D., *honoris causâ*; and in 1881 that of LL.D. was presented to him by the University of Aberdeen. He has written for the church, for chorus, orchestra, organ, and pianoforte, and has published vocal quartets, etc.

**OAKES, JAMES**, born in Pennsylvania, April 4, 1826; graduated at West Point in 1846. He was assigned to the dragoons; served in the Mexican war, and was brevetted captain in April, 1861. He was made major and led his regiment in Tennessee and Mississippi. In 1862 he was brevetted brigadier-general of the United States army, and in March, 1865, commissioned colonel. He was retired from active service in 1879.

**OAKES, JOHN WRIGHT**, A.R.A., born in 1822, at Sproston House, near Middlewich, Cheshire, was educated at a private school in Liverpool. He exhibited at the Royal Academy nearly every year from 1848 until his death. Mr. Oakes was elected an Associate of the Royal Academy in April, 1876, and an honorary member of the Royal Scottish Academy, November, 1883. He died July 8, 1887.

**OAKLEY, JOHN, D.D.**, dean of Manchester, was born in 1834, and educated at Brasenose College, Oxford, of which he was a scholar. He was ordained in 1858, and fifteen years of excellent work brought him under the notice of Mr. Gladstone, who appointed him to the vacant deanery of Carlisle. In 1883, on the death of Doctor Boyd, of Exeter, Dean Cowie, of Manchester, was transferred to Exeter, and Doctor Oakley succeeded to the deanery of Manchester. He published *The Conscience Clause, Its History, Terms, Effect and Principle* (1864); *The Christian Aspect and Application of the Decalogue* (1865), and various sermons, etc. He died June 10, 1890.

**O'BRIEN, CORNELIUS**, born in Prince Edward Island, May 4, 1843; studied in Rome at the College of the Propaganda. He was ordained in 1871, and became a professor in St. Dunstan's College, and held pastorates until 1882. On January 21, 1883, he was consecrated archbishop of Halifax, N. S.

**O'BRIEN, FITZ-JAMES**, born in Limerick, Ireland, in 1828; died in Maryland in April, 1862. He was educated at the University of Dublin, and served in the British army. About 1852 he came to the United States, and devoted himself to literature in New York

city. He was connected with several important newspapers there, and contributed a great many sketches to *Harper's Magazine*, in addition to writing plays and verse. O'Brien occupied a prominent position among the Bohemian literary men of New York at that time. In 1861 he joined the 7th New York volunteers, and afterward served on the staff. In February, 1862, he was severely wounded in a skirmish, and died from the effects of this wound about six weeks later.

**O'BRIEN, LUCIUS RICHARD**, president of the Royal Canadian Academy of Arts, was born at Lake Simcoe, Ontario, Canada, in 1832, and educated at Upper Canada College, Toronto. At an early age he developed a taste for art. In 1872 he took an active part in founding the Art School of the Ontario Society of Artists, and for six years he held the vice-presidency of that institution. In 1880 the Royal Canadian Academy of Arts was founded and Mr. O'Brien was elected president. To the exhibitions he has been a large contributor. He superintended the illustration of *Picturesque Canada* (2 vols., Toronto, 1884), to which he contributed a large number of the drawings.

**O'BRIEN, WILLIAM**, was born in 1852, and was educated at the Diocesan College, Cloyne, and at Queen's College, Cork. He represented Mallow from January, 1883, until its extinction as a borough under the Redistribution Act, 1885, and in the parliament of 1885 was member for South Tyrone. At the general election of 1886 he was defeated by Mr. T. W. Russell, Unionist Liberal, but was elected for Cork in 1887 and again in 1892. He was a delegate of the National League to the Chicago convention in August, 1886, and in 1890 escaped to the United States to avoid arrest and make speeches for the Home Rule fund. He was imprisoned in 1888 under the Crimes Act and again in 1891. He was one of Parnell's supporters, but took part against him in 1891. He edited *United Ireland*. He married in June, 1890, a Russian lady of large fortune.

**O'CONNOR, JAMES**, born in Ireland, September 10, 1823, came to the United States in 1838, and studied in Philadelphia and at the College of the Propaganda in Rome. He was ordained priest in 1845; served many years as pastor and teacher in various institutions, and in 1876 was named vicar-apostolic of Nebraska, and later (1885) bishop. He died May 27, 1890.

**O'CONNOR, JOHN**, born in Boston, Mass., in 1824; died in Coburg, Ontario, November 3, 1887. He became a member of the Canadian bar in 1854, and served several terms in the local and the Dominion Parliament. In Sir John Macdonald's administration he was successively president of the council, minister of inland revenue, and postmaster-general. In 1884 he was appointed to a judgeship.

**O'CONNOR, THOMAS POWER, M.P.**, born at Athlone, county Roscommon, in 1848, was educated first at the College of the Immaculate Conception, Athlone, and afterward at the Queen's College, where he graduated in the degrees of B.A. and M.A. He adopted journalism as a profession, and after three years' connection with the Dublin press, went to London in 1870. He first obtained an engagement on the *Daily Telegraph*, and was afterward employed on several other London journals. He published, in 1876, a complete life of the then premier, in a single volume, entitled *Lord Beaconsfield, a Biography*. The work received general praise for its literary merits and re-



search, but, as it took a very unfavorable view of the Conservative leader, its conclusions met with a widely different reception from Liberal and Conservative critics. Mr. O'Connor was elected member for the town of Galway at the general election of 1880, and soon became one of the most active and prominent members of the party led by Mr. Parnell. He was an executive officer of the Land League, both in England and Ireland. In October, 1881, he came to the United States, and lectured on the Irish cause to large gatherings in nearly all the great cities, during a tour which extended over seven months, and raised a large sum of money. In 1883 he was elected president of the "Irish National League of Great Britain." In 1885, 1886, and 1892 he was elected for the Scotland division of Liverpool. He has written *Gladstone's House of Commons*, *The Parnell Movement*, a biography of Parnell, and numerous tales and essays, besides editing a *Cabinet of Irish Literature*. He founded the *Star* in 1888, and the *Sunday Sun* in 1891, bringing it out as an evening paper in 1893.

O'CONOR, CHARLES, lawyer, born in New York city, January 22, 1804; died in Nantucket, Mass., May 12, 1884. His father was an Irish journalist, who died in New York city at the age of eighty-five. The son studied law, and when twenty-one years of age was admitted to practice. He continued assiduously in the practice of his profession until the end of his life, being employed as counsel in many important cases, usually attended with success, winning national celebrity, and drawing large fees. During the Civil war he sympathized with the Confederacy, and at its conclusion became senior counsel for Jefferson Davis, when the latter was indicted for treason. In 1869 Mr. O'Connor was chosen president of the law institute of New York.

O'FARRELL, MICHAEL JOSEPH, born in Limerick, Ireland, in 1832; studied in Paris and was ordained priest in 1855. He came to the United States to take charge of a pastorate in New York city, and in 1881 was consecrated bishop of Trenton, N. J., a new diocese then formed. He died April 2, 1894.

OGDEN, AARON, born in Elizabethtown, N. J., December 3, 1756; died in Jersey City, N. J., April 19, 1839. He was graduated at Princeton, thereafter taught school, and participated in the struggles of the Revolution. In 1776 he was made captain of a New Jersey regiment, and was present at the battles of Brandywine and Monmouth. In 1779 he served as aide in an expedition of Gen. John Sullivan against the Indians, and a year later fought at the battle of Springfield, N. J., where his horse was shot under him. Later he was commissioned by General Washington to visit Sir Henry Clinton for the purpose of proposing an exchange of Major André for Gen. Benedict Arnold. As was undoubtedly foreseen, Sir Henry Clinton's honor would not permit the exchange. In 1781 Ogden was present at the Yorktown surrender. After the war he studied law, and practiced with success, and in 1796 was a presidential elector. Thereafter he became lieutenant-colonel and for six months served as deputy quartermaster-general of the United States army. On February 28, 1801, he became United States senator, and on October 29, 1812, was elected governor of New Jersey.

OGDEN, WILLIAM BUTLER, born in Walton, N. Y., June 15, 1805; died August 3, 1877. He removed to Chicago in 1835, engaged in the real estate business, and in 1837 became the first mayor of the new city. Mr. Ogden was one of the founders of the Chicago and Galena railroad, the first railroad built in the Northwest, and was afterward president of the Chicago and Northwestern railroad, which grew out of the first-named. He was the first president of the Union Pacific

railroad, and was one of the foremost lumbermen of the United States. Mr. Ogden made many benefactions during his life and by his will to institutions of learning and charity in Chicago and elsewhere.

O'HARA, THEODORE, born in Danville, Ky., February 11, 1820; died in Alabama, June 6, 1867. He studied law and was admitted to the bar of Kentucky, and in June, 1846, entered the volunteer service as captain. He was brevetted major for gallant service at Churubusco, and afterward served in the United States cavalry as captain. During the Civil war he joined the Confederate army and served on the staff of Albert S. Johnston and John C. Breckenridge. O'Hara was connected at various times with several Southern newspapers, and was the author of many sketches and some verse. He is best known by his poem, *The Bivouac of the Dead*, written in commemoration of the Kentuckians who fell at Buena Vista.

OJEDA, ALONSO DE, Spanish adventurer, born in Cuenca in 1465; died in Hispaniola in 1515. In the second expedition of Columbus he joined that leader, and was sent to explore the interior of Hispaniola, where he discovered several gold mines, had contests with the Indians, captured their cacique (or chief), and took him as a prisoner to Columbus. In 1496 Ojeda returned to Spain to obtain permission to explore the main land, and sailed from Santa Maria on May 18, 1499, accompanied among others by Amerigo Vespucci. Eventually the explorers came to a place where they found several Indian villages built on piles in the midst of lakes, which, having a fancied resemblance to Venice, they named Venezuela. On September 5, 1499, their storm-beaten vessels sought refuge at Jacmet, but were driven away by Raldan, one of the lieutenants of Columbus. Eventually Ojeda and his followers returned to Cadiz, and took with them several hundred Indians from the Bahama Islands, to be sold as slaves. In 1501 he was commissioned governor of Coquibacoa, and sailed anew for America in January, 1502. He settled in Hispaniola, sending his former pilot, La Cosa, to Madrid to obtain patents for new conquests on the main land. Returning with three ships and 200 men, La Cosa joined Ojeda at Hispaniola. Here the latter gathered about 100 more adventurers, among whom was Francisco Pizarro. After beating about in different directions and enduring hardships, he again returned to Hispaniola, where he passed his closing years in misery, and died from the wound of a poisoned arrow.

O'KELLY, JAMES, M.P., was born in Dublin in 1845. He was educated at Dublin University and at the Sorbonne, Paris, and served for some time as an officer in the French army during the Franco-German war. He left France after the fall of Paris and came to New York, where he worked for some time for the *New York Herald*. As a correspondent for the same paper he went to Cuba at the time of the insurrection, but joined the rebels, was taken prisoner, and confined for some time in a dungeon, whence at last he contrived to escape. After various adventures in America, Algiers, and elsewhere, he went to the Soudan for the purpose of joining the Mahdi's troops; he was lost for some months in the desert, and at last appeared on the Nile, not far from Khartoum. After writing a series of lively letters to the *Daily News* he returned to England, and once more represented the constituency of Roscommon in the House of Commons. At the general election of 1885 he and Mr. Mullany were returned by an immense Parnellite majority for the new division of North Roscommon, and in 1886 he was returned unopposed, but was defeated in 1892 by M. Bodkin, anti-Parnellite. Mr. O'Kelly was a "suspect," and was imprisoned at Kilmainham in 1881-82.



**OLDENBURG, GRAND DUKE OF** (NICHOLAS FREDERICK PETER), son of the Grand Duke Paul Frederick Augustus and the Princess Ida of Anhalt-Bernburg, born July 8, 1827; succeeded his father February 27, 1843. The population of the duchy over which he reigns is about 300,000. He promulgated a liberal constitution in February, 1849, modified it in 1852, and during the war between Russia, Turkey, and the allied powers, he adhered to the policy of Prussia. After the conquest of Schleswig-Holstein by Prussia and Austria, the grand duke claimed a portion of these duchies, which claim he endeavored to support by some "memoires" addressed to the diplomatists of Europe. He married, February 10, 1852, Elizabeth, daughter of Prince Joseph of Saxe-Altenburg, by whom he has two sons.

**OLIPHANT, LAURENCE**, son of the late Sir Anthony Oliphant, C.B., for many years chief justice of Ceylon, born in 1829, was intended for the law, but visited India while very young, and accompanied Jung Bahadur to the Nepaulese court. An account of which visit he published under the title of *A Journey to Katmandhu*. In 1852 he traveled through a great part of Russia, as far as the Crimea, an account of which tour he published in 1853, under the title of *The Russian Shores of the Black Sea*. He became private secretary to the late earl of Elgin, then governor-general of Canada, and civil secretary and superintendent of Indian affairs; and in 1855 published, under the title of *Minnesota and the Far West*, a narrative of his wanderings in Canada and the United States. *The Coming Campaign*, on the war with Russia, and many other books, testified to his keen observation during his diplomatic career which ended in 1862, when an attempt was made to assassinate him when acting as *charge d'affaires* in Japan. He was elected to parliament for Sterling in 1865, but resigned in 1868, to join the spiritualist community in Dutchess county, New York. He turned his fortune over to the community, and lived there eighteen months, doing the work of a laborer. In 1870 he went as correspondent of the *London Times* to the Franco-Prussian war and some years later founded three religious colonies in Palestine, living at Haifa. His latest book was *Scientific Religions, or Higher Possibilities of Life and Practice through the Operation of Natural Forces* (1888), a work of a theosophical character. He died December 23, 1888.

**OLIPHANT, MRS. MARGARET**, whose maiden name was Wilson; novelist and biographer, and one of the most prolific writers of the day, was born in Midlothian, Scotland, in 1828. The first of her numerous works of fiction, which abound in skillful delineations of Scotch life and character, appeared in 1849, before the author had attained her majority, under the title of *Passages in the Life of Mrs. Margaret Maitland of Sunnyside*. Its success was such as to excite its author to fresh efforts, and she produced a long series of works of fiction, which secured for her a wide-spread reputation both in England and America. She also edited Messrs. Blackwood's *Foreign Classics for English Readers*, and herself contributed volumes on Dante and Cervantes. She died June 25, 1897.

**OLLIVIER, ÉMILE**, born at Marseilles, July 2, 1825; became a member of the Paris bar in 1847; and in 1848 was commissary-general of the republic at Marseilles; was Préfet at Langres; and returned to the bar in 1849. Elected as Opposition candidate for the third circonscription of the Seine in 1857, he took part in several important discussions. During the session of 1860 he was one of the most distinguished members of a small group of Opposition deputies, known by the name of "The Five." In 1863 he was reelected for

Paris, and in 1865 he was elected a member of the council-general of the Var. M. Ollivier was chosen by the emperor as arbitrator of the difficulties which arose relative to the Isthmus of Suez, and it was upon his report that the final decision was founded. The session of 1866-67 witnessed the complete separation of M. Ollivier from his former political associates of the "Left." He was returned by an enormous majority for the first circonscription of the Var, but was defeated in the third circonscription of the Seine, for which he was also a candidate. On December 27th M. Ollivier, who had been for some time the center of the movements for uniting the factions of the late majority with the new Liberal "third party," received from the Emperor a letter inviting him to form a ministry. Among the first fruits of the new administration was the granting of an amnesty in favor of M. Ledru-Rollin, the convocation of the high court of justice at Tours, to try Prince Pierre Bonaparte, the maintenance of order without shedding of blood during the popular excitement caused by the assassination of Victor Noir, the prosecution of Henry Rochefort, and the dismissal of M. Haussmann. Several administrative reforms were also introduced, and it was thought by many that an era of constitutional liberty had begun for France. These hopes were soon rudely dispelled. The declaration of war against Germany, and its disastrous results, led to the overthrow of the Ollivier government on August 9, 1870, when General Count de Palikao was charged with the formation of a war ministry. M. Ollivier, who had been elected a member of the French Academy in April, 1870, deemed it prudent after the fall of the empire to retire to Biella, in Piedmont, where he resided for a considerable time. He returned to his house at Passy at the close of the year 1872, and his reception at the French Academy took place February 25, 1874. M. Emile Ollivier has published numerous juridical works, which have appeared in the *Revue de Droit Pratique*, which he founded in 1856, in conjunction with MM. Moulon, Demangeat, and Ballot.

**OLMSTED, FREDERICK LAW**, was born in Hartford, Conn., November 10, 1822. He studied at Yale College, devoting special attention to engineering and the sciences connected with agriculture. In 1848 he purchased a fruit-farm on Staten Island, near New York, and while successfully managing it, studied landscape gardening. In 1850 he made a pedestrian tour through England and portions of the Continent, an account of which was given in his *Walks and Talks of an American Farmer in England*, 1852. In 1852-53, as correspondent of the *New York Times*, he traveled through the Southern States with the special purpose of studying the effects of slavery upon agriculture. The results of this journey, and of a subsequent one, were afterward published in separate works: *A Journey in the Seaboard Slave States*, 1856; *A Journey Through Texas*, 1857; *A Journey in the Black Country*, 1860; and *The Cotton Kingdom*, 1861. In 1855 he made a tour through France, Italy, and Germany, for the purpose of observing parks and rural grounds. In 1856 he secured the prize for the best plan of laying out the New York Central Park, and was appointed architect and chief engineer. He continued in charge of the park until 1861, when, the Civil war having broken out, he was appointed secretary and executive officer of the sanitary commission. From 1864 to 1866 he spent in California, when he was made one of the commissioners of the National Park of the Yosemite. He returned to New York in 1866, and had charge of the laying out of the Brooklyn Prospect Park. He was afterward associated in designs for parks and other public works at Washington, Chicago, San Francisco and many other



cities and designed the lagoons and wooded island which were among the chief beauties and glories of the World's Columbian Exposition at Chicago in 1893. In 1895, after the exposition buildings had been removed, Mr. Olmsted's plans for the laying out and beautification of Jackson Park, the site of the Exposition, were accepted by the park commissioners and work begun on a scale of magnificence which would make the park one of the finest in the world.

OLNEY, RICHARD, was born in Massachusetts in 1835. Educated at Brown University and the Law School of Harvard, he took high rank as a lawyer, became chief counsel for the Atchison, Topeka, and Santa Fé, and the Chicago, Burlington, and Quincy railroads, and in March, 1893, became attorney-general of the United States in the second cabinet of President Cleveland, and was from 1895 to 1897 United States Secretary of State (succeeding Judge Walter Q. Gresham, deceased).

OMMANNEY, ADMIRAL, SIR ERASMUS, was born in London in 1814, and entered the British navy in 1826. Promoted captain in 1846 he was employed by the government to help in carrying out the relief measures during the Irish famine, and in February, 1850, was second in command of the Arctic expedition, under Captain Austin, to search after the Franklin expedition, and was the first to discover traces of the missing ships. On the outbreak of the war against Russia in 1854, he commanded the White sea expedition, which harassed the towns of Russian Lapland; in 1855 he assisted in the operations of the fleet in the Gulf of Finland. In 1857 he commanded the *Brunswick* in the West Indies and was afterward attached to the Channel fleet and the Mediterranean fleet. He was senior officer at Gibraltar (1862-64), was promoted rear-admiral, retired from the navy in 1875, was promoted admiral in 1877, and knighted for his Arctic services. He was elected a fellow of the Royal Society for scientific discoveries in the Arctic and White seas.

OPPERT, JULES, was born in Hamburg, of Jewish parents, July 9, 1825. He studied law at Heidelberg, and Sanskrit and Arabic at Bonn. He next studied the Zend and the ancient Persian, and published a treatise at Berlin on the vocal system of the latter language. He went to France in 1847, obtained the professorship of German at the lycéums of Laval and Rheims, was appointed on the scientific expedition sent by the government to Mesopotamia, and after his return in 1854, submitted to the institute his new system of interpreting the cuneiform inscriptions, for which he received the grand prize of \$4,000. In 1857 he was appointed professor of Sanskrit in the school of languages of the Imperial Library, and in 1874 became professor at the *Collège de France*. He has written a Sanskrit grammar, histories of the Chaldean and Assyrian empires, *The People and the Language of the Medes* (1882), and other learned works.

ORCHARDSON, WILLIAM QUILLER, R.A., born at Edinburgh in 1835, at the age of fifteen entered the Trustees' Academy of his native city. The first pictures he submitted to public inspection were shown in the exhibitions of the Royal Scottish Academy. In January, 1868, he was elected an associate of the Royal Academy. He exhibited that year at the academy, besides a portrait of Mrs. Birket Foster, a subject from Shakespeare—*Prince Henry, Poins and Falstaff*. In 1870 three pictures by him were exhibited at the Royal Academy, viz., *Day Dreams, The Market-Girl from the Lido, and Toilers of the Sea*. Mr. Orchardson achieved a great success at the Paris Universal Exhibition, where his *Challenge* and *Christopher Sly* were greatly admired by French critics, and won for the painter one of

the very few medals awarded to English artists. He was elected a Royal Academician in 1877.

ORD, EDWARD OTHO CRESAP, soldier, born in Cumberland, Md., October 18, 1818; died in Havana, Cuba, July 22, 1883. He was graduated at the United States Military Academy, and served against the Florida Seminoles from 1839 to 1842. In 1850 he was made captain, and in 1852 went to California, where for three years he was engaged on the coast survey. In 1861 he was made a brigadier-general of volunteers, and on May 2, 1862, became major-general. Thereafter he was placed in command of the left wing of General Grant's army at Corinth, Miss., took part in the battle of Iuka, and on October 5, 1862, was wounded at Hatchie. Subsequently he was engaged at the siege and capture of Vicksburg, and the capture of Jackson. In July, 1864, he commanded the eighteenth corps at the siege of Richmond, and on September 29th was again wounded at Fort Harrison. In January, 1865, he commanded the army of the James at Petersburg, and participated in the operations that resulted in the evacuation of Richmond, and the surrender of the Confederate army under Gen. Robert E. Lee. On July 26, 1866, he was promoted brigadier-general of the regular army. Thereafter he held several military commands in the South and West, and in 1881 was placed on the retired list. Eventually General Ord accepted the appointment of engineer in the construction of a Mexican railroad, and died while on his way from Vera Cruz to New York city.

ORDWAY, JOHN MORSE, born in Massachusetts, April 23, 1823; graduated at Dartmouth in 1844, and engaged in the study of chemistry. In 1869 he became professor of industrial chemistry at the Massachusetts Institute of Technology, which position he held for fifteen years. He has written extensively for scientific journals, and is a member of many scientific societies.

O'REILLY, JOHN BOYLE, LL.D., was born at Castle Dowth, county Meath, Ireland, June 25, 1844. He was tried and convicted of high treason in June, 1866, and sentenced to imprisonment for life, but the sentence was commuted to twenty years penal servitude. In 1869 he escaped to the United States, and soon became editor of the *Boston Pilot*. He also published *Songs from the Southern Seas* (1872); *Songs, Legends, and Ballads* (1876); *Moondyne* (1877); and *Statues in the Block* (1881). He died August 10, 1890.

ORÉLIE, ANTOINE I., king of Aracania and Patagonia, was the title assumed by Orélie Antoine Charles de Tounens, a French adventurer, born in Chourgnac, in France, in October, 1820; died in Tourtoirac, France, September 19, 1878. He studied law in Toulouse, practiced for a time in Périgueux, and about 1852 emigrated to Buenos Ayres. From there he went as a merchant, to Concepcion and Santiago where he traded with the Aracaniens. Eventually he was adopted into one of their tribes and was chosen their king. Tounens issued a manifesto to the various nationalities of Europe and America, informing them of his accession to the throne. The Chilean Government at once threatened to declare war against the Indians unless they agreed to expel the adventurous Frenchman. Orélie was taken prisoner, but escaped. Shortly afterward he was recaptured, and by the Santiago court of appeals declared a lunatic, placed on a vessel, and sent to France. He lectured in the principal French cities, and in the autumn of 1869 returned to Patagonia. Here he failed to interest his alleged subjects on his behalf, and after a few months of adverse adventure sailed for Marseilles. There, in 1871 and 1872, he founded two journals advocating his claims, and in April, 1874, having interested several parties of means, left Bordeaux in a vessel loaded



with arms and ammunition, for Buenos Ayres. After reaching that point he freighted a small schooner, assumed the name of Jean Prat, and sailed for his alleged possessions. An Argentine ship-of-war, at the request of the Chilians, overtook the adventurers and returned Tonnens to Buenos Ayres, where he was imprisoned. On October 31st he returned to France, quite impoverished, and for a time became the inmate of a poor-house in Bordeaux. Under the promise of great rewards, he found means to organize a new South American expedition, but died before he could carry out his plans.

O'RELL, MAX (Paul Blouet), born in Brittany, France, on March 2, 1848, was educated in Paris. He entered the military school in 1867, received a lieutenant's commission in the artillery, 1869, served during the Franco-Prussian war, and was severely wounded, and pensioned. He became a journalist and London correspondent of several Paris newspapers, and wrote *John Bull and his Island* in 1883; of this book 750,000 copies were sold. His other books are *John Bull's Womankind*, 1884; *The Dear Neighbors*, 1885; *John Bull Junior*, 1886; *Friend MacDonald*, 1887; *Jonathan and his Continent* (1889); *English Pharisees* (1893), and *John Bull & Co.* (1894), the latter work concerning the English colonies. Max O'Rell has made numerous lecture tours in the United States.

ORELLANA, FRANCISCO, Spanish adventurer, born in Trujillo, Spain, about 1500; died in Guiana in 1545. He had been a boyhood's companion of Francisco Pizarro, and followed him throughout the conquest of Peru. In 1537 he became engaged in the rebuilding of Guayaquil, and, in 1539, served under Gonzala Pizarro, as his deputy in the expedition that set out in search of El Dorado. The Spanish chronicler says that, at times, they met Indian tribes led by women of warlike aspect, and that he was told the country belonged to women, who lived in communities, separate and apart from men. These reports tended to spread the myth of a country peopled by Amazons. Later the expedition arrived at the island of Trinidad. From the account given of these explorations, it appears that Orellana was the first European who navigated the Amazon river. On February 2, 1544, he obtained from the king of Spain a grant of the country bordering on the great river, under the name of Nueva Andalucia, but died on his voyage to his new possessions.

ORLEANS, Duc d', a son of the Comte de Paris, and great-grandson of Louis Philippe, has come into prominence recently by reason of his claim to the throne of France by right of descent from the latter, in defiance of the law enacted by the French National Assembly, banishing the Orleans and Bonaparte families from French citizenship. During the spring of 1890 he became of age, and making his appearance in Paris, demanded to be accepted as a soldier in the French army. His arrest and conviction for violation of the law above referred to, followed, and his punishment was fixed at two years' imprisonment. After a short detention, however, he was released and sent out of the country.

ORMEROD, ELEANOR A., is the youngest child of the late Mr. George Ormerod, the well-known genealogist and historian of Cheshire. About 1868, when the collection of economic entomology now at the Bethnal Green Museum was begun, Miss Ormerod became a contributor. In 1877 she invited, by circular, information for publication in reports, as to means found practically serviceable for prevention of injury to oaks by insects, and in this way and by constant study she has gained much practical knowledge on the subject. In 1879 she published *Notes of Observations of Injurious Insects; A Manual of Injurious Insects, with*

*Methods of Prevention and Remedy for their Attacks to Food, Crops, etc.*, 1881; *Reports of Observations of Injurious Insects during 1882, 1883; Some Observations on the Estrife*, 1884. In 1882 Miss Ormerod was appointed consulting entomologist of the Royal Agricultural Society of England, and shortly after became special lecturer on economic entomology at the Royal Agricultural College, Cirencester. Died July 10, 1901.

ORMSBY, HENRY, was born in February, 1812, and educated at Trinity College, Dublin, where he graduated in 1834. He was called to the bar in 1835, and made a Q.C. in 1838. Shortly before the resignation of the Conservative ministry, in 1868, he was nominated solicitor-general for Ireland. Upon the return of Mr. Disraeli to power in 1874 he was reappointed solicitor-general. In January, 1875, he was appointed attorney-general for Ireland, and sworn of the privy council; and in November, the same year, he was appointed a judge of the landed estates court in Ireland. He died September 17, 1887.

ORR, JAMES LAWRENCE, born in South Carolina, May 12, 1822; died in Russia in May, 1873. He served for thirteen years (1844-57) in the legislature of his native State, and from December, 1849, to March, 1859, was a member of congress; in the thirty-fifth congress (1857) being elected speaker. He opposed the secession movement, but finally gave in his adhesion to it when South Carolina went out of the Union. Afterward he raised a regiment, of which he became colonel, and in 1862 he was elected to the Confederate senate. In 1865-68 he was governor of South Carolina; in 1870 he was elected circuit judge, and in 1872 he was appointed minister to Russia.

ORTON, EDWARD, born in New York State, March 9, 1829; graduated at Hamilton, and studied at the Lawrence Scientific School at Harvard. He became in succession professor in the New York State Normal School, in Antioch College, Ohio, and in the Ohio State University, serving as president of the two last-named. In 1881 he became professor of geology in the Ohio State University, of which he is LL.D.

ORTON, JAMES, born in Seneca Falls, N. Y., April 21, 1830; died in Peru, September 25, 1877. He acted as pastor of Congregational churches in Maine and New York, and in 1869 was elected professor of natural history at Vassar. He died while engaged in a scientific expedition in Peru.

OSBORNE, LORD SYDNEY GODOLPHIN, third son of the first Lord Godolphin, born in 1808; graduated B.A. at Brasenose College, Oxford, in 1830, and having been for some years rector of Stoke Pogis, near Eton, was appointed rector of Durweston, Dorsetshire, in 1841. He resigned the latter incumbency in September, 1875. Lord S. G. Osborne was formerly well known for his letters on social and philanthropic subjects, published under the signature of "S. G. O." He died in 1888.

OSBORNE, THOMAS O., born in Licking county, Ohio, August 11, 1832; became a lawyer in Chicago, and in 1861 entered the volunteer service as lieutenant-colonel of an Illinois regiment. During the war he rose to be brevet major-general of volunteers. From 1874 to 1885 he was consul-general to the Argentine Republic.

OSCAR II., KING OF SWEDEN AND NORWAY, was born January 21, 1829, and before he ascended the throne held the rank of lieutenant-general in the army. He married, in June, 1857, the Princess Sophia of Nassau, daughter of the late Duke Wilhelm of Nassau, who was born in July, 1836. From this union there are four sons—namely, Gustaf, duke of Wermland, born in June, 1858, now heir-apparent to the throne; Oscar, duke of Götland, born in November, 1859; Carl, duke



of Westergötland, born in February, 1861; and Eugene, duke of Nerike, born in August, 1865. On the death of his brother, Charles XV., in 1872, Oscar succeeded to the throne. The coronation of King Oscar and Queen Sophia took place July 18, 1873, at the Cathedral of Drontheim in Norway. In 1878 the Frankfort Academy of Sciences elected the king of Sweden a corresponding member in recognition of his poetical translation of Goethe's *Faust* into Swedish. His majesty is also the author of *A Memoir of Charles XII.* (translated into English in 1879); and of *Poems and Leaflets from my Journal*, 1880.

OSCEOLA, a Seminole chief, born on the Chat-tahoochee river, Georgia, in 1804; died in Fort Moultrie, S. C., January 30, 1838. His father was an Englishman who traded among the Indians. As he grew to manhood he obtained much influence among the tribe and married the daughter of a fugitive slave, who in 1835 was seized as a slave. Osceola demanded her return, and in reply General Thompson, United States Indian agent, ordered the Indian to be confined in irons for six days. Six months later Osceola revenged this injury by killing General Thompson and several others. This was the beginning of the protracted Seminole war. On December 28, 1835, with a band of Indians and fugitive slaves, Osceola surrounded and slew Maj. Francis L. Dade and his detachment of 110 soldiers. Three days later, with 200 followers, he met Gen. Duncan L. Clinch, with 600 United States regulars, and after a severe contest was compelled to retreat. In this action Osceola was slightly wounded. Thereafter he fought the United States forces on several occasions, and, although often greatly outnumbered, he bravely and sagaciously held his own. On October 21, 1837, while holding a conference with Gen. Thomas S. Jesup, he was seized with some of his followers and confined in Fort Moultrie, where he died.

OSGOOD, FRANCES SARGENT, author, born in Boston, Mass., June 18, 1811; died in Hingham, Mass., May 12, 1850. As a girl she wrote for several periodicals, and in 1835 was married to Samuel S. Osgood, a portrait painter, with whom she afterward visited London. In 1840 the couple returned to Boston, and later removed to New York city and to Brooklyn L. I., where Mr. Osgood pursued his art. Mrs. Osgood wrote prose and poetry for many periodicals.

O'SHEA, JOHN AUGUSTUS, born in Ireland in 1840, was educated in the Catholic University, Dublin. He went through the Austro-Prussian war as correspondent of a New York paper, and joined, in 1869, the staff of the London *Standard*. While acting as a representative of the *Standard* during the Franco-Prussian war, he was sentenced to death at Rheims on suspicion of having been in communication with the enemy, and it was only on a personal appeal to the Emperor by a press colleague that his release was ordered. After that he was one of the last to reënter Paris before it was invested by the German forces, and while contributing continuous letters by balloon-post suffered all the privations of the siege in the beleaguered city. He was afterward with the Carlists in Biscaya, was present at the capture of Carthagen, and chronicled the episodes of the famine in Bengal. Mr. O'Shea is the author of one or two serial novels, and several comediettas, besides many shorter sketches and stories which have appeared in different magazines.

O'SHEA, WILLIAM HENRY, born in 1840, is the only son of the late Henry O'Shea, Esq., of Dublin. He was educated at Oscott and at Trinity College, Dublin, and in 1858 joined the 18th hussars, but retired. He entered parliament in 1880 as Liberal Home-Rule member for Clare and retained his seat until 1885. When

it was in contemplation to release Mr. Parnell and others from Kilmainham in April, 1882, Captain O'Shea acted, in some way not precisely defined, as the intermediary between the government and the suspects. His devotion to the Home-Rule cause, however, had not been so absolute as to secure for him the confidence of the other members of the party, and in 1885 it required all Mr. Parnell's authority to secure his election as member for Galway. In 1886 he was not a candidate. In 1889 he instituted suit for divorce from his wife, naming Charles S. Parnell as co-respondent. The result of the trial was that O'Shea obtained his divorce, while the exposures of Parnell's conduct resulted in the disruption of the Irish parliamentary party.

OSMAN PASHA (GHAZI), a Turkish general, was born at Tokat, in Asia Minor, in 1832. He began his education in the preparatory school in Constantinople, under the supervision of his brother, Hussein Effendi, who, at the time, was professor of Arabic at the institution. From the preparatory school Osman passed in due course into the military school, and quitting the latter in 1853 with very high certificates, at once entered the army as a lieutenant, being appointed to the general staff in Shumla shortly after the outbreak of the Crimean war. His gallantry in action, and general soldier-like qualities, led to his rapid advancement, and at the termination of the campaign he was appointed a captain in the imperial guard at Constantinople. Before long he was promoted to the rank of major, and as such took part in the fighting in Crete, from 1866 to 1869. Returning to Constantinople after the suppression of the insurrection in the island, he was promoted to the rank of colonel; and on attaining the rank of brigadier-general, he was appointed to the command of a division in the fifth army corps. In the Turko-Servian war Osman Pasha commanded the division of the Turkish army assembled at Widdin, and for his conduct in the campaign he was promoted, by an imperial irade, to the rank of muschir, or field-marshal. When the war between Russia and Turkey broke out he still remained at Widdin, but his command was increased to 68 battalions, 16 squadrons, and 174 guns; and it was with the greater part of this force that he appeared at Plevna in July, 1877, and turned the tide of war in favor of the Turks. He defended that place with such gallantry that in October he received from the sultan the title of "Ghazi," or "Victorious," and the decoration of the Osmanlé in brilliants. At last Plevna surrendered (December 10, 1877), after Osman had made a desperate attempt to break through the Russian lines. Osman Ghazi Victorious surrendered unconditionally the gallant army with which he had held this famous stronghold for so long, with which he upset the whole Russian plan of campaign, and with which he defeated, in three pitched battles, Russia's finest armies. When he surrendered the Russian troops presented arms to him. Shortly after the conclusion of peace in March, 1878, he returned to Constantinople, and was appointed commander-in-chief of the imperial guard. On June 10th he was appointed marshal of the palace, at the same time retaining his command of the army for the defense of Constantinople. He was next appointed governor-general of the island of Crete. Ghazi Osman Pasha was appointed minister of war in the administration formed in December, 1878, and he elaborated a plan for the radical reorganization of the army. In a short time he acquired considerable influence over the mind of the sultan. Being accused of maladministration, before the sultan himself and the council of ministers, he was successful in preventing the charges from being pressed (June, 1879). To his influence, and that of the Sheikh-ul-Islam, was attributed the dismissal of the



Grand-Vizier Khereddin Pasha. In July, 1880, his dismissal from the post of minister of war was announced, but in January, 1881, he was again appointed to that office in the place of Hussein Huvni Pasha. After being for some time out of office, he once more, on December 3, 1882, became minister of war with the title of seraskier. He died September 19, 1890.

OTTO, KING OF BAVARIA, was born June 13, 1848, the second son of Maximilian II., and succeeded to the throne June 13, 1886, upon the death of his brother, Ludwig II., who died that day by drowning himself in Starnberg Lake.

OULESS, WALTER WILLIAM, R.A., was born at St. Helier, Jersey, September 21, 1848, and educated at Victoria College in that island. He removed to London in 1864, and was admitted a student of the Royal Academy in the following year. While there, he took a silver medal in the antique school, and was an unsuccessful competitor for the historical gold medal. Mr. Oules has been a constant exhibitor at Burlington House since 1869, and his first works were subject pictures, the principal being *Home Again*, and *An Incident in the French Revolution*. In 1872, acting on the advice of Mr. Millais, he took to portrait-painting, and has since devoted himself almost exclusively to that branch of the profession. He was elected an associate of the Royal Academy, January 2, 1877, and a royal academician May 5, 1881. He obtained the medal of the second class at the Paris international exhibition of 1878.

OWEN, DAVID DALE, born in Scotland on June 24, 1807; died in Indiana, November 13, 1860. He came to the United States in 1828, and was graduated at the Ohio Medical College in 1835. Afterward he conducted a geological survey of the State, and, in 1839 was appointed geologist to the United States survey. In this capacity he made surveys of the greater part of Iowa, Wisconsin, and Minnesota. Between 1854 and 1857 he was State geologist of Kentucky, and after that of Arkansas. From 1859 until his death he was State geologist of Indiana. He was a member of many scientific societies, wrote many communications for scientific journals, and possessed the finest museum and laboratory in the United States.

OWEN, RICHARD, a geologist who contributed largely to the promotion of that science, was a native of Lanarkshire, Scotland, and was born January 6, 1810. He entered Lanark Grammar School at an early age, matriculated at Hozwy and Andersonian Institute, and came to America in 1828, locating at New Harmony, Ind. After a brief residence at Cincinnati, he returned to New Harmony, and in 1847 served in the Mexican war as captain of a company attached to the 16th regiment of United States infantry. After the war he made geological explorations into portions of Minnesota, and in 1849 was appointed to the professorship of natural science in the Western Military Institute of Kentucky. In 1859 he received the degree of doctor of medicine from the Nashville (Tenn.) Medical College, subsequently making a geological survey of Indiana, of which State he had meanwhile been appointed geologist. During the Civil war he served as lieutenant-colonel of the 15th Indiana volunteers, also as colonel of the 60th regiment, from the same State, participating in the siege of Vicksburg, Red river expedition, etc., and being taken prisoner at Mumfordsville, Ky. In 1864 he was appointed professor of natural sciences in the University of Indiana, and continued in that capacity until the summer of 1879. During the next ten years he prosecuted his professional researches continuously and with good results. His abilities were frequently recognized, Wabash College having conferred

the degree of LL.D., and other institutions, notably the Academy of Science of New Orleans and St. Louis, making him an honorary member. He died March 25, 1890.

OWEN, ROBERT DALE, born in Glasgow, Scotland, November 9, 1800; died June 17, 1877. He completed his education in Switzerland, and in 1825 came to the United States with his father, who endeavored to found a colony of social reformers in New Harmony, Ind. On the failure of this experiment young Owen went to Europe, but in 1827 returned to the United States, where he became a citizen. From 1828 until 1832, in connection with Miss Frances Wright, he published a New York weekly paper *The Free Enquirer*, the columns of which were devoted to socialistic principles. Toward the end of the last-named year he returned to New Harmony. In 1843-47 he served as a Democratic member of congress, and later became a regent of the Smithsonian Institution. From 1855 until 1858 Mr. Owen was United States minister to Naples. His later years were devoted to the advancement of spiritualism. In 1872 the University of Indiana gave him the degree of LL.D.

OWEN, SIR RICHARD, D.C.L., LL.D., F.R.S., the celebrated comparative anatomist, was born at Lancaster, England, July 20, 1804. In 1824 he matriculated at the University of Edinburgh, where he attended the anatomical lectures of Doctor Barclay. He also attended for a considerable time the schools of medicine in Paris. He became a member of the Royal College of Surgeons in London in 1826, but his subsequent appointment, on Doctor Abernethy's recommendation, to the post of assistant curator of the Hunterian Museum, led him to devote his attention exclusively to the study of comparative anatomy. In 1834 he was appointed to the chair of comparative anatomy at St. Bartholomew's Hospital. In 1836 he succeeded Sir Charles Bell as professor of anatomy and physiology in the College of Surgeons, being appointed by the college in the same year as the first Hunterian professor. Professor Owen took part in the organization of the great exhibition of 1851; served as president of one of the juries; at the request of the government went to Paris, and was president of the jury of the same class of objects in the "Universal Exhibition" of 1855, and received the cross of the legion of honor. Professor Owen's connection with the College of Surgeons ceased in 1856, on his being appointed superintendent of the natural history departments (zoology, geology, mineralogy) in the British Museum. Among the first great works which he undertook were the *Descriptive and Illustrated Catalogue of the Specimens of Physiology and Comparative Anatomy*; the *Catalogue of the Natural History*, and that of the *Osteology*, of all the *Fossil Organic Remains*, preserved in the museum of the Royal College of Surgeons. Discerning in a fragment of fossil bone from New Zealand, submitted to him in 1839, evidence of a bird more gigantic than the ostrich, Professor Owen published an account of it; transmitted copies to New Zealand, and obtained evidence in confirmation and extension of his idea, which occupies many successive parts of the *Transactions of the Zoological Society*. In that for 1855 he propounds his theory of the extinction of species on the principal of the "contest of existence" through the operation of extraneous influences. The genera of birds thus lost by "natural rejection" are *Dinornis*, *Aptornis*, *Notornis*, *Chemiornis*, etc.

Professor Owen also communicated numerous papers to the *Transactions of the Royal, Linnæan, Geological, Zoological, Cambridge, Philosophical, Medico-Chirurgical, and the Microscopical societies*, and contributed



some elaborate reports, published in the *Transactions* of the British Association. He was one of the founders, and first president, of the Microscopical Society; was a fellow or associate of most of the learned societies or scientific academies at home and abroad; was a chevalier of the Order of Merit of Prussia, and one of the eight foreign associates of the French Institute. He was created a companion of the Bath, June 3, 1873, and shortly afterward made a K.C.B.; and in January, 1879, he was elected a foreign member of the Berlin Academy of Sciences. He died December 29, 1892.

OWENS, JOHN EDWARD, born in Liverpool, England, May 4, 1824; died in Maryland, December 6, 1886. He came to this country in 1834 with his parents and settled in Philadelphia. About 1841 he made his first appearance on the stage at the old National theater at Philadelphia, then under the management of William E. Burton. In 1843 he removed to Baltimore, where he rapidly built up a great reputation as a comedian, and for many years he played comedy parts

throughout the United States. In 1858 he became manager of the Varieties theater in New Orleans. When the Civil war began, he returned to Baltimore and afterward visited England, where he played with great success in all the prominent cities. His principal characters were "Doctor Ollapod," "Doctor Pangloss," "Caleb Plummer," and "Aminidab Sleek," and he was also very clever as a burlesque artist.

OXENDEN, ASHTON, D.D., late primate and metropolitan of Canada, was born at Broome Park, near Canterbury, in 1808; graduated B.A. at University College, Oxford, in 1831, and was ordained priest in 1834. In 1864 he became an honorary canon of Canterbury Cathedral. In 1869, having been elected by the synod, he was consecrated to the metropolitan see of Montreal, in virtue of which he became primate of all Canada. He resigned his bishopric in April, 1878. In May, 1879, he was instituted to the vicarage of St. Stephen, near Canterbury, holding that position until 1885. He wrote many theological books, and died Feb. 22, 1892.

## P.

PACA, WILLIAM, born in Maryland, October 31, 1740; died in that State in 1799. He studied law and was admitted to the English bar, and on his return home opposed the stamp act and other tyrannical measures of the British Government. From 1771 to 1774 he was a member of the Maryland legislature, and from 1774 to 1779 served in the Continental Congress. He signed the Declaration of Independence, became State senator, afterward held two judicial offices, and was governor of Maryland 1782-86. From 1789 until his death he was United States district judge.

PACKARD, ALPHEUS SPRING, born in Chelmsford, Mass., in December, 1798; died in Maine, July 13, 1884. He graduated at Bowdoin in 1816, and for nearly sixty-five years held various professorial appointments in that institution, of which he was finally made acting president. He acted as chaplain for many years and contributed extensively to scientific publications.

PACKARD, ALPHEUS, Jr., son of the foregoing, born in Maine, February 19, 1839; graduated at Bowdoin in 1861, served as an army surgeon 1864-65, and became director of the Peabody Museum at Salem, Mass. In 1878 he was appointed professor of zoölogy and geology at Brown University. He was a member of the United States Entomological Commission and has written largely on insects.

PACKER, ASA, born in Groton, Conn., December 20, 1806; died in Philadelphia, Pa., May 17, 1879. He acquired an interest in boating coal to Philadelphia; in 1831 he established a store and boat-yard, and entered on various extensive schemes of mining and transportation that were highly remunerative. Later he became county judge, and eventually, from the profits of his many successful ventures, rose to be the wealthiest person in Pennsylvania. From 1853 until 1857 he was a Democratic member of congress. In 1865 Mr. Packer gave \$500,000 and 115 acres of land for the erection of Lehigh University at Bethlehem, Pa., and in his will increased the endowment to \$1,500,000, with \$500,000 additional for a library.

PADDOCK, ALGERNON S., born in Glen's Falls, N. Y., November 9, 1830; studied law and removed to Nebraska, where he became secretary of the Territory. From 1875 to 1881 he served as United States senator; was defeated for reelection, but in January, 1887, was again elected for the term ending March 3, 1893.

PADDOCK, BENJAMIN HENRY, born in Norwich, Conn., February 28, 1828; was ordained in the Protes-

tant Episcopal Church in 1853, and held pastorates in New York, Maine, and Detroit. In 1873 he was elected bishop of Massachusetts, and died March 9, 1891.

PADDOCK, JOHN ADAMS, born in Norwich, Conn., January 19, 1825; was ordained in the Protestant Episcopal Church in 1850, and held pastorates in Stratford, Conn., and Brooklyn, N. Y., up to 1880, when he was elected missionary bishop of Washington Territory. He died March 6, 1894.

PADEREWSKI, IGNACE JAN, born in Podolia, Russian Poland, in 1860, a famous pianist of marvelous power and sympathy, and a skilled composer. He has made several remarkably successful tours in America, clearing over \$150,000 in the season of 1893.

PAEZ, JOSÉ ANTONIO, born in Venezuela in June, 1790; died in New York city in May, 1873. He took part in numerous revolutionary movements, finally becoming head of the army with rank of general-in-chief. In 1825, when his impeachment was proposed, he became the civil and military ruler of Venezuela by virtue of a mutiny of the populace in his favor. In November, 1829, the Venezuela republic was established, and Paez served as its president for several years, was later minister to the United States, and in 1861 again became president. He resigned in 1863 coming to the United States.

PAGE, THOMAS NELSON, LL.D., was born at Oakland, Virginia, April 23, 1853. He studied law at Washington and Lee University, and has since practiced his profession at Richmond, but is best known by his clever stories of southern life, including *Uncle Gabe's White Folks*, *In Ole Virginia*, *Meh Lady*, *Pastime Stories*, *Polly* (1894), and others.

PAGE, WILLIAM, painter, born in Albany, N. Y., January 23, 1811; died in Tottenville, Staten Island, N. Y., October 1, 1885. For a time he studied theology, but preferred to paint portraits and opened a studio in New York city, where, in 1836, he was chosen an academician, and eventually, from 1871 until 1873, served as president of the institution.

PAGET, LORD (CLARENCE EDWARD, K.C.B.), son of the first marquis of Anglesey, born June 17, 1811, entered the British navy at an early age, and saw service in the Baltic during the Crimean war. He was secretary to his father when master-general of the ordnance, was appointed secretary to the admiralty in Lord Palmerston's second administration in 1859, and retired



in May, 1866, to take command of the Mediterranean squadron. He attained flag rank in 1858, and was made vice-admiral April 24, 1865. He died March 22, 1895.

PAGET, SIR AUGUSTUS BERKELEY, was born in 1823, and was appointed clerk in the British foreign office in 1841. He became précis writer to the late earl of Aberdeen in February, 1846; attaché to the embassy of Paris in June the same year; and secretary of legation at Athens in February, 1852. After filling diplomatic offices in Egypt, Holland, and other countries, he was on several occasions *chargé d'affaires* at Lisbon; was nominated envoy extraordinary and minister plenipotentiary to Saxony in December, 1858; to Sweden and Norway in June, 1859; to Denmark in July, 1859; to Portugal in 1866; and to Italy in July, 1867. In March, 1876, he was nominated ambassador to Italy, and shortly afterward he was sworn of the privy council (July 21). On the resignation of Sir Henry Elliot, Sir A. Paget was transferred to Vienna, as British ambassador. Died July 11, 1896.

PAGET, SIR JAMES, an eminent surgeon, was born at Great Yarmouth, England, in 1814, became a member of the Royal College of Surgeons in 1836, and an honorary fellow in 1843. Sir James Paget, who is a member of the senate of the University of London, and of the council of the College of Surgeons, is the author of the *Pathological Catalogue of the Museum of the College of Surgeons*; *Report of the Results of the Use of the Microscope*, published in 1842; and *Lectures on Surgical Pathology*, in 1853, 1863, and 1868; and has been an extensive contributor to the *Transactions* of the Royal and other learned societies. He was created a baronet in August, 1871, and in the same month the honorary degree of LL.D. was conferred on him by the University of Edinburgh. He has been president of the College of Surgeons since 1875. Died Jan. 3, 1900.

PAGET, SIR GEORGE EDWARD, was born December 22, 1809, at Great Yarmouth, England, and educated at Charterhouse and Cambridge, where he took his B.A. degree as eighth wrangler in 1831, and was elected fellow of Caius in 1832. He studied medicine at Cambridge, at St. Bartholomew's Hospital, and at Paris, and was made M.D., in 1838, F.R.C.P.L. 1839, Hon. M.D. Dublin, 1867, D.C.L. Oxford and Durham, LL.D. Edinburgh, and F.R.S. Doctor Paget was president of the Cambridge Philosophical Society, 1855; president of the British Medical Association, 1864; president of the General Medical Council of the United Kingdom, 1869-1874; and was appointed regius professor of physic at Cambridge in 1872. He published papers and small works, chiefly on subjects relating to medicine. In 1885 he was made K.C.B. He died January 29, 1892.

PAGET, VIOLET, who, under the name of Vernon Lee, contributed philosophical and esthetic criticism to the principal English reviews, was born in 1857, and has lived in Italy for several years. She has devoted herself specially to the history of the arts, literature, and drama of that country. In 1880 she published *Studies of the Eighteenth Century in Italy*.

PAILLERON, EDOUARD, a French dramatist, was born in Paris in 1834. He began life as a clerk in a notary's office, and published in 1860 a volume of satirical poetry, and a play. Among his most successful subsequent productions are: *Le Dernier Quartier*, produced at the Théâtre Français in 1863; *Le Second Monument*, at the Odéon in 1865; *Le Monde où l'on s'amuse*, at the Gymnase, 1868; *Les faux Ménages*, in 1869; *Hélène*, 1872; *Petit Pluie*, 1875; *L'Étincelle*, 1879. *Le Monde où l'on s'ennuie* was produced at the Comédie Française, and had an unprecedented run. To this piece of contemporary satire—for it is rather that

than a play—M. Pailleron owed his election in 1882 to the Académie Française. Died April 20, 1899.

PAINE, JOHN ALSOP, born in Newark, N. J., January 14, 1840; graduated at Hamilton and at Andover Theological Seminary, and was ordained in 1867. He held the chair of natural science in several universities, and made some valuable archæological discoveries in Palestine.

PAINE, JOHN KNOWLES, born in Portland, Me., January 8, 1839; studied music in Germany, and in 1872 became instructor of music at Harvard. He has produced several oratorios, cantatas, fantasies, symphonies, and overtures, and ranks high as a musical composer.

PAINE, ROBERT, born in North Carolina, November 12, 1799; died in Mississippi October 20, 1882. In 1817 he began to preach in the Methodist Episcopal Church, and in 1844-45 he took a foremost part in the debates over the slavery question which led to the separation of that church. In 1846 he became bishop in the M. E. Church South.

PAINE, ROBERT TREAT, born in Boston, Mass., March 11, 1731; died there May 11, 1814; was one of the signers of the Declaration of Independence. He graduated at Harvard, became first a preacher, and later a lawyer, and was prominent in the prosecution of a British regular army officer for his participation in the "Boston Massacre" of 1770. He served in the Colonial Legislature, in the Provincial Congress, and in the Continental Congress (1774-78). After the formation of the United States Government he became attorney-general of Massachusetts and judge of the Supreme Court of the State.

PAINE, ROBERT TREAT, poet, born in Taunton, Mass., December 9, 1773; died in Boston, Mass., November 13, 1811. His father was one of the signers of the Declaration of Independence. In 1792 he was graduated at Harvard, and began to contribute to the *Massachusetts Gazette*. In 1794 he established, and for two years conducted, a semi-weekly paper, called the *Federal Orrery*, whose personalities made him numerous enemies. In 1794 the Federal theater was built in Boston, when Paine became on a familiar footing with those attached to it, and married Miss Baker, an actress. This connection estranged him from his father, and excluded him from fashionable society. For a time he left the playhouse, removed to Newburyport, Mass., studied law under Theophilus Parsons, and in 1802 practiced his profession in Boston. However, he soon resumed his former interest in theatricals, wrote criticisms on the drama, led an unsettled and dissipated life, and passed his closing days in destitution.

PAINE, TIMOTHY OTIS, born in Winslow, Me., October 13, 1824; graduated at Colby University in 1847, and in 1856 became pastor of the Swedenborgian (New Jerusalem) church at Elmwood, Mass. In 1866 he became professor of Hebrew at Boston Theological School. He has written several theological works.

PAKENHAM, SIR EDWARD, born in Westmeath, Ireland, March 19, 1778; died near New Orleans, January 8, 1815. He was the second son of the earl of Longford, and a brother-in-law of the duke of Wellington. He entered the British army in 1794, and fought with distinction in Spain and particularly at Salamanca, where he carried off the honors of the day. In 1814 he was given command of the large force of British regulars which operated against New Orleans. Here he was opposed by Gen. Andrew JACKSON (*q.v.*), with a number of Mississippi and Tennessee militia. In the campaign following Pakenham was entirely out-manuevered, and killed in the battle of New Orleans Jan. 8, 1815.



**PALEY, FREDERICK APTHORP, M.A., LL.D.**, eldest son of the late Rev. Edmund Paley, and grandson of the author of *The Evidences of Christianity*, born in England in 1816; was educated at St. John's College, Cambridge, where he graduated B.A. in 1838, and M.A. in 1842, and continued to reside there till 1846, when he left the university, having embraced the Roman Catholic faith. He returned, however, in consequence of the partial removal of religious disabilities, and resided in Cambridge from 1860 to 1874, when he accepted the appointment of professor of classical literature in the Catholic University College at Kensington, and shortly afterward that of classical examiner to the University of London. He edited the plays of *Æschylus*, with Latin notes and emendations. He also edited *Sophocles*, *Euripides*, Ovid's *Fasti*, *Propertius*, *Theocritus*, *Hesiod*, Homer's *Iliad*, the *Peace*, the *Acharnians*, and the *Frogs* of Aristophanes. Among his minor works are several contributions to the *Translations* of the Cambridge Philosophical Society and the *Journal of Philology*, many articles and classical reviews in various quarterly and other periodicals, and two Latin pamphlets. In 1883 the honorary degree of doctor of laws (LL.D.) was conferred upon him by the University of Aberdeen. He was one of the original and most energetic members of the Cambridge Camden Society, and wrote several pamphlets, papers, etc. He died December 9, 1888.

**PALFREY, JOHN GORHAM**, born in Boston, Mass., May 2, 1796; died in Cambridge, Mass., April 26, 1881. His grandfather was paymaster-general of the Revolutionary army. John was graduated at Harvard in 1815, later studied theology, and was minister of the Brattle Street Unitarian Church of Boston from 1818 until 1830. From 1831 until 1839 he was professor of sacred literature at Harvard. He served a term as member of congress, and from 1861 until 1867 was postmaster of Boston. He delivered several courses of lectures before the Lowell Institute in Boston, and in 1851 was editorially connected with the *Commonwealth* newspaper. He published several discourses in the periodicals of his time, besides a history of his former church and a *History of New England*.

**PALGRAVE, FRANCIS TURNER**, eldest son of the late Sir Francis Palgrave, born September 28, 1824; was educated at the Charterhouse and at Balliol College, Oxford, of which he was a scholar, and where he took his degree of M.A., and was elected to a fellowship at Exeter College. He has published *Idylls and Songs* (1854); *The Golden Treasury of English Songs* (1861); *Art Catalogue of the Great Exhibition of 1862*; *Essays on Art* (1866); and a *Life of Sir Walter Scott*, prefixed to the *Globe* edition of his poems, 1867. Mr. Palgrave was created an honorary LL.D. of Edinburgh in 1878. On the death of Principal Shairp, in 1886, Mr. Palgrave was elected professor of poetry at Oxford. He died Oct. 24, 1897.

**PALGRAVE, SIR REGINALD**, fourth son of the late Sir Francis Palgrave, was born in London, June 28, 1829. In 1886, on the death of Sir Thomas Erskine May, he was appointed clerk to the House of Commons. He published (1869) *The House of Commons: Illustrations of Its History and Practice*, and (1877) *The Chairman's Handbook*.

**PALIKAO, DUC DE (CHARLES MARIE)**, born in Paris, France, June 24, 1796; died January 8, 1878. He entered the French army when very young, and in 1855 became general of division. In September, 1863, he defeated the Chinese forces and pillaged the Summer Palace at Peking. On his return to France with an immense booty he was made duke. When Napoleon III. took the field in July, 1870, Palikao was made

prime minister and minister of war, but he only held office until the surrender at Sedan, and then fled the country.

**PALLES, CHRISTOPHER, LL.D.**, was born in Ireland in 1831. He was educated at Trinity College, Dublin, where he took his bachelor's degree in 1852, and was called to the Irish bar in 1853. He attained a high position at the Irish chancery bar, and almost immediately became eminent as a chancery advocate. He took the degree of LL.D. at Dublin in 1865. Doctor Palles was appointed solicitor-general for Ireland under Mr. Gladstone's administration on the promotion of Mr. Dowse to the attorney-generalship for Ireland. On Mr. Dowse being elevated to the judicial bench in November, 1872, Doctor Palles succeeded to the latter office, which he held until the defeat of the Liberal party at the general election of 1874. Just before Mr. Gladstone's resignation Doctor Palles was appointed chief baron of the court of exchequer in Ireland, February 16, 1874.

**PALLISER, JOHN**, born in Ireland in 1817, has taken an active interest in the progress of geographical science and exploration. He explored a large portion of the "Far West" region of America to the shores of the Pacific, and under a commission from the English Government, in 1857-60, topographically determined the British North American international boundary-line from Lake Superior in Canada, across the main chain of the Rocky Mountains; and thence to the sea-coast or Cascade ranges. He died August 18, 1887.

**PALLISER, SIR WILLIAM**, born in Dublin, June 18, 1830; died February 4, 1882. He served in the British army, but is chiefly known by his improvements in field-guns and his invention of the shot and shell which bear his name.

**PALMER, ALONZO BENJAMIN**, born in Richfield, N. Y., October 6, 1815; died in Ann Arbor, Mich., December 23, 1887. He graduated in medicine in 1839, for many years practiced in Chicago and elsewhere, and from 1852 until his death held various professorial chairs in the University of Michigan. He edited a medical journal and wrote extensively on the theory and practice of medicine.

**PALMER, ANTHONY**, colonial governor, born in Great Britain about 1670; died in Philadelphia, Pa., in May, 1749. He bought a large estate near Philadelphia, Pa., where he engaged in commercial pursuits, founded the town of Kensington, now the manufacturing center of Philadelphia, and in 1708 became a member of the provincial council of Pennsylvania, and its president. He was *ex-officio* acting governor of the province for nearly two years, during which time he made treaties with several tribes of Indians, and put the fortifications on Delaware river in a more efficient condition, and for several years he was a judge of the Court of Common Pleas.

**PALMER, BERTHA HONORÉ**, of Chicago, Ill., wife of Potter Palmer, millionaire business man, was appointed by President Harrison a member for Illinois of the Board of Lady Managers of the World's Columbian Exposition and elected its president. Mrs. Palmer was largely instrumental in securing the unique and extensive exhibition of woman's work in the Woman's Building in Chicago in 1893.

**PALMER, ERASTUS DOW**, sculptor, was born in Pompey, N. Y., April 2, 1817. First a cameo cutter, he was thirty-two when he produced his earliest work, *The Infant Ceres*, modeled from one of his children. In 1850 it was exhibited at the National Academy of Design in New York city. Mr. Palmer's studio is in Albany, N. Y.

**PALMER, JOHN MCCAULEY**, born in Scott county,



Ky., September 13, 1817; removed to Illinois, and was admitted to the bar in 1840. He served in the State Senate, and in 1860 was a Republican presidential elector. In April, 1861, he was appointed colonel of an Illinois volunteer regiment, served at Island No. 10, Stone River, and Chickamauga, and was promoted major-general of volunteers. He led the fourteenth army corps through the Atlanta campaign, May till September, 1864. From 1870 until 1873 he served as governor of Illinois. In 1891, after a long and spirited contest, he was elected United States Senator from Illinois as a Democrat. He died Sept. 25, 1900.

PALMER, INNIS NEWTON, born in Buffalo, N. Y., March 30, 1824; graduated at West Point in 1846, and served in Mexico and on the frontier, in the rifles and cavalry. He served throughout the Civil war, became brigadier and major-general of volunteers, and had command successively of various departments. After the war he was assigned to the regular army, and served as colonel of cavalry, until his retirement in March, 1879.

PALMER, RAY, born in Rhode Island, November 12, 1808; died March 29, 1887. He became a Congregational minister in 1832, held pastorates for over thirty years, and for sixteen years was secretary of the Congregational Union. He became well known in religious circles by the numerous hymns which he wrote.

PALMER, SIR CHARLES MARK, was born at South Shields, England, in 1822. In the year 1851 Mr. Palmer conceived the idea of cheapening the transit of coal to London and other ports by the employment of steam collier vessels, which have since completely superseded the old sailing brigs of the north of England. He established the ship-building yard at Jarrow on the Tyne, where the first screw collier was launched in 1852. He has since developed the Jarrow works into a gigantic concern, which constructs an ocean steamer, from the iron ore of its own Yorkshire mines, through all its processes into a complete ship. From these works the populous modern town of Jarrow originated.

PALMER, THOMAS WITHERELL, born in Detroit, Mich., January 25, 1830; was educated at the University of Michigan, and engaged in the real estate and lumber trade. He served in the State Senate in 1878; was defeated for congress in 1876, and in 1883 became United States Senator. Afterward he served as minister to Spain. In June, 1890, Mr. Palmer was elected president of the national commission having charge of the World's Fair of 1893.

PALMIERI, LUIGI, born in Sicily, April 22, 1807; became known to fame as a meteorologist and seismologist, and for many years had charge of the observatory on Mt. Vesuvius, where observations as to the volcanic conditions of the mountain were made. He has invented many astronomical instruments. Died Sept., 1896.

PANCOAST, JOSEPH, M.D., born in New Jersey in 1805; graduated at the University of Pennsylvania in 1828, and for many years held the chair of surgery and anatomy in Jefferson medical College, Philadelphia. He was author of *Operative Surgery* and other works. He died in March, 1882.

PAPINEAU, LOUIS JOSEPH, Canadian politician, born in Montreal in October, 1789; died in Montebella, Canada, September 23, 1871. He was educated at the Seminary of Quebec, studied law, and was admitted to the bar in 1812. In 1809 he was elected to the provincial parliament, and in 1815 became speaker of the House, and was recognized as leader of the young French Canadian party. He served in the war of 1812 between the United States and Great Britain. In 1823

Papineau went to England, to remonstrate against the union of Upper and Lower Canada. For about fifteen years thereafter he was engaged in all kinds of agitations against the British Government, and in 1837 a warrant was issued for his arrest. He then made his way to Richelieu, and thence to the United States, and in 1839 to France. He returned to Canada in 1847, having been amnestied, and was subsequently elected to parliament, but retired in 1854.

PARDEE, ARIO, born in Chatham, N. Y., November 19, 1810. He received an ordinary education, and eventually became a civil engineer. He was engaged in the building of several canals and railways, and later in iron manufactures in New York, New Jersey, Virginia and Tennessee, and coal mining in Ohio and Pennsylvania, amassing a fortune of over \$30,000,000. He gave \$500,000 to Lafayette University. He died March 26, 1892.

PARIS, COMTE DE (LOUIS ALBERT PHILIPPE D'ORLÉANS), son of the Duc d'Orléans, and grandson of Louis Philippe, King of the French, born at Paris, August 24, 1838, fled from France in 1848, was educated at Claremont, England, and in the autumn of 1861, Paris, with his brother, the Duc de Chartres, accompanied by their uncle, the prince de Joinville, came to the United States, the young princes entering the Union army with the rank of captains of volunteers, and serving on General McClellan's staff at his invitation, until June, 1862, when they returned to Europe. The Comte de Paris married his cousin, the Princess Marie-Isabelle, eldest daughter of the Duc de Montpensier, May 30, 1864, and had three children, one son, Prince Louis Philippe Robert (born February 6, 1869), and two daughters. In 1871 he was admitted a member of the National Assembly, at Versailles, under President Thiers, and on December 22, 1872, the assembly voted the restitution of the property of the Orleans family. He acknowledged the Comte de Chambord as the head of the royal house of France, but on the latter's death August 24, 1883, the great majority of the Legitimists acknowledged the Comte de Paris as his successor. In 1886 he was banished from France, under the expulsion bill, aimed at him. He wrote a history of *The Civil War in America*, and an important work on English Trades Unions. He died September 7, 1894.

PARIS, GASTON, French philologist, born at Avenay, Marne, August 9, 1839, was educated at Rollin College, Göttingen, and Bonn, and has made a special study of the Romance languages. On May 12, 1876, he was elected a member of the Academy of Inscriptions.

PARK, EDWARDS AMASA, D.D., born at Providence, R. I., December 29, 1808; and educated at Brown University and at Andover, became professor of mental and moral philosophy at Amherst College, 1830, and professor in Andover Theological Seminary. He was an editor of the *Bibliotheca Sacra*. Died June 4, 1900.

PARKE, JOHN G., born in Pennsylvania in 1828; graduated at West Point in 1849. He served on the frontier, and during the Civil war became major-general of volunteers.

PARKER, JOEL, born in New Hampshire, January 25, 1795; died in Cambridge, Mass., August 17, 1875. He became chief justice of the Supreme Court of New Hampshire, 1838, and in 1848 was appointed a professor in the law school of Harvard.

PARKER, JOEL, lawyer, born in New Jersey in 1816; died January 2, 1888. He entered the legislature in 1847, was elected governor in 1862 and 1864, and vigorously supported the war, was again elected governor as a Democrat in 1870, and was elected to the State supreme bench in 1880 and 1887.



PARKER, REV. JOSEPH, D.D., minister of the City Temple, London, was born at Hexham, 1830, educated at University College, London, became a Congregational minister in 1853 and a popular and vigorous preacher. He wrote the *Inner Life of Christ, Apostolic Life* and many other works, and also engaged on the *People's Bible*. He traveled in the United States in 1888, lecturing in many cities.

PARKES, SIR HENRY, K.C.M.G., was born at Stoneleigh, England, in 1815, the son of a laborer, and in 1839 emigrated to Sydney, New South Wales. He took part in politics, established the *Empire*, a daily newspaper, which he conducted, 1849-56, was elected to the legislative council for Sydney, 1854, and to the parliament of New South Wales. He went as commissioner for emigration to England, in 1861, was colonial secretary, in 1866, and became premier, 1872-75, a second time in 1877 and again in 1878-89, always advocating free trade, free education, and colonial confederation. He visited England in 1861, 1881, and 1887 as representative of New South Wales at the colonial conference in London; in 1891 he presided over the great conferences at Sydney, on Australasian Confederation, and he was still in 1895 actively devoted to that cause. In 1892, he published *Fifty Years of the Making of Australian History*. Died April 26, 1896.

PARKHURST, CHARLES H., D.D., a noted social and municipal reformer of New York city; was born in Framingham, Mass., in 1842; graduated at Amherst in 1866; studied theology at Halle and Leipzig, became president of the Amherst High School in 1867; professor in Williston Seminary, Easthampton, Mass. in 1870; pastor of the Congregational Church at Lenox, Mass., in 1874, and pastor of Madison Square Presbyterian Church, New York city in 1880. He succeeded Dr. Howard Crosby as president of the Society for the Prevention of Crime and made a vigorous campaign against evil-doers, having them prosecuted and punished in spite of police indifference. In the spring of 1892 his exposure and denunciation of those in control of the city became more determined and made him famous as the leading municipal reformer in America. He opposed party politics in city affairs. His efforts resulted in November, 1894 in the defeat of the Tammany organization and the election of Mayor Strong. In theology Dr. Parkhurst advocates a revised and more liberal confession of faith.

PARKMAN, FRANCIS, one of the greatest of American historians, was born in Boston, Mass., September 16, 1823. He graduated at Harvard, 1844, studied law, explored the Rocky Mountains in 1846 and lived among the Indians, gaining that intimate knowledge of their customs which was of great value in his future work. He published *The California and Oregon Trail* (1849); *History of the Conspiracy of Pontiac* (1851), and then turned his attention to the history of French colonization in the new world, of the hardships of the pioneers, their struggles with the Indians and the long warfare between France and England for the possession of the coveted territory. This field Mr. Parkman made distinctively his own by a thorough and assiduous research into the documentary history of the period, visiting France five times to examine colonial records, and by the exquisite graphic art of his narration, by which he made the history of those times as fascinating as the pages of a romance. He published *The Old Regime in Canada* (1864), *The Pioneers of France in the New World* (1865), *The Jesuits in North America* (1866), *The Discovery of the Great West* (1869), *Count Frontenac and New France under Louis XIV.* (1878), *Montcalm and Wolfe* (1884), and *A Half Century of Conflict* (1892), completing the

series, having struggled part of this time against the depressing obstacle of blindness. He died November 8, 1892.

PARNELL, CHARLES STEWART, M.P., was born in 1846, at Avondale county, Wicklow, Ireland. He was descended from an old English family that passed over from Congleton, Cheshire to Ireland. Mr. Parnell, whose mother was a daughter of Admiral Charles Stewart, a celebrated American naval officer, was educated at various private schools in England, and afterward went to Magdalen College, Cambridge. After a tour in the United States he returned to his home in Wicklow, and was high sheriff of the county in 1874. He made his first attempt to enter public life in the same year, contesting the county of Dublin, was defeated by an overwhelming majority, but in the following year—1875—was returned for the county of Meath. For some time he took no prominent part in the proceedings of parliament, but during the session of 1876 he attracted some attention by engaging in one or two prolonged and stubborn conflicts with the government. In February, 1877, he made his first appearance as a legislator, introducing "The Irish Church Act Amendment Bill," the object of which was to facilitate the purchase of their holdings by the tenantry of the disestablished Irish church; the bill was thrown out by 150 to 110 votes. The introduction of the Prisons Bill by Sir Richard (then Mr.) Cross, gave rise to the first real development of the principle of what was known as the "active" policy to the Irish, and the policy of "obstruction" to the English people. The various clauses of the measure were obstinately opposed; and when attempts were made to force the bill through at a late hour, there were repeated motions for adjournment. A similar course was pursued on the Mutiny Bill, hostility being chiefly directed against the flogging clauses; and scenes of much excitement frequently occurred. Mr. Parnell came into serious collision in the course of this session, both with Sir Stafford Northcote, the then leader of the House of Commons, and Mr. Butt, then leader of the Irish party. Sir Stafford Northcote moved a resolution on one occasion for Mr. Parnell's suspension, which, after varying fortunes, had finally to be abandoned, in order to give way for some new rules against "obstruction" generally. Mr. Butt condemned the policy of Mr. Parnell, both by letters and speeches; but it soon became apparent that the action of the younger man was the more popular among the Irish people. In the beginning of 1878 Mr. Parnell was elected president, instead of Mr. Butt, of the Irish organization in England, known as the Home Rule Confederation, and from this time forward Mr. Butt practically ceased to be the leader of the Irish party. At the close of the session of 1879 Mr. Parnell entered upon a new and important epoch in his career. There had been a succession of three bad harvests in Ireland; the country was threatened with deep and wide-spread distress; and the time was ripe for starting a new movement for reform of the relations between landlord and tenant. On October 21st following, the "Irish National Land League" was founded, and Mr. Parnell was elected the first president. The objects of the new organization were declared to be "first, to bring about a reduction of rack-rents; secondly, to facilitate the ownership of the soil by the occupiers." In December of the same year he sailed for America, in order to raise funds for the relief of the distress and for starting the new organization; lectured in a large number of towns, before several State legislatures, and finally before the House of Representatives at Washington. Meantime, parliament was dissolved; Mr. Parnell hurried home, took an active part in the



general election, and was himself elected for three constituencies—Meath, Mayo, and Cork city. He selected the last-named constituency. At the meeting of the new Irish party after the election, he was chosen leader of the Irish party instead of Mr. Shaw, who had succeeded Mr. Butt. In the autumn of 1880 he took an active part in organizing the Land League, which rapidly grew to be the most powerful of modern Irish movements. In November of this year informations were laid by the Irish attorney-general against Mr. Parnell and several other members of the Land League executive; the trial opened at Dublin on December 28th, and finally, after nineteen days' hearing, ended in a disagreement of the jury. In the opening of the session of 1881 the government brought in a coercion bill, and to this measure, as well as to the Arms Bill, Mr. Parnell and his colleagues offered a fierce and obstinate opposition, prolonged over seven weeks. The Land Act having been passed into law, Mr. Parnell presided at a Land League convention, at which it was resolved that the "Act should be tested" by means of certain selected cases; he was present afterward at several large Land League demonstrations; and on October 13th he was arrested and conveyed to Kilmainham jail. The government immediately afterward proclaimed the Land League as an illegal association, and Mr. Parnell and his colleagues issued the "No Rent" manifesto. Mr. Parnell remained in Kilmainham jail till April 10, 1882, when he was released on parole in order to attend the funeral of a relative. On May 2nd following, he was formally released, as well as his colleagues, Mr. John Dillon, M.P., and Mr. O'Kelly, M.P. Then followed the resignation of Mr. Forster and Lord Cowper, the murders in the Phoenix Park, and the stormy debates on the Crimes Bill. The freedom of the city had been voted to Mr. Parnell, during his imprisonment, at Dublin and other places, and on January 3, 1882, he and Mr. Dillon attended in the City Hall, Dublin, to receive the honor. In the session of 1882 he took an active part in procuring the passage of the Arrears Act, and of the Tramways and Laborers Acts in the session of 1883. A national subscription to Mr. Parnell was started in the spring of 1883, and a sum of \$175,000 is said to have been presented to him. The Land League was revived under the name of the National League, and Mr. Parnell took his place at its head. He inspired all the policy of the Irish parliamentary party during the sessions of 1884 and 1885; and on the dissolution, when the Irish people first voted on a general household suffrage, he nominated every Nationalist candidate, and went back to Westminster with eighty-five followers. It was to meet this new situation that Mr. Gladstone proposed home rule, in which, of course, he was supported by Mr. Parnell and the whole strength of his party. Mr. Parnell retained the leadership of the Irish parliamentary party until 1890, when the publication of his relations with Mrs. O'Shea led to its division into Parnellites and anti-Parnellites, the latter believing that his usefulness was gone and choosing for their leader, Justin McCarthy, who later became the recognized head of the Nationalists. Mr. Parnell died October 7, 1891.

PARRY, CHARLES HUBERT HASTINGS, English musical composer, was born in 1848, and educated at Eton and Oxford. He composed sonatas, overtures, an adaption of Shelley's *Prometheus Unbound* and the oratorios *Judith* (1888); *Job* (1891), and *King Saul* (1894).

PARRY, EDWARD, D.D., son of Rear-Admiral Parry, the Arctic explorer, was born at Sydney, New South Wales, in 1830, was educated at Balliol College,

Oxford, was ordained deacon in 1854, priest in 1855, and in 1870 appointed bishop suffragan of Dover, which see he retained until he died, April 11, 1890.

PARRY, JOSEPH, musical composer, born at Merthyr Tydfil, 1841, won prizes in New York, returned to England in 1863, and has composed numerous works including the successful oratorio *Saul of Tarsus* (1892).

PARSONS, ALFRED WILLIAM, R.I., landscape painter, was born in England, December 2, 1847, and educated at private schools. His first pictures and water color drawings were exhibited at the Dudley Gallery, and he was elected a member of the committee of the General Exhibition of Water Color Drawings in 1879. On the dissolution of that society, he, with the other members of the committee, joined the Royal Institute of Painters in Water Colors. In the winter of 1881-82 he visited New York, and has since done many illustrations for American magazines. At the World's Fair in Chicago in 1893 he exhibited *Bodenham Church* and *Somersetshire Hills*, in water colors, and *In a Cider Country*, *The Flowers Appear on the Earth* and *The Daylight Dies*, in oil.

PARSONS, CHARLES, born at Homer, Cortland county, N. Y., January 24, 1824, engaged in banking in Keokuk, Iowa, in 1857, and from 1862 to 1864 served in the army as assistant quartermaster with rank of captain, and had charge of the United States river and rail transportation in the West, from Galena and Fort Benton to Vicksburg. In February, 1864, he was elected cashier of the State Savings Association in St. Louis, in which position he continued until 1870, when he was elected president of the same institution (which is now the State Bank of St. Louis, its name having been changed in 1888), and this position he has held since that date. He is president of the St. Louis clearing house, to which position he has been continuously reelected since 1873. He is also president and director of many other corporations doing business at St. Louis and vicinity. He was brevetted major and lieutenant-colonel in recognition of his services in the army.

PARSONS, SAMUEL HOLDEN, born in Lyme, Conn., May 17, 1737; died November 17, 1789. He was graduated at Harvard in 1756, and became a lawyer. In 1773 he was made king's attorney, and removed to New London. On April 26, 1775, he was appointed colonel of militia stationed at Roxbury, Mass., and ordered to New York city. In August, 1776, he took part in the battle of Long Island, and in the same year was made brigadier-general. General Parsons was one of the board that tried Major André, and in 1780 he received the commission of major-general. Later, he resumed the practice of law in Middletown, Conn., and became first judge of the Northwest Territory. After this appointment he settled near Marietta, Ohio.

PARSONS, THEOPHILUS, born in Byfield, Mass., February 24, 1750; died October 30, 1813. He graduated at Harvard in 1769, was admitted to the bar in Portland, Me., in 1774, returned to Byfield, and later settled at Newburyport. Here his practice became extensive. In 1800 he removed to Boston, and from 1806 until the time of his death was justice of the Supreme Court of Massachusetts.

PARTON, JAMES, born at Canterbury, England, February 9, 1822, came to America when a child. He received an ordinary education, and at the age of nineteen was teacher in an academy at White Plains, N. Y., and subsequently taught in Philadelphia and New York. He afterward became a journalist and magazine writer, and wrote many books, mostly of a historical character.



In 1856 he married the well-known authoress "Fanny Fern." He resided in New York until 1875, when he removed to Newburyport, Mass. He died in 1891.

PASSAGLIA, CARLO, D.D., was born in Italy in 1814, received his education at Rome, took orders, joined the Society of Jesus, and became professor of theology in the Roman University. He was the author of several learned treatises on Biblical interpretation. In 1861 he published a remarkable pamphlet in Latin, in which he counseled the Pope to abandon his temporal state and power, in obedience to the voice of united Italy. It was placed upon the Index Expurgatorius by the ecclesiastical authorities, and its author soon afterward left Rome. He was appointed, at the instance of King Victor Emmanuel, a theological professor in the University of Turin, was elected a member of the Italian parliament in January, 1863, and took an active part in promoting the formation of an independent Liberal Catholic party in Italy. He was made grand officer of the Order of Saints Maurice and Lazarus in January, 1863. In November, 1882, he was completely reconciled with the Holy See, and resumed the ecclesiastical dress. He died March 13, 1887.

PASTEUR, LOUIS, chemist, born in Dôle, Jura, December 27, 1822; entered the university in 1840, became a supernumerary master of studies at the College of Besançon, was received as a pupil in the École Normale in 1843, took the degree of doctor in 1847, and was appointed professor of physics at the Faculty of Sciences, Strasburg, in 1848. At the end of 1854 he was intrusted as dean with the organization of the newly created Faculty of Sciences at Lille, and in 1857 returned to Paris, and undertook the "scientific direction" of the École Normale. In December, 1863, he was appointed professor of geology, physics, and chemistry at the École des Beaux-Arts, and was elected a member of the Institute. The Royal Society of London in 1856 awarded M. Pasteur the Rumford medal for his researches relative to the polarization of light, etc. He was decorated with the Legion of Honor August 12, 1853, was promoted to be an officer of that order in 1863, and became a commander in 1868. In 1869 he was elected one of the fifty foreign members of the Royal Society of London. M. Pasteur has written numerous works relating to chemistry, which have been favorably received, and for which, in 1861, he obtained the Jecker prize. In 1874 the national assembly accorded to M. Pasteur, as a reward chiefly for his investigations on fermentation, a life annuity of 12,000 francs. He was raised to the rank of grand officer of the Legion of Honor, October 24, 1878. His reception into the French Academy took place April 27, 1882, when he delivered a panegyric of M. Littré, to whose chair he had succeeded. In the same year the council of the Society of Arts awarded the Albert medal of the society to M. Pasteur for his researches in connection with fermentation, the preservation of wines, and the propagation of zymotic diseases in silkworms and domestic animals. Of late years M. Pasteur has devoted himself to the study of inoculation for diseases other than smallpox, and has achieved some very remarkable results in the prevention of hydrophobia, patients from all parts of Europe, and even from America, traveling to Paris to put themselves under his care. Large subscriptions were raised in Europe to form an "Institut Pasteur," to teach his principles. In 1893 he discovered a cholera vaccine. Died Sept., 1895.

PATER, WALTER, born in London, August 4, 1839, and educated at the Queen's College, Oxford, was elected fellow of Brasenose College, in 1865, and became dean and lecturer there. His first contribution to literature was an essay on the *Writings of Coleridge*

in the *Westminster Review* (January, 1866). In 1873 he published *The Renaissance*, a series of studies in art and literature. In 1885 appeared *Marius, the Epicurian: His Sensations and Ideas*, in 2 vols. He contributed the notices of Coleridge and Rosseti to Ward's *English Poets*, and published *Plato and Platonism* (1893). He was a master of literary style. He died July 30, 1894.

PATMORE, COVENTRY KEARSEY DEIGHTON, a popular poet among the English middle classes, was born in Woodford, Essex, in 1823, began writing in 1844 and published his best known poem *The Angel in the House* (a story of a young man's "maiden passion for a maid") in 1855. He has since published *A Garland of Poems for Children*, *The Unknown Eros*, a memoir of Barry Cornwall, *Religio Poetae* (1893), and other works. He was assistant librarian of the British Museum, 1846-68. Died Nov. 26, 1896.

PATON, SIR JOSEPH NOEL, born at Dunfermline, Fifeshire, Scotland, in 1821, well known for his outline etchings illustrative of Shakespeare and Shelley, and his illustrations of *The Ancient Mariner*; was knighted in 1867 and produced, among other works, *A Fairy Raid*, and in 1868 *Caliban Listening to the Music*. Of his subsequent pictures the more important are *Faith and Reason* (1871, engraved); *Christ and Mary at the Sepulcher*, and *Oskold and the Elle-Maids* (1873); *Satan Watching the Sleep of Christ* (1874); *The Man of Sorrows* (1875); *The Spirit of Twilight and Christ the Great Shepherd* (1876); and *The Man With the Muck-rake* (1877). He is the author of two volumes of poems, and in 1876 received from the University of Edinburgh the honorary degree of LL.D. Died Dec. 26, 1901.

PATTERSON, JAMES LAIRD, bishop of Emmaus, born in London, England, November 16, 1822; became curate of St. Thomas', Oxford in 1845, but, in 1850, entered the Roman Communion. In 1880 he was consecrated titular bishop of Emmaus, rector of St. Mary's, Chelsea, in 1881.

PATTERSON, ROBERT, born in Ireland, January 12, 1792; died in Philadelphia, August 7, 1881. He served in the war of 1812, and in the Mexican war, and was made major-general of volunteers. When Lincoln issued his call for 75,000 three-months' men General Patterson, then the ranking major-general, was given command of the military department which included Pennsylvania, Maryland, Delaware, and the District of Columbia. He did not distinguish himself in this capacity, and was retired in July, 1861.

PATTI, ADELINA MARIA CLORINDA, a popular operatic singer, daughter of Salvatore Patti, is of Italian extraction, and was born at Madrid, April 9, 1843. After a course of professional training under her brother-in-law, Maurice Strakosch, she appeared at New York, November 24, 1859. She made her first appearance in London at the Italian Opera House, Covent Garden, in the part of "Amina," in *La Sonnambula*, May 14, 1861, and became at once the prime favorite of the day. She achieved a fresh success in the part of "Juliet," in Gounod's *Romeo and Juliet*, which proved the great attraction of the operatic season of 1867. In May, 1868, she was married to the Marquis de Caux, from whom she was afterward divorced. In the early part of 1870 she visited Russia, where she met with a most enthusiastic welcome, receiving from the Emperor Alexander the Order of Merit, and the appointment of first singer at the imperial court. She has since achieved fresh successes both in Europe and America. In 1886 she was married, in Wales, to Signor Nicolini. She visited the United States on several occasions, and was the leading attraction at the opening of the Chicago Audi-



torium. She gave annual "farewell tours" in the United States for some years up to 1893.

PATTI, CARLOTTA, sister of the preceding, was also a well-known operatic singer, and performed with great success in this country and in Europe. She was married in 1879 to Ernst von der Munk, of Weimar, Saxony. She died June 27, 1889.

PAULDING, JAMES KIRKE, born in Dutchess county, N. Y., August 22, 1779; died April 6, 1860. In 1807 he issued, in connection with Washington Irving, the first number of *Salmagundi*, a magazine which, during its short existence of one year, proved itself an important contribution to current literature. Paulding also wrote a *Life of George Washington*, and a pamphlet in defense of slavery. From 1826 to 1837 he filled the office of navy agent of the port of New York, and in 1837 President Van Buren made him secretary of the navy. After his retirement from public office he resumed his magazine work, and published several novels.

PAULDING, JOHN, born in New York city in 1758; died in Staatsburg, N. Y., February 18, 1818. He served as a common soldier during the Revolution, and was three times taken prisoner. Shortly after his second escape he assisted in capturing Major André, of the British army. Paulding, Isaac Van Wart, and David Williams, on September 23, 1780, were patrolling the east bank of the Hudson river, when André was on his return to the British lines, after an interview with Gen. Benedict Arnold. Paulding sprang from a thicket, where he had been concealed with his two companions, and, presenting a gun at him, asked which way he was going. André replied: "Gentlemen, I hope you belong to our party." "Which party?" inquired Paulding. "The lower party," said André. Paulding said he did. Said André, "I am a British officer out on particular business, and I hope you will not detain me." Thereupon Paulding and the others ordered him to dismount. André then produced a pass given him by General Arnold, and added: "By stopping me you will detain the General's business." The three now deprived him of his watch and valuables, took him among the bushes and thoroughly searched his person, when three parcels in papers were discovered under each stocking. They proved to contain a plan of the fortifications at West Point, a memorial from the military engineer on the attack and defense of that place, and returns of the garrison, cannon, and stores in Arnold's own handwriting. The men conducted their captive to the nearest American military post at North Bend, and delivered him to the officer in command. At the time of André's trial, Paulding said: "Had he pulled out General Arnold's pass first we should have let him go."

PAUNCEFOTE, SIR JULIAN, was born at Munich, Bavaria, September 13, 1828, and educated at Paris, at Geneva, and at Marlborough College. He settled in England, was called to the bar in 1852, joined the Oxford circuit, and also practiced as a conveyancer. He was appointed attorney-general of Hong-Kong in May, 1865, and acted as chief justice of the Supreme Court in 1869, and in 1874 was knighted by patent. He was appointed chief justice of the Leeward Islands in 1873, and assistant under-secretary of state for the colonies in 1874. In 1876 he was appointed assistant (legal) under-secretary of state for foreign affairs. He was created a C.B. and a K.C.M.G. in 1880, and in 1882 he succeeded the late Lord Tenterden as permanent under-secretary of state for foreign affairs. In 1885 he received the grand cross of the Order of St. Michael and St. George. In 1888 he was appointed British ambassador at Washington. Died May 24, 1902.

PAYN, JAMES, was born at Cheltenham, England,

in 1830, and died March 25, 1898. He was educated at Trinity College, Cambridge, where he graduated in 1854. At that date he had already published a volume of verse called *Stories from Boccaccio*, and the next year he published another book of *Poems*. In 1854 he began to write for the *Westminster Review*, and constantly contributed to *Household Words*, until, in 1858, he succeeded Mr. Leitch Ritchie as editor of *Chambers' Journal*, for which magazine he wrote exclusively for many years. In *Chambers'* came out his first novel, *A Family Scapegrace*, and, a few years afterward, *Lost Sir Massingberd*. Mr. Payn's novels became afterward very numerous, and his popularity a growing one. In addition to his works of fiction, Mr. James Payn frequently contributed essays of a humorous type to the *Nineteenth Century* and the *Times*. A collection of such essays from these two periodicals was published in London under the title of *Some Private Views*. His works in the British Museum extend to upward of a hundred volumes. In 1882 Mr. Payn succeeded Mr. Leslie Stephen as editor of the *Cornhill Magazine*.

PAYNE, HENRY B., born in New York State, November 30, 1810; died September 9, 1896. He practiced law in Ohio from 1834. In 1850 he was State senator, and in 1857 was an unsuccessful candidate for governor of the State, being defeated by Salmon P. Chase. During the Civil war he supported the government. He became wealthy from Standard oil investments; in 1875 was elected to congress as a Democrat, and in 1876 served on the electoral commission. In 1884 he was elected United States senator.

PAYNE, JOHN HOWARD, born in New York city, June 9, 1792; died in Tunis, Africa, April 10, 1852. At the age of fifteen he entered Union College, where he remained two years, and during that time published a periodical called *The Pastime*. Payne made his first appearance as an actor at the Park theater in New York city, on February 24, 1809, as "Young Norval," in the play of *Douglas* and repeated the performance in other cities, as the "American Roscius," in the manner of Master Betty of England. Thereafter he appeared in London, at Drury Lane theater, on June 4, 1813, and made a tour through Great Britain, with fair success. For nearly twenty years he was engaged in England, as actor, manager and playwright. Besides translating and adapting French plays for the theaters, he produced *Brutus, or the Fall of Tarquin* (1818), a favorite tragedy; with Edmund Kean and J. B. Booth, compiled several plays on the same subject; also *Clari, or The Maid of Milan*, in which occurs the song of *Home, Sweet Home*. In August, 1832, Payne returned to New York city and engaged in literary and dramatic work, sustaining himself with difficulty. From 1841 until 1845 he was United States consul at Tunis, and in 1851 was reappointed to the same office, which he held until the time of his death. In 1883 his remains were brought to this country.

PAYSON, LEWIS E., was born in Providence, R. I., September 17, 1840; removed to Illinois in 1852; received a common-school education, with two years at Lombard University, Galesburg, Ill.; studied law and was admitted to the bar at Ottawa, Ill., in 1862; removed to Pontiac in January, 1865, where he has since resided, practicing law, was judge of County Court 1869-73; was elected to the forty-seventh, forty-eighth, forty-ninth, and fiftieth congresses, and was reelected to the fifty-first congress as a Republican, receiving 16,878 votes against 14,490 votes for Herman W. Snow, Democrat, and 1,345 votes for M. C. Smith, Prohibitionist.

PEABODY, ELIZABETH PALMER, philanthropist and educator, born in Massachusetts, 1804; wrote many



educational works, became a teacher in Boston in 1822, and was the first to introduce the kindergarten system in this country. Her two sisters married Horace Mann, and Nathaniel Hawthorne. She died January 4, 1894.

PEACOCK, SIR BARNES, born in England in 1810, became a lawyer, was appointed legal member of the supreme council at Calcutta in 1852, and chief justice of the Supreme Court, and vice-president of the legislative council of India in 1859. He resigned his seat on the Calcutta bench in 1870, and died in England, December 5, 1890.

PEALE, CHARLES WILLSON, painter, born in Chestertown, Md., April 16, 1741; died in Philadelphia, Penn., February 22, 1827. From 1768 to 1769 he lived in Boston, Mass., where he received some instruction from J. S. Copley. In 1770 he went to England, where he became a pupil of Benjamin West, and also studied modeling, engraving and miniature painting. In 1774 he established himself as an artist in Annapolis. In 1772 he executed a portrait of Washington in the uniform of a Virginia colonel. In 1776 he went to Philadelphia as a captain of volunteers, and fought at Trenton and Germantown. For fifteen years he was the most noted portrait painter in the United States, and drew many likenesses of prominent Revolutionary characters. In 1802 he opened a museum of natural history in Philadelphia, called Peale's Museum, to which his extensive gallery of paintings became an adjunct. He also assisted in founding the Pennsylvania Academy of Fine Arts, and for seventeen years contributed to its exhibitions.

PEALE, REMBRANDT, painter, born in Bucks county, Penn., February 22, 1778; died October 3, 1860. He was a son of the foregoing. At the age of seventeen he painted a likeness of Washington, after three sittings, and from 1796 until 1801 was a portrait painter in Charleston, S. C. Thereafter he went to London, took lessons of Benjamin West, and painted portraits of notabilities for his father's museum in Philadelphia. He returned to the United States in 1803. In 1807, and again in 1809, he visited Paris for study, and painted many likenesses of eminent Frenchmen for his father's collection. In 1810 he returned home, and opened a studio in Philadelphia. From that time until 1829 he was engaged in portrait painting at Philadelphia, Baltimore, New York, and Boston, thereafter went abroad, visiting France and Italy, and in 1833 visited England. After his return he established Peale's Museum in New York city.

PEARY, ROBERT EDWIN, LIEUTENANT, an American Arctic explorer, born in 1854, was educated at the United States Military Academy, made a journey to Greenland in 1886; sailed in the Kite in June, 1891, making his headquarters at McCormick Bay on the west coast of Greenland, and made many sledge journeys, reaching latitude 82° on the eastern coast and proving the convergence of the east and west coasts of Greenland. He discovered many glaciers, returned in September, 1892, and sailed again in the Falcon in July, 1893, intending to push on from Greenland to the pole. His wife Mrs. Josephine Diebitsch Peary went on the expedition of 1891 and wrote *My Arctic Journal, a Year Among the Ice Fields* (1893).

PEDRO I., DE ALCANTARA, DOM, emperor of Brazil, born in Lisbon, Portugal, October 12, 1798; died there September 24, 1834; was the son of Prince Regent João, who fled to Brazil before French invasion in 1808, but became King of Portugal in 1816, and in 1821 was forced by a revolution to recognize a constitution for Portugal and Brazil. Dom Pedro was left in Brazil as regent, and the Portuguese cortes, believing that his presence in Brazil would eventually cause a sep-

aration between the mother-country and her great colony, ordered his return and relegated Brazil to its former subjection. When the royal decree was promulgated, on December 10, 1821, the people rose and urged that the prince would establish himself permanently and independently in Brazil. Dom Pedro consented, and became "Perpetual Defender of Brazil." On September 7, 1822, he declared the absolute independence of that country. On his twenty-fourth birthday the prince was proclaimed emperor, and crowned on December 1st in the cathedral. In September, 1823, the young emperor's authority was recognized throughout the entire land, and in 1825 Portugal, yielding to the influence of Great Britain, recognized the independence of Brazil. The death of Dom Pedro's father, King John VI. of Portugal, caused the emperor some embarrassment. He seemed disposed to reunite the two monarchies, but found much opposition thereto in the empire, and was eventually compelled to abdicate his claims to the Portuguese throne in favor of his daughter, Maria de Gloria. Several circumstances combined to render the emperor unpopular, and, tired of the cares of royalty, he, on April 7, 1831, abdicated the Brazilian throne in favor of his son, then in his sixth year.

PEDRO II., DE ALCANTARA, ex-emperor of Brazil, born at Rio de Janeiro, December 2, 1825, the son of Dom Pedro I., of Braganza and Bourbon, and of Leopoldina, archduchess of Austria; was proclaimed emperor upon the abdication of his father, in April, 1831, at the age of five years and some months. The government was at first administered by a council of regency, and afterward by one regent. In July, 1840, Pedro was declared of age by the Chambers, and assumed the sovereign power when not quite fifteen. In 1843 he was married to the Princess Theresa Christina Maria, sister of Francis I., late king of Naples; from which union were born two princes, who died young, and two princesses. The firm and judicious attitude he assumed in 1862, in the quarrel which broke out between his government and that of Great Britain, which was settled in his favor by the arbitration of the king of the Belgians, tended greatly to consolidate his power. In 1865 Dom Pedro entered into an alliance with Uruguay and the Argentine Republic against the Paraguayans under Lopez. The war began in 1866, and raged with varying fortunes down to March 1, 1870, when it was brought to a close by the death of Lopez. In 1871 Dom Pedro made the tour of Europe, visiting London, Paris, Florence, Rome, Brussels, and other capitals, and in 1876 he visited the United States. The most important event of his reign was the issuing of an imperial decree, in 1871, for the gradual but total abolition of slavery in Brazil. On November 15, 1889, a peaceful revolution occurred, Brazil became a republic, and Dom Pedro, two days later, left the country. He was granted a pension, but this was afterward stopped. He died December 4, 1891.

PEEL, ARTHUR WELLESLEY, M.P., ex-speaker of the House of Commons, is the youngest son of the late Right Hon. Sir Robert Peel, and was born in 1829. He was educated at Eton and Balliol College, Oxford, and in 1865 entered parliament for Warwick as a liberal, but left that party at the time of the Unionist defection. He was parliamentary secretary to the poor law board from December, 1868, to January, 1871; secretary to the board of trade from 1871 to 1873, patronage secretary to the treasury 1873-74, and under-secretary to the home department for nine months in 1880. On the retirement of Sir Henry Brand in 1884, Mr. Peel was elected speaker, and he continued to hold the post amid general expressions of good-will from all parties, being elected without opposition in

1886 and 1892, until his resignation of the office in April, 1895.

PEEL, SIR FREDERICK, K.C.M.G., second son of the late Sir Robert Peel, born in London, October 26, 1823, and educated at Harrow and Trinity College, Cambridge, where he was first class in classics; was called to the bar at the Inner Temple in 1849, and returned as one of the members in the liberal interest for Leominster in February, 1849; was elected for Bury in July, 1852, and, having been defeated at the general election in March, 1857, was again returned by this constituency at the general election in April, 1859, but was defeated at the general election in July, 1865. He was under-secretary of state for the colonies from November, 1851, till March, 1852, in Lord Russell's first administration; held the same post in the coalition administration under Lord Aberdeen; was under-secretary for war in Lord Palmerston's first administration in 1855, and resigned in 1857; and was secretary to the treasury from 1860 till 1865.

PEEL, SIR ROBERT, BART., G.G.B., eldest son of the late Sir Robert Peel, born May 4, 1822; was educated at Harrow and at Christ Church, Oxford. He was attaché to the British embassy at Madrid from June, 1844, till May, 1846, when he was appointed secretary to the British Legation in Switzerland; became *chargé d'affaires* in November, 1846, and retired in December, 1850. He was a lord of the admiralty from February, 1855, till May, 1857, and was chief secretary for Ireland from July, 1861, till December, 1865. Sir R. Peel was returned one of the members, in the Liberal interest, for Tamworth, soon after the death of his father, whom he succeeded in the baronetcy, July 2, 1850, and retained the seat till March, 1880. He took a prominent part in the debates of the House of Commons, especially on Irish questions, and subjects affecting the foreign policy of the country. He sat as a Conservative for Huntingdon in 1884-85, and for Blackburn from 1885-86. At the general election of 1886 he stood as a Home Ruler for Inverness Burghs, but was defeated. He died May 9, 1895.

PEFFER, WILLIAM ALFRED, Senator, of Topeka, Kansas, was born on a farm in Cumberland county, Pennsylvania, September 10, 1831; was teacher and farmer, enlisted as a private in the Eighty-third Illinois Infantry, in 1862, becoming Second Lieutenant, Judge-Advocate of a Military Commission, and Depot Quartermaster at Nashville; studied law, settled in Kansas in 1870, practiced law and established and conducted several newspapers, was elected to the State senate in 1874 as a Republican, but became a populist and as such was elected to the U. S. Senate in 1891.

PEGRAM, ROBERT BAKER, born in Virginia, December 10, 1811; entered the United States navy in 1829, and became lieutenant in 1841. At the beginning of the Civil war he went over to the South and assisted in fitting out what was to be the "Virginia volunteer navy." He commanded the *Nashville*, a vessel which did considerable harm to American commerce.

PEIRCE, BENJAMIN, born in Salem, Mass., April 4, 1809; died October 6, 1880. He graduated in 1829 at Harvard, where he became professor of mathematics and natural philosophy, and afterward of astronomy, holding the latter chair until his death. Professor Peirce was for many years connected with the United States coast survey and made several valuable observations of eclipses and other celestial phenomena. He achieved great note as a mathematician, was a member of the American Academy of Arts and Sciences, of the Royal Astronomical Society, and of many other learned bodies, and wrote standard mathematical text-books.

PEIXOTO, FLORIANO, MARSHAL, Brazilian soldier and politician, born April 30, 1826, took part in the revolution of 1889, was elected vice-president of the new republic in 1890 and on Fonseca's forced resignation, November 23, 1891, became president. Fear that Peixoto intended to succeed himself led to a revolt of the naval force in September, 1893, under Admirals Mello and DeGama which he suppressed in April, 1894. In the meantime Prudente Moraes had been elected president and Peixoto retired from office November 15, 1894. He died June 29, 1895.

PELHAM, JOHN THOMAS, D.D., 89th bishop of Norwich, born June 21, 1811; was educated at Westminster and Christ Church, Oxford; became successively rector of Burgh Apton, Christ Church, Hamstead, and Marylebone, and was consecrated bishop of Norwich in 1857, resigning in 1893. He died May 1, 1894.

PELLETIER, CHARLES ALPHONSE, born in Quebec, January 22, 1837; became a lawyer and member both of the Quebec Assembly and of the Dominion Parliament, was minister of agriculture in 1877, and in the same year was called to the senate.

PELLY, SIR LEWIS, English soldier, born in 1825, served in India, went on a special mission through Afghanistan, and Beloochistan, in 1860 and 1861; became political agent at Zanzibar in 1861 and 1862, and political resident in the Persian Gulf in 1862. He was appointed agent to the governor-general and chief commissioner to the states of Rajpootana in 1873, and having been sent as special commissioner to Baroda, arrested the guicowar, and took charge of the state in 1874. He became envoy extraordinary and plenipotentiary for Afghan affairs, entered parliament and died April 25, 1892.

PEMBERTON, JOHN CLIFFORD, soldier, born in Philadelphia, Penn., August 10, 1814; died in Penllyn, Penn., July 13, 1881. He was graduated at the United States Military Academy at West Point, was assigned to artillery, served against the Seminole Indians in Florida in 1837-39, and on the northern frontier during the Canadian disturbances in 1840-42. On March 19, 1842, he was promoted first lieutenant, served as aide to General Worth in the Mexican war, took part in the engagements at Monterey and Molino del Rey, and at the close of the war was brevetted captain. On the outbreak of the Civil war he resigned his commission in the United States army, and was appointed lieutenant-colonel of Virginia's State troops in the Confederate army. On June 17th he became brigadier-general, and on February 13, 1862, was promoted major-general. He commanded the departments of South Carolina, Georgia, and Florida, with headquarters at Charleston, S. C. On October 13, 1862, he was made lieutenant-general, and given charge of the department which comprised Mississippi, Tennessee, and eastern Louisiana. He was intrusted with the defense of Vicksburg, and in his attempt to keep open the way for reinforcements by Johnston's army, was defeated at Champion Hills on May 16, 1863. Thereafter he was shut up in the fortifications of Vicksburg until July 4, 1863, when he was compelled to surrender his large army to General Grant. After being exchanged he resigned his command, and became inspector of ordnance at Charleston, S. C., with the rank of colonel, and served as such until the end of the war. Later he spent some time on a farm at Warrenton, Va., but in 1876 located in Philadelphia, the home of his family.

PEMBROKE, EARL OF, GEORGE ROBERT CHARLES HERBERT, eldest son of Lord Herbert of Lea (Sidney Herbert), was born July 6, 1850, and educated at Eton. From 1867 to 1870 he traveled in New Zealand and Australia, and the South Seas, and wrote, conjointly



with Dr. George Kingsley, *South Sea Bubbles*, 1871, and *Roots* in 1872, besides various articles. From 1874 to 1875, in Mr. Disraeli's government, he was under-secretary of State for war. He died May 3, 1895.

PENDLETON, GEORGE HUNT, born in Cincinnati, Ohio, July 15, 1825; died in Belgium, November 24, 1889. He practiced law in Cincinnati, served in the State senate, and from 1856 until 1865 sat in congress as a Democrat. In 1864 he was nominated for vice-president of the United States on the Democratic ticket, headed by George B. McClellan. From 1879 until March, 1885, he was United States Senator from Ohio, and in the latter year was appointed, by President Cleveland, minister to Germany.

PENDLETON, WILLIAM NELSON, born in Richmond, Va., December 26, 1809; died January 15, 1883. He was graduated at West Point in 1830, was professor of mathematics there and afterward in Bristol College, Tenn., but resigned to enter the Protestant Episcopal ministry in 1837. When the Civil war broke out he joined the Confederate army as captain of artillery, and was given charge of the artillery arm of the army of the Shenandoah. He served throughout the war, and then returned to Lexington, Va., where he assumed charge of the high school.

PENGELLY, WILLIAM, F.R.S., F.G.S., was born in Cornwall, England, January 12, 1812. He is the author of several memoirs and papers on *Rainfall*, *The Devonian and Triassic Rocks of Devonshire*, the ossiferous caverns and the submerged forests of the same county, and (conjointly with Doctor Heer, of Zürich) of a monogram on *The Lignite Formation*. He collected and arranged the Devonian fossils, which, under the name of the "Pengelly Collection," were lodged in Oxford University Museum by the Baroness Burdett-Coutts, in connection with the Burdett-Coutts geological scholarships. He died March 16, 1894.

PENNELL, HENRY CHOLMONDELY, born in England, in 1837, was appointed one of the inspectors of fisheries in 1866, and in 1875, director-general of commerce for the interior in Egypt. Mr. Pennell wrote *Puck on Pegasus*, *Crescent*, *Modern Babylon*, *The Muses of Mayfair*, *Pegasus Re-saddled* and other poetry, besides works on angling and ichthyology.

PEPPER, GEORGE D. B., born in Ware, Mass., February 5, 1833; graduated at Amherst in 1857, and was ordained in the Baptist faith. He held a pastorate in Waterville, Me., and later was professor of ecclesiastical history at Newton Theological Seminary. In 1882 he became president of Colby University.

PEPPERRELL, SIR WILLIAM, born in Kittery, Me., June 27, 1696; died there July 6, 1759. At the age of twenty-one he was appointed captain of a company of cavalry and at the age of thirty was advanced to a colonelcy. In 1730 Governor Belcher appointed him chief justice of the Court of Common Pleas, which office he retained until his death. In 1745 Colonel Pepperrell was appointed to command the New England expedition against Louisburg on the island of Cape Breton, and, supported by the fleet of Commander Warren, on June 17th captured it. After the declaration of peace between England and France Sir William retired from active life.

PERCIVAL, JAMES GATES, born in Kensington, Conn., September 15, 1795; died in Hazel Green, Wis., May 2, 1856. In 1815 he was graduated at Yale, at the head of his class. After leaving college he taught school for a time, studied medicine, and practiced in Charleston, S. C. In 1822, while in the last-named place, he published *Prometheus* and *Clio*. In 1824 Doctor Percival was appointed assistant army surgeon and professor of chemistry at the United States Military

Academy, but resigned after a few months to become a surgeon in the recruiting service at Boston. At that time he contributed to the *United States Literary Magazine*, and published a collection of his *Poems* (2 vols., New York, 1826). In 1827 he removed to New Haven, Conn., where he published the third part of his tragedy, *Clio*. In 1834 he made a particular study of geology, and in the year following was appointed to make a geological and mineralogical survey of Connecticut, in connection with Prof. Charles U. Shepard. In 1843 he published his *Dream of a Day*. In 1853 he surveyed the lead region of the American Mining Company in Wisconsin, and in 1854 was appointed geologist of that State. A complete collection of his *Poems* was published in two volumes (Boston, 1859).

PERCIVAL, JOHN, LL.D., born in England about 1835, was educated at Oxford, where he was scholar of Queen's College from 1854 to 1858, and fellow of the same college from 1858 to 1862. From 1860 to 1862 he was master at Rugby School, and was then appointed first head-master of Clifton College. He served here until 1878, when he was elected president of Trinity College, Oxford. A few years later he was made a canon of Bristol. Doctor Percival was appointed head-master of Rugby School, in succession to Doctor Jex-Blake in 1886.

PERCY, JOHN, M.D., F.R.S., born at Nottingham, England, in 1817; was educated in Paris and in Edinburgh, where he was a pupil of Sir C. Bell, and where he graduated M.D. For some years he was in medical practice at Birmingham. Doctor Percy was appointed in 1851 professor of metallurgy in the Government (now Royal) School of Mines, and he held that office till December, 1879. He was the author of an important work on *Metallurgy, or the Art of Extracting Metals from their Ores, and adapting them to the various Purposes of Manufacture*, with illustrations, published in 1861; *The Metallurgy of Gold, Silver, and Lead*, 1869; and *The Metallurgy of Lead, including Desilverization and Cupellation*, 1871. The Iron and Steel Institute, on January 25, 1877, awarded their Bessemer medal to Doctor Percy for his works on metallurgy, especially those on iron and steel. He died June 19, 1889.

PEREZ GALDOS, BENITO, a Spanish novelist, was born in 1845, at Las Palmas in the Canary Isles. As a writer of fiction he first distinguished himself by the publication of two historical romances relating to the state of Spain in 1820 and 1804, and entitled, respectively, *La Fontana de Oro* (Madrid, 1871) and *El Audace*. Next, in imitation of MM. Erckmann-Chatrain, he published two series of *Episodios Nacionales*, the first dealing with subjects taken from the war of Independence against Napoleon, and the second describing the struggle of Spanish liberalism against the tyranny of Ferdinand VII. These novels achieved a great success in Spain, and were also widely read in Spanish America. He died in April, 1897.

PEREZ, SANTIAGO, was born in Colombia, South America, in 1830 and engaged in journalism and politics at an early age. He was elected to congress in 1863 as a Liberal and the next year became secretary of the interior. Afterward he sat in the senate, from 1870 until 1872 was minister to the United States, and from 1874 until 1876 president of Colombia. He served another term as minister at Washington and has since devoted himself to literature, having published dramas and poetry as well as scientific writings.

PERRY, ARTHUR LATHAM, a prominent political economist of the free trade school, born at Lyme, N. H., February 27, 1830, published *Political Economy* (1867); and has for many years been professor of economics and history at Williams College.



PERRY, CHARLES, D.D., born in 1807, and educated at Trinity College, Cambridge, held a parochial cure in Cambridge and was Bishop of Melbourne from 1847 until he resigned in 1876. He died Dec. 2, 1891.

PERRY, MATTHEW CALBRAITH, born in Rhode Island, April 10, 1794; died in New York city, March 4, 1858. He was a younger brother of Com. Oliver Hazard PERRY (q. v.), and one of five brothers, all of whom served in the United States navy. His father was captain in the navy and eventually became collector of Newport, R. I. In 1809 Matthew became midshipman, and in 1813 was made lieutenant. In 1819 he selected the locality for the first settlement of Monrovia, under instruction from the American Colonization Society, and, later, was active in the war with Mexico, taking part in the siege of Vera Cruz. In 1841 he was made commodore. He formed the first United States naval brigade of sailors trained as infantry, that captured Tuspan, Tabasco, and Laguna. In 1853 Commodore Perry organized and commanded the famous expedition to Japan that opened that country to intercourse with the civilized world. On his return a report of the expedition was published by the United States government, in three volumes, entitled *Report of Commodore Perry's Expedition to Japan* (Washington, 1856). A bronze statue to his memory has been erected at Truro Park, Newport, R. I.

PERRY, OLIVER HAZARD, naval officer, born in South Kingston, R. I., August 23, 1785; died in Port Spain, Trinidad, August 23, 1819. On April 7, 1799, he received his commission as midshipman, and on January 15, 1807, was promoted lieutenant. After building a fleet of gunboats, he commanded the schooner *Revenge*, that, in 1810, cruised off the southern coast of the United States. This vessel was wrecked on a reef near Watch Hill, R. I., January 8, 1811, but Perry was honorably acquitted of neglect or carelessness by a court of inquiry. Thereafter he repeatedly applied for a command at sea, which was refused, and eventually offered his services to Com. Isaac Chauncey on the lakes, who ordered him for duty to Lake Erie. Here, at Erie, he superintended the building of a number of small vessels, the largest of which were of 500 tons burden, with which he expected to encounter the British flotilla, under Captain Barclay. Perry's squadron consisted of nine vessels of 1,671 tons, with 54 guns. On the British side Capt. Robert Heriot Barclay had a flotilla of six vessels of 1,460 tons, manned by 450 men and 63 pieces of cannon. On September 10, 1813, the American forces moved out of Put-in-Bay for action, and after a hard-fought contest, on the afternoon of that day the British flotilla surrendered. Captain Barclay was wounded in the action. Congress bestowed on Perry the rank of captain, and the British, having lost control of Lake Erie, evacuated Detroit. Perry served in the Mediterranean under Decatur, and in 1819 was sent, in command of a squadron, to the Caribbean Sea, where, on the Orinoco river, he died of yellow fever.

PERRY, STEPHEN JOSEPH, F.R.S., born August 26, 1833, in London; received his classical education in the English College at Douay, following it with a course of mental philosophy at Rome. He entered the Society of Jesus in November, 1853, and afterward studied higher mathematics at Stonyhurst, London, and Paris. He was appointed in September, 1860, director of the Meteorological and Astronomical Observatory of Stonyhurst College. He was elected a fellow of the Royal Society in June, 1874, and served for several years on the councils of the Astronomical and Meteorological Societies. He died January 4, 1890.

PETERS, CHRISTIAN HENRY FREDERICK, born

in Schleswig, September 19, 1813, came to the United States in 1853 and entered the Coast Survey. He was the first director of the Litchfield Observatory at Hamilton College, and one of the most successful observers of astronomical phenomena. He was a member of the National Academy of Sciences and of numerous scientific societies. He died in 1890.

PETO, SIR SAMUEL MORTON, BART., born at Woking, England, August 4, 1809. He constructed a large portion of the leading railway-works in England, and was engaged in the formation of a large railway in Canada. Among his most important works were the Norwegian Grand Trunk line and the Royal Danish line. Toward the close of 1854 he undertook, without prospect of profit, the construction of a railway from Balaklava, in the Crimea. He was returned as one of the members in the advanced Liberal interest for Norwich in August, 1847, and again at the general election in July, 1852, and retired in December, 1854. He was elected one of the members for Finsbury in April, 1859, and at the general election in July, 1865, exchanged his seat for Bristol, but retired from parliament in April, 1868, in consequence of the bankruptcy of the firm of Peto, Betts and Crampton, with liabilities of above \$35,000,000. He died November 13, 1889.

PETRIE, W. M. FLINDERS, Egyptologist, was born in 1853 in England. From 1875 to 1880 he was employed in exploring and measuring British earthworks, and in 1880 published *Stonehenge*. The years 1881 and 1882 were spent in Egypt, measuring, surveying, and photographing the pyramids and temples of Ghizeh. An account of this expedition was published in 1883. In 1884 he again visited Egypt, this time as explorer to the Egypt Exploration Fund; and excavated the mounds of San, the *Zoar* of Scripture. Mr. Petrie's memoir on *Tanis*, part I., with plans and illustrations, was published by the committee in 1885. He again went out in the same capacity, and discovered the site and ruins of the long lost Græco-Egyptian city of Naukratis, in the Delta. His third expedition resulted in the discovery of the sites of Am, and of Defenneh. He discovered the site of Lachish in 1891 and made some marvelous discoveries at Tel-el-Amarna in 1892.

PETTIGREW, JAMES BELL, was born at Roxhill, Lanarkshire, Scotland. In 1861 he graduated in medicine at Edinburgh University with first class honors. In 1858-59 he was awarded Prof. John Goodsir's senior anatomy gold medal for the best treatise *On the Arrangement of the Muscular Fibers in the Ventricles of the Vertebrate Heart*. In 1862 he obtained the post of assistant curator of the Hunterian Museum of the Royal College of Surgeons of London. In 1869 he was made a fellow of the Royal Society of London, and, in the autumn of that year, he returned to Edinburgh, having been appointed curator of the Museum of the Royal College of Surgeons of Edinburgh, and pathologist to the Royal Infirmary of Edinburgh.

PEYTON, JOHN LEWIS, LL.B., F.R.G.S., was born September 15, 1824, in Virginia. At the age of fifteen he was sent to the Virginia Military Academy. In 1848 he traveled through Canada, the Maritime Provinces, and in the Northwest States and Territories, and in 1851 was sent by the United States Government on special service to the courts of England, France, and Austria. He returned to the United States in 1853, and, after spending a few years in Illinois, retired in 1856 to his Virginia estate. He was chief of the staff of General Layne in 1854, and in the same year declined the offered position of United States district attorney of Utah. In 1861 he devoted his property to the Southern cause, and engaged in raising and equipping a regiment for the Confederate army. Unable, from a



severe injury, to take command, he accepted the position of agent for North Carolina in Europe. After an absence of fifteen years in Europe, Colonel Peyton returned to the United States in 1876, and resumed his residence at Steephill, near Staunton, Augusta county, Va., where he engaged in literary and scientific pursuits.

PHEAR, SAMUEL GEORGE, D.D., master of Emmanuel College, Cambridge, was born March 30, 1829, in England; entered Emmanuel College, Cambridge, in 1848, and graduated B.A. as fourth wrangler, January, 1852. He became fellow and afterward tutor of his college, and was elected master October 2, 1871. He filled the office of vice-chancellor of the university for the successive years 1875-76.

PHELPS, EDWARD JOHN, born in Middlebury, Vt., July 11, 1822, and died March 9, 1900. In 1851 he was appointed second comptroller of the United States treasury. In 1881 he became professor of law at Yale, a chair he has since filled except while minister to England, 1885-89. He was of counsel for the United States on the Bering Sea question in 1893.

PHELPS, ELIZABETH STUART, born in Andover, Mass., August 13, 1844; has written many books, of which *The Gates Ajar* is the best known. She married Rev. H. S. Ward in 1888.

PHELPS, WILLIAM WALTER, born in New York city, August 24, 1839; graduated at Yale and at the Columbia Law School, and practiced law in New York. In 1874 he entered congress from New Jersey as a Republican. He was defeated for reelection, and in 1881 was sent as minister to Austria. In 1882 he was again elected to congress, and was reelected in 1884 and 1886. In 1889 President Harrison nominated him as minister to Germany, where he remained four years. He died June 17, 1894.

PHILIP, Indian chief, born in Rhode Island about 1625; died near Mount Hope, R. I., August 12, 1676. His Indian name was Metacomet; but he is usually spoken of as King Philip. He was the son of Massasoit, sachem of the Wampanoags. He lived at Pokanoket, and for a time maintained friendship with the whites; but in 1670 there were rumors of his disaffection, and in the following year an attempt was made to disarm the Indians. John Sausamon, a Christianized Indian, who had given secret information of the hostile movements on the part of the Wampanoags, was killed, and, when his assassins had been tried and executed, the Indians slew several whites. Philip, seeing that the steady advance of the whites was caused by their unity of action, prevailed on the Narragansetts and other tribes to form an alliance for the purpose of exterminating the English colonists. In December, 1675, Captain Winslow marched with 1,000 armed men against the stronghold of the Narragansetts, and destroyed it. In the spring of that year the war raged with great fury; thirteen towns, with 600 buildings, were burned and 600 colonists slain. But gradually the Indians were overpowered, and Philip, with a few of his followers, sought refuge in the wilds near Mount Hope, R. I. His presence there was betrayed by one of his tribe, when he was surrounded by a body of troops under Captain Church, and, on attempting to escape, was shot dead on August 12, 1676.

PHILLIPS, GEORGE, D.D., president of Queen's College, Cambridge, was born in 1804. He entered at Queen's College, Cambridge, in 1825, where he took the degree of eighth wrangler in 1829. He was ordained deacon in 1830, and priest in 1832. In the year 1832 he was elected fellow and assistant tutor of his college. In 1835 he became senior tutor, and continued in the office till 1846, when he was appointed to

the rectory of Sandon, Essex. This preferment he held till 1857. In that year he was invited to return to Cambridge to be president of his college. He took the degree of B.D. in 1839, and of D.D. in 1858. He was vice-chancellor in 1861-62. He died in 1892.

PHILLIPS, JOHN, one of the most celebrated portrait painters of recent years, was born in Paisley, Renfrewshire, Scotland, May 8, 1822, and died at Helena, Mont., July 25, 1890. He emigrated to America in 1838, and for four years worked on a farm near Rochester, N. Y. About 1842 he started on his career as an artist, and in a comparatively brief period attained to professional eminence. In 1852 he visited Europe, and, after two years of study, returned to New York, where he opened a studio. During the winter of 1858 he was in Cuba, engaged on the portrait of General Concha, and in the spring of 1861 he was called to Montreal upon professional business. In 1868 he located in Chicago, where he became a member of the Academy of Design, and by his work speedily established himself as one of the leading portrait painters in America. About 1886 he removed west, and up to the date of his death was engaged in artistic work, and, to some extent, in mining operations. His gallery of paintings embraced the portraits of William H. Seward, Thomas Ewing, Wilbur F. Storey, Christine Nilsson, Brigham Young, Henry M. Stanley, and many other distinguished Americans and foreigners.

PHILLIPS, LAWRENCE BARNETT, was born in London, January 29, 1842. In 1861 he started in business as a watch and chronometer manufacturer, since which time he has constructed some of the most complicated and highly finished specimens of the horological art, and by the invention of various forms of mechanism has done much toward the introduction of keyless watches, and the simplification of chronographs and calculating machines. He retired from business in 1882. In November, 1865, he was elected a fellow of the Royal Astronomical Society, and in March, 1885, a fellow of the Society of Antiquaries.

PHILLIPS, WENDELL, a famous orator, born in Boston, Mass., November 29, 1811; died there February 2, 1884. He graduated at Harvard, 1831, and began to practice law, 1834. On December 8, 1837, he made his first address in public as an avowed abolitionist. In 1864 Mr. Phillips opposed the reelection of Abraham Lincoln. In later years Mr. Phillips became a champion of the cause of temperance, claimed the ballot for women, advocated the rights of Indians, and endeavored to improve the penal institutions of the country. In 1881 he delivered an address at the centennial anniversary of the Phi Beta Kappa Society of Harvard. His last public address was delivered at the unveiling of a statue of Miss Harriet Martineau, at the old South Church in Boston, December 26, 1883.

PHILPOTT, HENRY, D.D., bishop of Worcester, born in England, November 17, 1807, was educated at the Cathedral Grammar School, Chichester, and at St. Catherine's College, Cambridge, where he graduated B.A., as senior wrangler, and a first class in the classical tripos in 1829. He was elected fellow of his college, and held the office of assistant tutor and tutor till his election to the mastership of the college in 1845. He filled the office of moderator in the university in 1833-34, and 1836; that of examiner for mathematical honors in 1837-38, and that of proctor in 1834-35. In 1861 he was consecrated bishop of Worcester. He died January 10, 1892.

PHIPS, SIR WILLIAM, governor of Massachusetts, born in Bristol, Me., February 2, 1651; died in London, England, February 18, 1695. Young Phips, at first, was a shepherd boy, and at the age of eighteen



was apprenticed to a ship-carpenter. He built a vessel and engaged in commerce. In 1684 he went to England to procure means to recover treasure from a Spanish vessel wrecked on one of the West India islands, but was unsuccessful in interesting capitalists in the scheme. In 1687 a second attempt was made, under the patronage of the duke of Albemarle, when he recovered valuables amounting to £300,000 sterling. His share in this enterprise amounted to £16,000, and gained him the distinction of knighthood. In May, 1690, he commanded an expedition against Port Royal, in Nova Scotia, which he captured. In 1692, while in England, he was appointed governor of Massachusetts. His administration was made notorious by the delusion of the Salem witchcraft. At first he became a busy persecutor, but, eventually, signed a pardon to all accused of sorcery. In 1694 Governor Phips was summoned to England to answer several accusations brought against him for personal assaults on persons of distinction.

PHYSICK, PHILIP SYNG, surgeon, born in Philadelphia, Penn., July 7, 1768; died there December 15, 1837. He graduated in 1785 at the University of Pennsylvania, was a private pupil of Dr. John Hunter in London and practiced in Philadelphia from 1793, holding many important posts, becoming a member of foreign societies and introducing many important improvements in surgery.

PIATT, DONN, soldier and journalist, born in Cincinnati, Ohio, June 29, 1819, was Judge of Hamilton county, 1851, secretary of legation in Paris under Minister John Y. Mason and *charge d'affaires* on his death; stumped Illinois with Robert E. Schenck for Lincoln in 1860 and was colonel on General Schenck's staff in the war. He was Judge advocate of the commission that tried General Don Carlos Buell, and after the war represented the Cincinnati *Commercial* and was for many years dean of the corps of correspondents there. He became editor of *Belford's Magazine*, New York, in 1888, and wrote *Memoirs of the Men Who Saved the Nation*. He died November 12, 1891.

PIATT, JOHN JAMES, born in Milton, Ind., March 1, 1835. In 1856 he removed to Illinois, and became a contributor of poems to the *Louisville Journal*. In 1860, in connection with William D. Howells, he published in Columbus, Ohio, *Poems of Two Friends*, and in 1861 became clerk in the United States treasury department at Washington, where he remained six years. In 1867 he engaged in newspaper work at Cincinnati, Ohio, in 1870 returned to Washington as clerk in congress, and in 1872 was made librarian of the House of Representatives. Since 1882 Mr. Piatt has been United States consul at Cork, Ireland.

PICKENS, ANDREW, soldier, born in Paxton, Penn., September 19, 1739; died in Pendleton district, S. C., August 17, 1817. In 1752 his parents removed to Waxhaw, S. C. In 1761 Andrew served as a volunteer against the Cherokees, and at the outbreak of the Revolution became a captain of militia. During the Revolutionary struggle he took part in a number of skirmishes with the British and Cherokee Indians, and was advanced to the rank of brigadier-general. At the battle of Cowpens, January 17, 1781, he commanded the militia, and later invested the British forts at Augusta, Ga., which surrendered after two weeks' siege. He also took part in the battle of Eutaw Springs, and in 1782 led a successful expedition against the Indians, for which he obtained a large cession of territory. From December 2, 1793, until March 3, 1795, he served in congress. He was made major-general of militia in 1795.

PICKERING, TIMOTHY, statesman, born in Salem, Mass., July 17, 1745; died there January 29, 1829. He was graduated at Harvard in 1763, studied law, and

was admitted to practice in 1768. For some time he was register of deeds in Essex county, and in 1775 was elected colonel of militia. In the same year he was appointed judge of the marine court for Suffolk, Essex, and Middlesex counties. He served in the Revolutionary war as colonel in 1777, was appointed adjutant-general, and in 1780, quartermaster-general. On the conclusion of peace, Colonel Pickering became conspicuous for his opposition to the vindictive policy that drove so many citizens to settle in Canada and Nova Scotia. He served as postmaster-general (1791-94), secretary of war (1794-95), and secretary of state (1795-1800). In 1803 he was elected to the United States Senate and during the war of 1812 was a member of the board of war of Massachusetts. Later he was a member of congress for a single term.

PICKERSGILL, FREDERICK RICHARD, R.A., nephew of the late Henry-William Pickersgill, R.A., born in London in 1820, studied at the Royal Academy. His first production, *The Combat between Hercules and Achelous*, an oil painting exhibited in 1840, was followed by a prize cartoon of *The Death of King Lear*, exhibited in Westminster Hall in 1843; and the *Burial of Harold*, a picture for which he received a first-class prize in 1847, and which was immediately purchased for the new houses of parliament. Mr. Pickersgill was for many years a regular exhibitor. In 1847 he was elected A.R.A., and in 1857 was promoted to the rank of academician. Died Dec., 1900.

PICKETT, GEORGE EDWARD, soldier, born in Richmond, Va., January 25, 1825; died in Norfolk, Va., July 30, 1875. He was graduated from the United States Military Academy in 1846, served in the war with Mexico and was promoted captain. He became a colonel in the Confederate army; was promoted brigadier-general in February, 1862, wounded at the battle of Gaines Mills and promoted major-general. At Fredericksburg, his division held the center of General Lee's line, and he led the famous final assault at Gettysburg, entering the Union lines, but, left without adequate support, his troops were hurled back and almost annihilated. In May, 1864, General Pickett defended Petersburg, attacked Gen. Benjamin F. Butler's army and captured his works. At Five Forks on April 1, 1865, General Pickett's forces were surrounded and overwhelmed. After the war he returned to Richmond.

PICO, DON PIO, born in 1801, died September 11, 1884; was the Mexican governor of California when it was seized by the United States in 1846.

PIERCE, GILBERT ASHVILLE, born in East Otto, N. Y., enlisted in the 9th Indiana volunteers, 1861, and fought through the war, becoming colonel. He was a member of the Indiana legislature in 1868; assistant financial clerk of the United States Senate, 1869-71; managing editor of the *Chicago Inter-Ocean*, 1871-83; and in July, 1884, was appointed governor of Dakota, resigning in 1886. He was elected United States Senator by the legislature of the State of North Dakota in 1889, serving two years, and has since been in the newspaper business in St. Paul, Minn.

PIEROLA, GEN. NICHOLAS DE, born at Arequipa, Peru, January 5, 1839, became a lawyer and politician and in 1869 was appointed minister of finance. He was impeached, and, although acquitted, went to Chili, and in 1874 and 1877 organized unsuccessful expeditions against Peru. At the outbreak of the Chilian war his proffered services were refused by president Prado but after Prado fled in 1879 General Pierola assumed charge of affairs in Peru, retiring from the presidency after his final defeat in 1881. He tried to seize the presidency in 1885, but was banished and was a candidate in 1894.



**PIERPONT, JOHN**, born in Litchfield, Conn., April 6, 1785; died in Medford, Mass., August 26, 1866. He was graduated at Yale in 1804. In 1809 he returned to Litchfield, studied law, was admitted to the bar in 1812, and practiced law in Newburyport, Mass. In 1816 Mr. Pierpont began the study of theology in Baltimore, and afterward at the Cambridge Divinity School. In April, 1819, he was ordained minister of the Hollis street Unitarian Church in Boston, and in 1835 made a tour through Europe and Palestine. On his return he resumed his pastoral relations, and continued in Boston until 1845. Thereafter, for four years, he was pastor of a church in Troy, N. Y., and on August 1, 1849, was settled over the Congregational Church in Medford, Mass., from which he retired in 1856. He was a zealous apostle of temperance and anti-slavery.

**PIERREPOINT, EDWARDS**, born at North Haven, Conn., March 4, 1817; was admitted to the bar from the New Haven Law School in 1840, and practiced in New York until elected to the Superior Court bench from that city (1857). In 1860 he resigned his seat to resume practice. He was a member of the judiciary committee of the New York State Constitutional Convention in 1867, and in the same year conducted the case of the government against John H. Surratt, indicted for aiding in the murder of President Lincoln. Mr. Pierrepoint received the honorary degree of LL.D. in 1871 from Columbia College, and from Yale College in 1873. From 1869 to 1870 he was United States District Attorney for New York, and in 1873 he was appointed minister to Russia, but declined the honor. In April, 1875, he was appointed attorney-general of the United States, and in 1876 envoy-extraordinary and minister-plenipotentiary to the Court of St. James. He resigned that office in December, 1877. He died March 6, 1892.

**PIKE, ALBERT**, a native of Boston, Mass., was born December 29, 1809, and removed to St. Louis in 1831. There he joined an expedition to Santa Fé, finally settling at Little Rock, Ark., where he became editor and proprietor of the *Arkansas Advocate*. In 1836 he abandoned journalism to engage in the practice of the law, and from 1840 to 1845 published the reports of the Supreme Court of Arkansas. He served during the Mexican war as a volunteer, and participated in the battle of Buena Vista. At the beginning of the Civil war he was appointed Confederate commissioner and negotiated an alliance with a number of Indian tribes, in command of which he took part in the battles of Elkhorn and Pea Ridge. After the close of hostilities he returned to Little Rock, whence he removed to Memphis in 1866, becoming editor of the *Appeal* in that city during the year following, and in 1868 became a resident of Washington, D. C. He died April 2, 1891.

**PIKE, ZEBULON MONTGOMERY**, was born at Lambert, N. J., January 5, 1779, and educated at Easton, Penn. In 1805 he engaged on an expedition to ascertain the source of the Mississippi river. The two following years were passed by him in exploring the territory of Louisiana, discovering, while thus occupied, what has since been known as "Pike's Peak," in the Rocky Mountains. Early in life he became an ensign in the army, from which he was promoted, through various gradations, until he became brigadier-general, March 12, 1813, and was placed in command of the expedition against Toronto (York), Upper Canada. During the same year he was killed in the explosion of a powder magazine. He was the author of *The Sources of the Mississippi*, issued in 1810 at Philadelphia.

**PILLOW, GIDEON JOHNSON**, a native of Williamson county, Tenn., born June 8, 1806; graduated at the University of Nashville in 1827, and soon after com-

menced the practice of law at Columbia, Tenn. In 1844 he was prominent in Tennessee and national politics, and during 1846 commanded the Tennessee troops in the Mexican war, participating in the capture of the city of Mexico. The year following he was promoted to be major-general, and, having differed with General Scott in respect to the convention of Tacubaya, was charged with insubordination, but trial by court-martial resulted in his complete vindication. After the war General Pillow divided his time between the practice of law and planting, also devoting considerable attention to politics. At the National Democratic Convention of 1852 he was a candidate for vice-president, and received twenty-five votes. When the war between the States was inaugurated he was appointed to the command of the State forces, and aided in the organization of the Tennessee soldiers. He served at the battle of Belmont, Mo., November 7, 1861, and was next to Gen. John B. Floyd in the command of Fort Donelson, but escaped before the surrender of that fortress. He never afterward had an important command, though he continued in the Confederate service to the close of the war, and died in Lee county, Ark., October 6, 1878.

**PINCHBACK, P. B. S.**, born of African parents in Macon, Ga., May 10, 1837. He was sent to school at Cincinnati, Ohio, in 1846, but two years later, his father dying, he left school to become a boatman. He enlisted in the Union army at New Orleans in 1862, and was detailed to assist in raising a regiment, but owing to his color he was forced to resign, September 3, 1863. Subsequently he was authorized by Gen. Nathaniel P. Banks to raise a company of colored cavalry. In 1867 he was made inspector of customs at New Orleans, was elected State senator in 1868, and in 1869 was appointed register of the land office. He established the *New Orleans Louisianian* in 1870, and in the following year was elected president *pro tem.* of the State Senate and lieutenant-governor to fill the vacancy caused by the death of Oscar Dunn. He was nominated for governor in 1872, but in the interest of party peace withdrew and was elected to congress on the same ticket. In 1873 he was chosen United States senator, but after three years' debate was disallowed his seat. In the same year he was appointed a commissioner to the Vienna exposition from Louisiana. Mr. Pinchback became surveyor of customs at New Orleans in 1882, and was appointed by Governor McEnery in 1883 and 1885 trustee of Southern University. He graduated in the law department of Straight University, New Orleans, and was admitted to the bar in April, 1886.

**PINCKNEY, CHARLES COTESWORTH**, born at Charleston, S. C., February 25, 1746, and died at the same place August 16, 1825. He was educated at Oxford and the Middle Temple, served with distinction in the American Revolutionary army, was one of the envoys to France in 1797, and was the Federalist candidate for the presidency in 1804 and 1808.

**PINCKNEY, CHARLES**, American statesman, was born at Charleston, S. C., March 9, 1758. He was admitted to the bar in 1779, was a delegate to the Continental congresses, 1777-78 and 1784-87; a delegate to the Federal convention of 1787; governor of South Carolina, 1789-92 and 1796-98; United States senator (Democrat), 1797-1801; minister to Spain, 1803-5; governor of South Carolina, 1806-8; member of the State legislature, 1810-14; and member of the House of Representatives, 1819-21. He died at Charleston, February 25, 1822.

**PINE, ROBERT EDGE**, painter, born in London, England, in 1730; died in Philadelphia, Penn., November 19, 1788; son of John Pine, a skillful artist. In 1760

he secured the first prize of \$500 from the Society for the Encouragement of the Arts for the best historical picture offered, *The Surrender of Calais*. He again took a first prize in 1762 for his picture of *Canute Reproving his Courtiers*. His portraits of John Wilkes and David Garrick are familiar from having been repeatedly engraved. In 1782 he placed on exhibition a collection of Shakespearian portraits, some of which were afterward reproduced in engravings and used to illustrate Boydell's *Shakespeare*. He came to America in 1783 and settled with his family in Philadelphia, his object being to paint portraits of the eminent men of the Revolution. He painted the portraits of Francis Hopkinson and George Washington, but neither possessed any great merit. Robert Morris built for him a house in Philadelphia, adapted for use as a studio and a place for the exhibition of his paintings. There he died of apoplexy.

PINERO, ARTHUR WING, born in London in 1855; is the son of a solicitor, and was educated with the view of following his father's profession. Having no particular liking for the law, however, he ultimately prepared for the stage, making his *debut* at Edinburgh in 1874. His talent was for writing plays, rather than acting, however, and his first piece, *Two can Play at That Game* (1876), has been followed by many successful dramas of modern life, including *Sweet Lavender*, *Lady Bountiful*, *The Second Mrs. Tanqueray* (1893) and *The Notorious Mrs. Ebbsmith* (1895).

PINKNEY, EDWARD COATE, son of William Pinkney, was born in London, England, October 1, 1802. He published in 1825 *Rudolph, and other Poems*. In 1826 he became professor of belles-lettres and rhetoric in the University of Maryland, and in the following year was editor of the *Marylander*, a political newspaper. He died in 1828.

PINKNEY, WILLIAM, was born at Annapolis, Md., in March, 1764. He was admitted to the bar in 1786, and was sent to congress by a district of Maryland in 1789. He went to London in 1796 as a commissioner under Jay's treaty, remaining there about eight years, and in 1806 he was appointed minister to England. Returning home in 1811, he settled in Baltimore. From December of that year until February, 1814, he was attorney-general of the United States, and in 1816 was appointed minister to Russia. He was elected a member of the United States Senate in 1819. Mr. Pinkney was considered one of the foremost American lawyers of his time. He died in February, 1822.

PINTO, ALEXANDRE ALBERTO DA ROCHA SERPA, was born April 20, 1846, at the Tendaes in the Province of Douro, Portugal, and educated at the Royal Military College, Lisbon. He entered the 7th infantry regiment, August 13, 1863; became ensign July 14, 1864; lieutenant in the 12th rifles, November 20, 1868; captain, October 10, 1874, major, April 17, 1877; and aide-de-camp of the king of Portugal, March 10, 1880. In 1869 he was in the Zambesi war, and in the battle of November 23d at Massangano he succeeded in saving the regiment. He was then in command of the African native troop. During 1877-79 he crossed Africa from Benguela to Durban, and he has admirably described the journey in a work entitled *How I Crossed Africa*, London, 1881. These geographical tasks obtained for him the gold medals (first class) of the geographical societies of London, Paris, Antwerp, Rome, and Marseilles. He was also elected a fellow of all the most important geographical societies in the world, and of many scientific associations. Maj. Serpa Pinto is a knight commander of the Order of St. James of Portugal, a knight of the Legion of Honor and of Leopold of Belgium. He died Dec. 28, 1900.

PITMAN, SIR ISAAC, born at Towbridge, Wilts, January 4, 1813, was educated at the grammar school in that town. After having been clerk for some time in the counting-house of a cloth manufacturer, he was trained in the Normal College of the British and Foreign School Society, Borough road, London, and appointed master of the British School, Barton-on-Humber, in 1832. He established the British School at Wotton-under-Edge in 1836, and removed to Bath in 1839. His first treatise on shorthand, entitled *Stenographic Sound-hand*, appeared in 1837, and he became the originator of the spelling reform, to which, and the propagation of his system of phonetic shorthand, he has devoted his entire attention since 1843, in which year the phonetic society was formed. His system of shorthand was entitled *Phonography, or Writing by Sound*, 1840; and his *Phonographic Reporter's Companion* appeared in 1846. Besides printing his own instruction-books for teaching phonetic shorthand, Mr. Pitman has issued a little library of books printed entirely in shorthand, ranging from the Bible to *Ras-selas*. He was knighted in 1894 and died in 1895.

PITRA, JOHN BAPTIST, a French cardinal, born at Champforgeuil, near Autun, August 31, 1812, embraced the ecclesiastical profession at an early age, and after being some time teacher of rhetoric in the seminary of his native town, became a Benedictine monk in the abbey of Solesme. Following the example of many members of that learned order, he devoted himself to the study of ecclesiastical antiquities, and composed an admirable *Histoire de Saint-Léger*, which was followed by his *Spicilegium Solomense*, a collection of documents, previously unpublished, in elucidation of church history. To obtain the materials for this superb work, Pitra visited nearly all the great libraries in Europe. Summoned to Rome by Pope Pius IX. in 1858, he was directed to study the ancient and modern canons of the Oriental churches, and the result of his labors are embodied in a work entitled *Juris Ecclesiastici Græcorum Historia et Monumenta*, the first volume of which, printed by the Sacred Congregation of the Propaganda, appeared in 1864. Pitra was appointed a member of that congregation for the religious affairs of the East in 1862, and created a cardinal priest of the Holy Roman Church, with the title of S. Tommaso in Parione, March 16, 1863. He held the office of librarian of the Holy Roman Church for many years, and died in 1889.

PLACIDE, HENRY, actor, born in Charleston, S. C., September 8, 1799; died near Babylon, L. I., January 23, 1870. He appeared as a child under his father's direction at the Charleston, S. C., theater, and in 1814 played in New York. In 1823 he appeared as "Ezekiel Homespun" in *The Hair at Law*, at the New York Park theater, and remained attached to that establishment, with a few interruptions, for about twenty-five years. After the destruction of the Park theater by fire in 1848, he played occasionally at Burton's theater and the Winter Garden. He closed his career as an actor in 1865, and retired to his country home. Placide was one of the most conscientious of American actors and filled a wide range of characters.

PLATT, ORVILLE H., was born July 19, 1827, at Washington, Conn., and, after obtaining a good common school education, studied law. He was admitted to the bar in 1849, and began practice at Meriden. After filling the offices of clerk of the State Senate, secretary of state, and State senator, he was, in 1864, elected to the State legislature, where he continued from 1864 to 1869, serving the latter year as speaker. In 1878 he was elected to the United States Senate, and was elected in 1884 for the term expiring March 4,



1891. In the latter year he was reelected for the term expiring in March, 1897.

PLATT, THOMAS COLLIER, is a native of Owego, N. Y., where he was born July 15, 1833. He matriculated at Yale College, but, on account of failing health, left there before graduation, and entered upon a commercial career, also engaging in banking and lumber operations. In 1872 he was elected to congress, again in 1874, and, upon the expiration of Francis Kernan's term as United States senator, was chosen his successor, January 18, 1881. He remained such until the May following, when, owing to troubles with the president in regard to federal appointments in New York, both Senators Platt and CONKLING (*q.v.*) resigned and returned home. He failed of a reelection, and became connected with the United States Express Company, of which he has been president since 1883. He also held the position of commissioner of quarantine of New York city from 1880 to 1888, when he was removed on the ground of non-residence in New York city. He is a member of the Republican national committee, and the most powerful Republican politician in the state.

PLAYFAIR, LYON, LORD, K.C.B., LL.D., F.R.S., was born at Meerut, Bengal, May 21, 1819, and died May 29, 1898. He was educated at St. Andrews, and early took especial interest in chemistry. In 1834 he studied chemistry under Prof. Thomas Graham, at the Andersonian University, Glasgow; but his health failing in 1837, he revisited India, and upon his recovery returned to England. In 1838 he went to Giessen, to study organic chemistry under Liebig, translated some of his works into English, and on his return to Scotland undertook the management of the large calico-print works of Messrs. Thompson, of Clitheroe; whence he removed, in 1843, to Manchester, and was appointed professor of chemistry in the royal institution. In 1844, on the recommendation of the late Sir Robert Peel, he was appointed on the commission constituted to examine into the sanitary condition of the large towns and populous districts. At the close of the commission Professor Playfair was appointed by the late Sir R. Peel, chemist to the Museum of Practical Geology. In the exhibition of 1851 he was appointed special commissioner in charge of the department of juries; and at the close of the exhibition, in recognition of his scientific services, he was made a companion of the Bath. At the exhibition of 1862 he again had charge of the department of juries. In the French exhibition of 1878 the Prince of Wales, who was the president of the English commission, appointed Mr. Playfair as chairman of the finance committee, which was charged with the executive work. On the establishment of the department of science and art, in 1853, he was appointed joint secretary with Mr. Henry Cole; but in 1856, when Mr. Cole assumed the office of secretary, he became inspector-general of government museums and schools of science. In 1857 Professor Playfair was elected president of the Chemical Society of London, and in 1858 was appointed professor of chemistry in the University of Edinburgh. He was president of the civil service inquiry commission of 1874, which produced an elaborate scheme for the reorganization of the civil service; was elected as member of parliament for the universities of Edinburgh and St. Andrews in the general election of 1868, and is a Liberal in politics. He held office in the ministry of 1873-74, as postmaster-general, and was then made privy councillor. After the general election of 1880 he was appointed chairman of ways and means and deputy-speaker of the House of Commons. These offices he resigned in the session of 1883, being on his

retirement created a K.C.B. In the general election of 1885 he was returned for the south division of Leeds, and was appointed vice-president of the council in Mr. Gladstone's government of 1886. He was reelected in 1886 and 1892 and made a peer in 1892. He is commander of the Legion of Honor; commander of the Austrian Order of Francis Joseph; knight of the Portuguese Order of the Conception; knight of the Swedish Order of the Northern Star, and knight of Württemberg. He was created LL.D. of the University of Edinburgh, April 12, 1869. He is the author of numerous scientific memoirs, and on general subjects he has published *Science in its Relations to Labor*, *On the Food of Man in Relation to his Useful Work*, *On Primary and Technical Education*, *On Teaching Universities and Examining Boards*, *Universities in their Relation to Professional Education*, *The Progress of Sanitary Reform*, and *Science in Relation to the Public Weal*, an address as president of the British Association for the Advancement of Science, 1885.

PLEASANTON, ALFRED, was born at Washington, D. C., June 7, 1824, and graduated at West Point in 1844, entering the army immediately thereafter, and participating in the Mexican war, where he was made first-lieutenant by brevet for "gallant conduct" at Palo Alto and Resaca de la Palma. He subsequently served on the frontier and in the Seminole war, meanwhile being commissioned first-lieutenant in 1849 and captain in 1855. At the breaking out of the Civil war he was in Utah, whence, accompanied by his regiment, he returned overland to the States. During the Peninsular campaign of 1862 he was major of the second cavalry, but in July of that year became brigadier-general of volunteers, and commanded the cavalry division of the army of the Potomac in its pursuit of the Confederate army into Maryland. He served in the battles of Antietam, South Mountain, and Fredericksburg, and by his skillful maneuvering at Chancellorsville on May 2, 1863, repulsed the advance of Jackson's Confederate corps, and saved the Union army from disaster. For bravery at Antietam he was brevetted lieutenant-colonel in 1862, becoming major-general of volunteers in June, 1863, and brevet-colonel July 2nd of the same year. At the battle of Gettysburg General Pleasanton commanded the cavalry engaged. In 1864 he forced Sterling Price to retire from Missouri. In March, 1865, he was brevetted brigadier-general of the United States army for services in Missouri, and major-general for services during the war. He resigned from the army in 1868, subsequently serving as collector of internal revenue, and for some years as president of the Terre Haute and Cincinnati railroad. He was placed on the retired list, with the rank of colonel, in 1888. He died Feb. 17, 1897.

PLEVILLE LE PELEY, GEORGES RENE, one of the most distinguished of French naval officers, was born at Granville, June 26, 1726. He ran away from school in 1738, to enter the service as a cabin-boy, and in 1742 succeeded to the lieutenancy of a privateer operating in Canadian waters. He was taken prisoner by the English in 1746, and upon his release commanded the *Hirondelle* off Canada, where he captured three ships after a prolonged and desperate contest. In 1778, while associated in the command of the flagship of Admiral d'Estaing, the *Langueedoc*, he added to his reputation by his daring achievements at the capture of Grenada and other West Indian ports. His sympathies were strongly with the colonies during the Revolutionary war, and found practical expression. He led a company to repel the attack made by the British upon Savannah, October 9, 1779, served under De Guichen in 1780, and at Yorktown was attached to the



command of De Grasse. In 1783 he was appointed a commodore in the French navy and made a number of voyages to North America. During the continuance of the French Revolution, the principles of which he advocated in 1789, he represented France at Ancona and Corfu, and was successively appointed rear-admiral and vice-admiral, the latter in March, 1798, in the French navy, also holding the naval portfolio from April to July of the same year. During the year following he became senator of France, and in 1804 was by Napoleon decorated with the grand cross of the Legion of Honor. He died in Paris, October 2, 1805.

PLUMPTRE, EDWARD HAYES, D.D., dean of Wells, born August 6, 1821; was scholar of University College, Oxford, where he graduated B.A. (double first class) in 1844, and M.A. in 1847. He became a fellow of Brasenose College in 1844. Doctor Plumtre was for four years (1869-74) one of the Old Testament company of the committee of revisers of the authorized version of the Bible appointed by convocation. He was installed dean of Wells, December 21, 1881. He died February 1, 1891.

PLUNKET, DAVID ROBERT, (Lord Rathmore), is the fourth son of the third Lord Plunket, and a grandson of the first Lord Plunket, the great orator and lawyer, who held the great seal in Ireland from 1830 to 1834, and again from 1835 to 1841. He was born December 3, 1838, and was educated at Trinity College, Dublin, where he took his bachelor's degree in 1859. He was called to the Irish bar in 1862, and in 1868 was appointed "Law Adviser to the Castle at Dublin." He was nominated a Q.C. in 1868. He was elected M.P. for the University at Dublin in the Conservative interest in 1870, when he succeeded Anthony Lefroy, resigned, and has sat for the university ever since. Mr. Plunket was solicitor-general for Ireland from December, 1874, to March, 1877, and first commissioner of works in Lord Salisbury's administration, June, 1885, to February, 1886, a post which he again filled in the cabinet of August, 1886.

PLUNKET, LORD, Protestant archbishop of Dublin, eldest son of the third Lord Plunket, by Charlotte, daughter of the late Rt. Hon. Charles Kendal Bushe, was born in 1828, and succeeded to the title on the death of his father in 1871. He was chaplain to his uncle, the late Bishop of Tuam, 1857-64; treasurer, and subsequently precentor, of St. Patrick's Cathedral, 1864-76; and bishop of Meath, 1876-84. On the resignation of Archbishop Trench, Lord Plunket was elected archbishop of Dublin (1884). He is one of the senate of the Royal University of Ireland. Died April 1, 1897.

POCAHONTAS, daughter of Powhatan, an Indian chief, born in Virginia, about 1595; died at Gravesend, England, March 21, 1616. She is celebrated for her heroism in saving the life of Capt. John Smith, who was condemned to death by her father in 1607. She was converted to Christianity in 1613, and in the following year was married to John Rolfe, a young widower. Among her descendants in Virginia was John Randolph, the statesman.

POCHIN, HENRY DAVIS, born at Wigston, Leicestershire, England, 1824, and died October 28, 1895. He was educated at Leicester and studied chemistry at the Pharmaceutical Society, London. Subsequently he started business in Manchester as a manufacturing chemist, and soon afterward discovered the means of completely decomposing China clay (silicate of alumina) by sulphuric acid, which produced a rich salt of sulphate of alumina. Another invention which Mr. Pochin patented in connection with Mr. Edward Hunt, was the purification of rosin, by means of distillation. Rosin refined by his process is now very largely used in the

manufacture of the pale yellow soaps of commerce, being the foundation of almost all fancy soaps.

POLAND, LUKE POTTER, jurist, born in Westford, Vt., November 1, 1815; died in Waterville, Vt., July 2, 1887. He was admitted to the bar in 1836, and in 1848 was the Free-soil candidate for lieutenant governor. In the same year he was elected a judge of the Vermont Supreme Court, and was reelected each succeeding year, becoming chief justice in 1860, until he was appointed, in November, 1865, to serve out the unexpired term of Jacob Collamer in the United States Senate. He afterward entered the House of Representatives, and served from 1867 until 1875. While in the Senate he secured the passage of a bankrupt law. As a member of the House he was chairman of the committee to investigate the outrages of the Ku-Klux Klan, and of the investigation committee on the Crédit Mobilier transactions; also of a committee on the reconstruction of the Arkansas State Government. In 1878 Mr. Poland was a representative in the State legislature. He was again sent to congress in 1883, serving until March 3, 1885.

POEY, FELIPE, Cuban naturalist, born in Havana, May 26, 1799. He was graduated in law at the University of Madrid, but gradually abandoned his practice as a lawyer and devoted himself to the study of natural history. In 1827 he aided in founding the *Société Entomologique* in Paris, and contributed notes and drawings to the *Histoire Naturelle des Poissons*. In 1833 he returned to Havana, and in 1842 was appointed professor of comparative anatomy and zoölogy in the University of Havana. From 1851 until 1860 he published at intervals his *Historia Natural de la Isla de Cuba*. He was appointed in 1863 to the chair of botany, mineralogy, and geology, and from 1868 to 1875 brought out his extensive work, *Synopsis Piscium Cubensium*. This work was purchased by the Spanish government, and received a gold medal and honorable mention in the exposition of Amsterdam in 1883. Poey was a member of almost every scientific society in Europe and America, and his specimens in life drawing are to be found in the United States national museum and the Spanish museum of Madrid. He died January 28, 1891.

POLE, WILLIAM, Mus. Doc., F.R.S., F.R.S.E., civil engineer, was born in 1814. From 1871 to 1883 he was consulting engineer for the imperial railways of Japan, and on his retirement the mikado honored him with the decoration of the third degree (knight commander) of the Imperial Order of the Rising Sun. He served on the council of the Institution of Civil Engineers from 1871 to 1885, in which year he was appointed honorary secretary. Between 1859 and 1867 he was professor of civil engineering at University College, London, and lectured at the Royal Engineer Establishment, Chatham. He published in 1844 a quarto treatise on the steam engine; in 1848 a translation of a German work on the same subject; in 1864 and 1870 *Scientific Chapters in the Lives of Robert Stephenson and I. K. Brunell*; in 1872 a treatise on iron; and in 1877 *The Life of Sir William Fairbairn*. Died, 1900.

POLK, LEONIDAS, born in Raleigh, N. C., April 10, 1806; died on Pine Mountain, Ga., June 14, 1864. He was graduated in 1827 at the United States Military Academy, and brevetted second lieutenant of artillery. He soon resigned his commission to study for the ministry. In 1830 he was made deacon in the Protestant Episcopal church, and in 1831 was ordained priest. He became rector of St. Peter's church, in Columbia, Tenn., in 1833, and in 1838 he received the degree of S.T.D. In the same year he was elected and consecrated missionary-bishop of Arkansas and part of Indian Territory, with provisional charge of the diocese



of Alabama, Mississippi, and Louisiana, and the missions in the republic of Texas. He resigned all these charges in 1841, with the exception of the diocese of Louisiana, of which he remained bishop until his death. He initiated the movement, in 1856, which resulted in the establishment of the University of the South at Sewanee, Tenn. When the Civil war broke out, he accepted an offer of a major-generalship in the Confederate army, and under his general direction the extensive works at New Madrid and Fort Pillow, Columbus, Ky., Island No. 10, Memphis, and other points were constructed. As commander of the first corps of Johnston's and Beauregard's army, he took part in the battle of Shiloh, Tenn., and in the subsequent operations that ended in the evacuation of Corinth. He commanded the army of Mississippi at the battle of Perryville, during the Confederate invasion of Kentucky, and was soon afterward promoted to the rank of lieutenant-general. He was relieved of his command after the battle of Chickamauga, for disobedience of orders, but in the following year, his prestige being restored, he united his command with the army of Gen. Joseph E. Johnston. General Polk was killed by a cannon shot while reconnoitering on Pine Mountain, near Marietta, Ga.

POLLARD, EDWARD ALBERT, born in Nelson county, Va., February 27, 1828; died in Lynchburg, Va., December 12, 1872. After finishing his education in 1849 he went to California and engaged in journalism until 1855, after which he spent some time in Northern Mexico and Nicaragua. During the administration of President Buchanan he was clerk of the judiciary committee in the House of Representatives and openly advocated the doctrine of secession. From 1861 until 1867 he was principal editor of the *Richmond Examiner*. Near the close of the war he started to England to promote the sale of his works, but was captured by union soldiers and held for eight months at Fort Warren and Fortress Monroe. He wrote a number of books, including *The Lost Cause*, *Lee and his Lieutenants*, *Life of Jefferson Davis*, etc. After the war Mr. Pollard made his residence in New York and Brooklyn for several years, often contributing to current literature.

POLLEN, JOHN HUNGERFORD, M.A., born in England in 1820; was educated at Eton and Christchurch, Oxford, and was elected to a fellowship of Merton, where he painted the college chapel. He studied painting in Rome, was appointed professor of fine arts by Cardinal Newman, in the Catholic University of Dublin; built and painted the church in Stephen's Green, was appointed official editor of the *Museum* at South Kensington, and was *inter alia* editor of the *Universal Catalogue of Books on Art*. He has contributed to the *Encyclopædia Britannica*, *Art Journal*, *Magazine of Art*, and several periodicals on subjects connected with the fine arts, and was cantor lecturer of the Society of Arts in 1885. Mr. Pollen is corresponding member of the Royal Academy of Madrid, the Archæological Society of Belgium, and other learned bodies.

POLLOCK, FREDERICK, was born in England, December 10, 1845, and educated at Eton and Trinity College, Cambridge, of which he became fellow in 1868. He was called to the bar at Lincoln's Inn in 1871, and was an examiner in law at Cambridge, 1879-81. In 1882 he was made professor of jurisprudence at University College, London; in 1883 was appointed corpus professor of jurisprudence at Oxford, and in 1884 professor of common law. He is also editor of the *Law Quarterly Review*, and has been honorary librarian of the Alpine Club since 1881.

POLLOCK, SIR CHARLES EDWARD, was born in England, October 21, 1823, and received his education

at St. Paul's School. When his father, the late Sir Frederick Pollock, was attorney-general in 1843-44, Mr. Pollock acted as his secretary, and on the elevation of his father to the position of lord chief baron of the exchequer in 1844, Mr. Pollock became a pupil of the late Mr. Justice Willes, in whose chambers he remained for nearly three years. Mr. Pollock was called to the bar in 1847, and was created a queen's counsel in 1866. He was appointed a baron of the exchequer in succession to Mr. Baron Channell, resigned, in January, 1873, and soon afterward received the honor of knighthood. Before his elevation to the bench he published several legal text-books, including a *Treatise on the Law of Merchant Shipping*, and another on the *Law and Practice of the County Courts*. Died, 1897.

POLLOCK, SIR WILLIAM FREDERICK, BART., born in London in 1815, was educated at Trinity College, Cambridge, of which he was a scholar (B.A. degree 1836—M.A. 1840). He was called to the bar at the Inner Temple in 1838, and went the northern circuit. He was appointed a master of the Court of Exchequer in 1846, and queen's remembrancer in 1874, and became senior master of the Supreme Court of Judicature upon the coming into operation of the Judicature Acts. He resigned his offices in 1886. Sir Frederick Pollock was president of the Equitable Assurance Society and vice-president of the Literary Fund, and was honorary secretary to the Society of Dilettanti, and for many years constantly a manager of the Royal Institution. Sir Frederick's translation of Dante's *Divine Comedy*, in blank verse and line for line with the original, appeared in 1854. *Macready's Reminiscences* were edited by him in 1875. He contributed to the *Quarterly* and *Edinburgh Reviews*, to *Frazer's Magazine*, to the *Fortnightly* and *Nineteenth Century*, and other periodicals. Sir Frederick married, in 1844, Juliet, daughter of the Rev. H. Creed, vicar of Corse, Gloucestershire, and niece of the Rt. Hon. J. C. Herries. He succeeded his father as second baronet in 1870 and died December 24, 1888.

POLLOCK, WALTER HERRIES, born in London, 1850; was educated at Eton and at Trinity College, Cambridge, where he graduated in 1871, and was called to the bar at the Inner Temple in 1874. Mr. Pollock has delivered lectures at the Royal Institution on historical and literary subjects such as Richelieu, Colbert, Victor Hugo, Sir Francis Drake, the drama, etc., and is the author of *Lectures on French Poets*, *The Picture's Secret*, a novel, *Songs and Rhymes*, *English and French*, *Verses of Two Tongues*, and *The Poet and the Muse*, translated with introduction in original verse, from Alfred de Musset's *Nuits*. In 1884 Mr. Pollock became editor of the *Saturday Review*, of which he had long acted as assistant editor.

PONSONBY, GEN. SIR HENRY FREDERICK, K.C.B., was born at Corfu, England, in 1825, and after receiving a professional education at the Royal Military College, Sandhurst, was appointed ensign in the 49th regiment in 1842. After being transferred to the grenadier guards, he was appointed aide-de-camp to the lord-lieutenant of Ireland, and in 1849 was made private secretary to the earl of Clarendon, an office which he held under Lords St. Germans and Carlisle while viceroys of Ireland. In 1855 he joined the Grenadier Guards in the Crimea, and served at the siege of Sebastopol. On April 8, 1870, he was appointed private secretary to Queen Victoria, and in October, 1878, keeper of the privy purse. Died Nov. 21, 1895.

PONTIAC, chief of the Ottawas, born on the Ottawa river about 1720; died in Cahokia, Ill., in 1769. He defended Detroit on behalf of the French in 1746, against an attack by several Indian tribes from the



north, and he is supposed to have led the Ottawas at Braddock's defeat in 1755. His hatred of the English increased after they had conquered Canada, and he prepared to exterminate them by organizing a conspiracy among all the tribes between the Ottawa and the lower Mississippi. At the time agreed upon for the attack each tribe was to dispose of the garrison of the nearest fort, and then a general movement was to be made upon the settlements. Pontiac assigned to himself the task of taking Detroit, and May 7, 1763, was appointed for the attack, but an Indian girl betrayed the plot to the commander of the post, and the garrison was prepared. Foiled in his design Pontiac nevertheless surrounded Detroit with his warriors on May 12th, and began a siege. In spite of his vigilance, however, the garrison was supplied with food by the Canadian settlers. Schooners loaded with supplies and reinforcements were sent to Detroit by way of Lake Erie, but were captured by the Indians before reaching the post. Subsequently a schooner succeeded in reaching Detroit, and the English, believing themselves sufficiently strong to attack the Indian camp, sent out 250 men on the night of July 31st for that purpose. They were repulsed with a loss of 59 men, killed and wounded. The siege was raised October 12th, and Pontiac retired to organize another movement, but failed. In the meantime, however, eight of the twelve fortified forts that were attacked had been destroyed, and their garrisons massacred. In 1766 a meeting of Indian chiefs, including Pontiac, was held at Oswego, where a treaty of peace was concluded with Sir William Johnson. Pontiac was murdered in 1769 by a Kaskaskia Indian, who was bribed with a barrel of whisky to kill the chief.

POOLE, REGINALD STUART, LL.D. Cantab., born in London, February 27, 1832; was educated privately in Egypt under the direction of E. W. Lane, his uncle. He was appointed assistant, department of antiquities, British Museum, 1852; transferred to new department of coins and medals, 1861; and appointed assistant keeper of coins, 1866, and keeper, 1879. He was editor of the *Official Catalogues of Greek, Roman, Oriental, and English Coins*, lectured on archaeology and art at the Royal Academy and the Slade School, University College; was a correspondent of the Institute of France; member of the Imperial German Archaeological Institute; a life-governor of University College, London; vice-president of the Numismatic Society; and an honorary secretary of the Egypt Exploration Fund, and of the Society of Medallists. He died in 1895.

POOLE, STANLEY LANE, born in London, December 18, 1854. As early as 1870 his studies had been turned toward numismatics by his uncle, the keeper of coins in the British Museum, and in 1872 he published his first treatise on Arabic coins in the *Chronicle of the Numismatic Society*. In 1874 he was appointed by the trustees of the British Museum to write the official *Catalogue of the Oriental Coins* in the national collection. Two volumes of a subsequent *Catalogue of Indian Coins* were published in 1885. On the death of E. W. Lane, in 1876, the duty of completing his great Arabic lexicon devolved on Mr. Poole, who brought out the sixth and seventh volumes between 1877 and 1885, and published a *Life of E. W. Lane* in the former year. In 1883 he was sent to Egypt by the science and art department, for which he wrote a handbook of the *Art of the Saracens*, 1886.

POOLE, WILLIAM F., a distinguished American bibliographer, was born in Salem, Mass., December 24, 1821. He graduated at Yale in 1849; was assistant librarian of the Boston Athenæum in 1851-52 and 1856-69; organized the Cincinnati Public Library in

1869, the Chicago Public Library in 1874, and presided over it until 1887, when he resigned to organize the Newberry Library of Chicago, of which he was librarian until his death, March 11, 1894.

POOR, CHARLES HENRY, was born in Cambridge, Mass., June 11, 1808; died in Washington, D. C., November 5, 1882. He entered the United States navy as a midshipman March 1, 1825, and was successively promoted until he attained the rank of commodore, January 2, 1863. He was given command of the *St. Louis*, of the home squadron, in 1860-61, and in the latter year had charge of an expedition that was sent to reinforce Fort Pickens. During 1861-62, while in command of the frigate *Roanoke* of the North Atlantic blockading squadron, he passed the Confederate batteries under fire while proceeding from Hampton Roads toward Newport News to assist the *Congress* and *Cumberland*. The sloop of war *Saranac*, of the Pacific squadron, was under his command from 1863 until 1865. During that time he compelled the release of a United States mail steamer that had been illegally detained at Aspinwall, and obliged the authorities of Rio Hacha, New Grenada, to hoist and salute the American flag after it had been insulted. He was subsequently for two years in charge of the naval station at Mound City, Ill., and was made rear-admiral September 20, 1868. He was commandant of the Washington navy yards in 1869, and afterward commanded the North Atlantic squadron up to the date of his retirement from the service, June 9, 1870. In 1871-72 he was a member of the retiring-board.

POOR, ENOCH, born in Andover, Mass., June 21, 1736; died near Hackensack, N. J., September 8, 1780. After the battle of Lexington, when the New Hampshire assembly resolved to raise 2,000 men, Poor was given command of one of the regiments. He served at the siege of Boston and then went to New York, where he afterward received orders to join the disastrous Canadian expedition with his regiment. On the retreat from that country, the Americans occupied and strengthened Crown Point, and when General Philip Schuyler ordered the evacuation of that place a written remonstrance against such a step was sent to General Washington by twenty-one field officers, headed by Poor, John Stark, and William Maxwell. Washington concurred in this view, but refused to overrule General Schuyler's action. Poor was commissioned brigadier-general February 21, 1777, and held a command in the campaign against Burgoyne. He distinguished himself for great gallantry at Stillwater and Saratoga. After the surrender of Burgoyne he joined Washington in Pennsylvania, and subsequently shared the hardships of the army at Valley Forge. In 1778 he fought at the battle of Monmouth, and in 1779 was in Sullivan's expedition against the Indians of western New York. In August, 1780, Poor was given command of a brigade of light infantry, but survived his appointment only a few weeks, succumbing to an attack of fever.

POOR, BENJAMIN PERLEY, born near Newburyport, Mass., November 2, 1820; died in Washington, D. C., May 30, 1887. He served an apprenticeship in a printing office at Worcester, Mass., and for two years before he was twenty years old he had edited the *Southern Whig*, of Athens, Ga., a paper purchased for him by his father. He went to Europe in 1841 as attaché of the American legation at Brussels, and while there was the foreign correspondent of the Boston *Atlas*, besides acting for four years as the historical agent of Massachusetts in France. Returning to America in 1848, he was successively editor of the Boston *Bee* and *Sunday Sentinel*, and in 1854 he began the work which he continued the rest of his life, that of Washington corres-



ponent. He was interested in military matters, and served as major for a short time during the Civil war. Among his publications were *Campaign Life of General Zachary Taylor*, *Rise and Fall of Louis Philippe*, *Early Life of Napoleon Bonaparte*, *The Conspiracy Trial for the Murder of Abraham Lincoln*, *Federal and State Charters*, *The Political Register and Congressional Directory*, *Life of Burnside*, and *Perley's Reminiscences of Sixty Years in the National Metropolis*. He was secretary of the United States Agricultural Society, and editor of its *Journal* in 1857. In 1867 he began to edit the *Congressional Directory*. He supervised the indices of the *Congressional Record*, and for many years had charge of the annual abridgement of the public documents. He compiled a *Descriptive Catalogue of the Government Publications of the United States, 1774-1881*, by order of congress. He also compiled the various treaties negotiated by the United States Government with different countries.

POPE, JOHN, American soldier, was born in Kaskaskia, Ill., March 16, 1822. He was graduated from the West Point Military Academy in 1842, and was assigned to the engineering and topographical corps with the rank of second lieutenant. He saw service in the Florida Indian war, and served under General Taylor in the Mexican war, winning two brevets for gallantry. He was also engaged in exploration and light-house duty. Just prior to the outbreak of the war he was court-martialed for disrespectful remarks concerning President Buchanan, but the charges were not pressed. He was one of President Lincoln's escort to Washington on the occasion of his first inauguration. In 1861 he was made brigadier-general and assigned to duty in Missouri, where his operations against the Confederates were successful. He was next assigned to the command of the army of the Mississippi, and here, too, success attended his movements, he taking many prisoners at New Madrid and Island No. 10. For these services he was made major-general of volunteers and brigadier in the regular army. In 1862 he was called to Washington and assigned to the command of the army of Virginia, superseding McClellan (who retained the army of the Potomac) as its chief. Here his good fortune seemed to desert him. He left Washington July 29th, with "headquarters in the saddle," and in less than a month had been utterly defeated by Stonewall Jackson at the second Bull Run. He returned to Washington and resigned his command, being then sent to Minnesota to conduct the war against the Indians. After the Civil war had ended he was placed in command of one of the Southern military districts, and later was in charge of the department of the Missouri. In 1882 he was made major-general in the regular army, and had written several works, among them being *Explorations from the Red River to the Rio Grande* and the *Campaign in Virginia*. The loss of the battle of Bull Run was the occasion of much dispute and political rancor, Pope charging that his defeat was due to non-support and conspiracy, these charges finally concreting in the long unsettled Fitz-John Porter imbroglio. (See PORTER, FITZ-JOHN.) General Pope was placed on the retired list of the army in March, 1886, and died September 23, 1892.

PORTER, DAVID, naval officer, was born in Boston, Mass., February 1, 1780; and died in Pera, near Constantinople, Turkey, on March 3, 1843. The family for five generations had been a sea-faring one, and it claims at present the most distinguished officers in the United States navy. In 1798 David entered the navy as a midshipman on board the United States ship *Constellation* and participated in the war with the French. Next year he was made lieutenant and was as-

signed to the West Indies station, where he saw service against the pirates in those waters. On his next assignment he had a similar experience with the Tripolitan corsairs, and, in one of the engagements with the latter, he was captured and imprisoned for some months. In 1806 he was made master, and in 1812 captain. In the latter year he fought in the *Essex* the famous action with the *Alert*, which he sank in eight minutes. He made numerous captures during the war of 1812, both of British ships and Peruvian privateers, nearly destroying the British whale fisheries in the Pacific. On March 28, 1814, while lying in the neutral harbor of Valparaiso with the two ships, *Essex* and *Essex Jr.*, he was attacked by the two British vessels, *Phabe*, and *Cherub*, which were more than double his strength, and after a desperate fight was forced to surrender. He was paroled and after a number of vicissitudes reached New York. From 1815 till 1824 Captain Porter was a member of the board of navy commissioners. In 1825 he reentered active service, and, while acting against the pirates in West Indian waters, he became involved in complications with the Spanish Government, in the course of which he was adjudged to have exceeded his powers as a naval officer, was court-martialed and sentenced to suspension from the service. Thereupon he resigned his commission and entered the service of Mexico as commander-in-chief of its naval forces. He subsequently returned to the United States and in 1829 he was appointed consul of Algiers, and in the next year minister to Turkey, where he remained till his death. He was the author of a *Journal of the Cruise of the Essex*, and from his letters several other interesting books have been compiled. It can be said of him that the two most distinguished officers of the United States navy during the late war received their earliest training on his ship. These two were his son and adopted son, David D. Porter and David G. Farragut.

PORTER, DAVID DIXON, American admiral, is the son of the subject of the preceding sketch, and was born at Philadelphia, June 8, 1814. He saw his first battle in the Mexican navy at the time his father was chief in command of that service, and in 1829, when his father had returned to the United States, he became a midshipman in the United States navy. He served in the Mediterranean station till 1835, at which time he was assigned to the United States coast survey corps. He was made a lieutenant in 1841. In 1845 he was detailed on special duty at the observatory at Washington, which post he resigned to take part in the Mexican war. During this conflict he served at Vera Cruz and at other points. At the close of the war he was again engaged on the coast survey, and in 1849 he entered on the command of the California line of mail steamers. He afterward returned to the regular navy, and on the outbreak of the Civil war he had attained the rank of commander. His first service in this struggle was the relief of Fort Pickens, in Pensacola harbor. In 1862 he was in command of the flotilla of mortar boats operating against New Orleans and the adjacent forts. He was next engaged in the unsuccessful attack on Vicksburg, July, 1862. In January, 1863, he captured Arkansas Post, and in April destroyed the Grand Gulf batteries. At this time he was made rear-admiral, and had command of all the naval forces on the Mississippi river. In the second siege of Vicksburg, resulting in the capture of that city, his efficient and hearty cooperation with the land forces under General Grant were repeatedly noticed and eulogized in his reports by that general. After the fall of Vicksburg he assisted Banks in his Red river expedition in 1864. The same year saw him transferred to the James river in Virginia, and he was employed in the two attacks on Fort Fisher (in the second one of



which the fort was captured), besides other important expeditions. At the close of the war he was made vice-admiral, and in 1866 he became superintendent of the naval academy at Annapolis, Md. In 1870, on the death of Admiral Farragut, he became admiral (commander-in-chief) of the navy. He died in Washington, D. C., on February 12, 1891. Admiral Porter wrote several books, among them being *Life of Commodore David Porter, Incidents and Anecdotes of the Civil War, History of the Navy in the War of the Rebellion*, and two works of fiction.

PORTER, FITZ-JOHN, American soldier, was born at Portsmouth, N. H., June 13, 1822, being a nephew of Com. David Porter. He entered West Point in 1841; was graduated in 1845; entered the artillery as second lieutenant, and saw his first service in the Mexican war with General Scott, being wounded in the battles around the city of Mexico. He was twice brevetted for gallantry during the war, and in 1849 he was appointed instructor of cavalry and artillery at West Point. He remained here till 1856, when he was assigned to the adjutant-general's department. In 1858 he took part with A. S. Johnston in the Utah expedition. In 1861 he had reached the rank of colonel in the regular army, and on the beginning of hostilities was made brigadier-general of volunteers. He was chief of staff of the commanding general till August, 1861, when he was given the command of a division for the defense of Washington city. He took part in the Peninsular campaign, conducting the siege of Yorktown and commanding the fifth army corps of the army of the Potomac. For his gallantry at the battle of the Chickahominy he was brevetted brigadier-general in the regular army, and made major-general of volunteers. After the Peninsular campaign had closed Porter and his command were assigned to the army of Virginia under General Pope. At the second battle of Bull Run, Porter was ordered to attack Jackson's flank, but failed to move (as he alleged) on account of Longstreet being immediately in his front. Pope laid the blame of his defeat on Porter's inactivity, and even charged him with treachery. Soon after this event McClellan was restored to the chief command, and General Porter participated in the battle of Antietam. On November 27, 1862, he was tried by court-martial on a charge of disobedience of orders, and after a tedious investigation was cashiered from the army. Appeal was taken, and after unwearied efforts on the part of General Porter and his friends, a board of inquiry was called to proceed with a rehearing of the case, and Porter was in 1878 declared blameless. President Arthur in 1882 remitted a portion of his sentence, but refused to sign a bill for his relief. In Cleveland's administration, however, a bill was passed and signed by the president authorizing the restoration of Porter to the regular army, with the rank of colonel, the bill taking effect in 1886. During the years of suspension from the army General Porter had been engaged in business in New York, and was successively superintendent of the New Jersey insane asylum, commissioner of public works of New York city, and police commissioner of the same city. Of Porter's innocence of the charges against him, most army officers are now convinced; General Grant as early as 1882 expressing his conviction of the injustice of his sentence, although while president he had refused to allow the reopening of the case. Died May, 1901.

PORTER, HORACE, born at Huntington, Pa., April 15, 1837, son of David Rittenhouse Porter (1788-1867), who was governor of Pennsylvania, 1838-45, graduated at West Point in 1860, was a member of Grant's staff with the rank of lieutenant-colonel, from April, 1864, to the end of the war, was Grant's private secretary, 1869-

73, and resigned from the army in 1873 with the brevet rank of brigadier-general.

PORTER, JOSIAS LESLIE, D.D., LL.D., was born October 4, 1823, at Burt, county Donegal, Ireland, educated at the University of Glasgow, the University of Edinburgh, and the Free Church College, and ordained in the Presbyterian Church of England in 1846. He went on a mission to Syria in 1849, became professor of biblical criticism in the Assembly's College, Belfast, was appointed by parliament commissioner of intermediate education (Ireland) in 1878, and nominated by the crown president of Queen's College, Belfast, and senator of the Queen's University in 1879, and senator of the Royal University of Ireland in 1880. He died March 16, 1889.

PORTER, NOAH, D.D., LL.D., was born at Farmington, Conn., December 14, 1811. He received the degree of A. B. at Yale College in 1831, and taught in schools at New Haven from 1831 to 1833, and was a tutor at Yale from 1833 to 1835, studying theology at the same time. In 1836 he was ordained pastor of the Congregational church at New Milford, Conn., and in 1843 was settled at Springfield, Mass. He returned to Yale as professor of metaphysics and moral philosophy in 1846, and on the resignation of Doctor Woolsey in 1871 was elected president of Yale. He was author of *Historical Discourses* (1840); *The Educational Systems of the Puritans and the Jesuits Compared* (1851); *The Human Intellect* (1868); *Books and Reading* (1870); *American Colleges and the American Public* (1870); *Elements of Intellectual Philosophy* (1871); *The Science of Nature Versus the Science of Man* (1871); *Science and Sentiment* (1882); *Elements of Moral Science* (1885); *Bishop George Berkeley* (1885); and *Kant's Ethics* (1886). Doctor Porter was the principal editor of the revisions of *Webster's Dictionary* (1864 and 1880). He died March 4, 1892.

POST, PHILIP SIDNEY, Illinois congressman, tenth district, was born in Florida, Orange county, N. Y., March 19, 1833; was admitted to the bar in Illinois in 1856; entered the Union army in 1861 as second-lieutenant, 59th Illinois infantry; was promoted to colonel, March 19, 1862; was transferred to the fourth army corps, August, 1864; was promoted brigadier-general by brevet; was in command of Western Texas in 1865, headquarters at San Antonio; was appointed consul to Vienna in 1866; was promoted consul-general for Austria-Hungary, 1874; resigned in 1879; was member at large of the Illinois Republican State central committee from 1882 to 1886; was commander department of Illinois, Grand Army of the Republic, in 1886; and served in congress as a Republican, from 1886 until his death, January 6, 1895.

POTT, ALFRED, B.D., born at Norwood, England, September 30, 1822. He was appointed vicar of Cuddesdon in 1852; first principal of the Theological College there in 1853; rector of East Hendred, Berks, in 1858; vicar of Abingdon in 1868; archdeacon of Berkshire in 1870; chaplain to the bishop of Oxford in 1873; vicar of Clifton Hampden, Oxfordshire, in 1874; and vicar of Sonning, Berks, in 1882. Archdeacon Pott is the author of *Confirmation Lectures* (1850); *Village Sermons* (1867); and several "charges," sermons, and tracts.

POTTER, ALONZO, Protestant Episcopal bishop of Pennsylvania, was born in La Grange, Dutchess county, N. Y., July 6, 1800, and died in San Francisco, Cal., July 4, 1865. He was graduated from Union College in 1818 with the highest honors, and shortly after began his theological studies under the direction of Dr. S. H. Turner. At the age of twenty-one he became a professor of mathematics and philosophy in Union College,



at the same time continuing his theological studies. He was shortly after made a deacon, and in 1824 was ordained a priest of the Protestant Episcopal church, and immediately entered on the ministry of that communion in Boston. In 1832 he was again called to a professorship in Union College. In 1838 he was elected its vice-president, in which position he remained, being practically the head of the college, till his election to the bishopric in 1845. His chief claim to fame rests on his benevolence and efforts in behalf of the negro race in America. His health began, in 1858, to fail under the pressure of his heavy duties, and, although an assistant was appointed to assist him, the aid came too late, and he died in San Francisco, on July 4, 1865.

POTTER, GEORGE, born at Kenilworth, England, in 1832; was apprenticed to a carpenter and joiner at Coventry, where he worked several years after he had learned his trade. In 1857 the workmen in the building trades started an agitation for a reduction in their hours of labor, and Mr. Potter was sent as a delegate to represent the carpenters and joiners, when he soon attracted attention by his argumentative and practical speeches, and subsequently he was elected secretary. The great lock-out in the building trades of August, 1859, occurred, and he was called from his trade to conduct the movement on behalf of the workmen. After this Mr. Potter established the *Beehive*, an organ of labor on behalf of working-men. The paper afterward changed its name to the *Industrial Review*. Mr. Potter took active part in all the social and political movements of the English working classes for more than thirty years. In 1873 he was elected a member of the London School Board, and was reelected in 1876. At the general elections of 1874 and 1886 he was an unsuccessful candidate for the representation of Peterborough. He was the author of articles on capital and labor, and trades' unions and coöperation, and of a series of social and political tracts for the people, which are largely circulated. He died June 3, 1893.

POTTER, HENRY CODMAN, D.D., LL.D., son of the late bishop of Pennsylvania, and nephew of the bishop of New York, was born at Schenectady, N. Y., May 25, 1835. He graduated from Union College, Schenectady, and from the Theological Seminary of Alexandria, Va. (1857). His first rectorship was in a small village (Greensburg) in Pennsylvania, from which he went to St. John's church, Troy, N. Y., and afterward to Boston. In 1868 he became rector of Grace church, New York, where he remained until 1883, when he was consecrated assistant bishop of New York. In 1887 the death of his uncle left him the sole responsibility of the episcopate, which he has since filled. He received his degrees from Union and Trinity Colleges. He has published *Sisterhoods and Deaconesses* (1872); *The Gates of the East* (1876); and *Sermons of the City* (1880), besides a number of sermons and discourses.

POTTER, HORATIO, Protestant Episcopal bishop of New York, was born in La Grange, N. Y., February 9, 1802, and died in New York city, January 2, 1887. He was graduated at Union College in 1826, entered the ministry as deacon in 1827, and was ordained priest in 1828. In the last year he became a professor in Trinity College, retiring in 1833 to accept the pastorate of St. Peter's church, Albany. In 1854 he was made provisional bishop of New York, and in 1861, on the death of Bishop Onderdonk, he became bishop of the diocese. In 1883 he contracted a case of pneumonia, from which, after an illness of three years and eight months, he died. When he took charge of his diocese matters were in a state of the greatest distraction, but the bishop soon restored order, and under his administration his charge became one of the most

flourishing in the country. He was a man of unusual literary attainments, although he does not appear prominently as an author.

POTTER, JOSEPH HAYDN, soldier, was born in New Hampshire, October 12, 1822. He was graduated from West Point in 1843. For the next two years he was engaged in garrison duty, at the end of that time serving in the Mexican war. He was promoted to first lieutenant in 1847, and became a captain in 1856. He was a member of the Utah expedition, and at the outbreak of the Civil war was stationed in Texas, where he was captured, but was exchanged in 1862. He became colonel of the 12th New Hampshire volunteers, and took part in the campaigns of the army of the Potomac, being promoted major in the regular army in 1863. He was wounded and captured at Chancellorsville, and was brevetted colonel for gallantry in the last-named engagement. He was exchanged in 1863, and, after serving as assistant provost marshal of Ohio, he was put in command of a brigade of the army of the James, 18th corps. He was soon after transferred to the 24th, and remained chief of staff of this corps till the war closed, at which time he was brevet brigadier-general in the regular army and brigadier-general of volunteers. He was promoted lieutenant-colonel in 1866, and in 1873 was made colonel. He was four years governor of the Soldiers' Home, Washington, after which time he was made a brigadier-general in the regular army, and was put in command of the department of Missouri. He was retired in October, 1886, and died December 1, 1892.

POTTER, ROBERT B., soldier, was born in Schenectady, N. Y., on July 16, 1829, and died in Newport, R. I., February 19, 1887. He studied law, and on the outbreak of the war gave up a successful practice to become major of the 51st New York regiment. He took part in most of the engagements of the army of the Potomac, and in 1863 he was made brigadier-general of volunteers. He was then transferred to the Southwest and took part in the Vicksburg and Knoxville campaigns. In September, 1865, he was made major-general of volunteers, and assigned to the command of the Rhode Island and Connecticut district of the department of the East. He was mustered out of service in 1866, and for three years was receiver of the Atlantic and Great Western railroad. After he had concluded his duties in this position he spent some time in England, and then returned to Newport, where he died. He was the son of Bishop Alonzo Potter, of Pennsylvania.

POUYER-QUERTIER, AUGUSTIN THOMAS, a French statesman, was born September 3, 1820, at Etoutteville-en-Caux (Seine-Inférieure). In 1854 he was elected maire of Fleury-sur-Andelle, which he also represented in the conseil général. Subsequently he became a member of the Chamber of Commerce at Rouen; administrator of the Bank of France (branch of the Seine-Inférieure); and president of the committee formed for the relief of the workmen engaged in the manufacture of cotton. In 1857 and 1863 he was elected a deputy in the Corps Législatif in the government interest for the first circumscription for the department of the Seine-Inférieure. After the fall of the empire M. Poyer-Quertier was returned to the National Assembly, and was intrusted by M. Thiers with the conduct of the negotiations with Germany respecting the Alsace-Lorraine treaties, which, in October, 1871, he brought to a successful issue. He was promoted to be a grand officer of the Legion of Honor, October 20, 1871. He was elected a Senator in January, 1876, and served until defeated in 1891. He died April 2, 1891.



**POWDERLY, TERENCE VINCENT**, master workman of the Knights of Labor, was born at Carbondale, Penn., January 22, 1849, and educated at the public schools. When seventeen years of age he was employed in the machine shops of the Delaware and Hudson Canal Company, and in 1869 obtained work in the shops of the Delaware, Lackawanna and Western road at Scranton, where, in 1871, he became a member of the Machinists' and Blacksmiths' Union. During 1874 he joined Assembly 88, Knights of Labor, and since that date has been active in promoting objects for which the organization was created. He was elected grand worthy foreman of the Knights by the second general assembly, which convened at St. Louis in 1879, and at the convention held in Chicago during September of the same year he was elected grand master workman, and was repeatedly reelected, in spite of the opposition made to him, until 1893, when he was defeated. He was one of the founders of the *Labor Advocate*, a regular contributor to the *Journal of United Labor* and other periodicals, and has been several times elected mayor of Scranton.

**POWELL, JOHN WESLEY**, geologist, born in Mount Morris, N. J., March 24, 1834. Powell manifested a preference for the physical sciences, and spent much of his time in making collections of geological and natural history specimens. In his researches he was assisted by the Illinois Natural History Society, which elected him its secretary. At the commencement of the civil war he enlisted as a private in an Illinois regiment and rose to be lieutenant-colonel of artillery. After the war he was professor of geology and curator of the museum in Illinois Wesleyan University, and held a similar post in the Illinois Normal University. In 1868 he organized a party for the exploration of the grand cañon of the Colorado, which feat they successfully completed in about three months. The success of the expedition led the general government to sanction the establishment of a topographical and geological survey, the management of which, after undergoing many modifications, has assumed its present form under the title of the United States Geological Survey. Meantime Major Powell, under the direction of the Smithsonian Institution, had established a Bureau of Ethnology, of which he remained the chief until 1881, when, on the resignation of Clarence King, the director of the Geological Survey, he was made chief of that department, a position he now holds. He has received honorary degrees from various colleges and universities both in this country and in Europe, and is a member of many learned societies. His writings are numerous and are regarded as standard and exhaustive on the subjects whereof they treat.

**POWHATAN**, Indian chief, was born in Virginia at a point nearly opposite Richmond on the south of the James river, *circa* 1550, and died in that State in April, 1618. He was at the time of the settlement of Jamestown an old man of polygamous connections, with a family of thirty children. At first he was friendly with the whites, but through the actions of Captain Smith, became their enemy. His attempt to destroy the English colonies, however, was frustrated by the information conveyed to the English by his daughter, POCAHONTAS, (*q.v.*) The traditional grave of the chief is located near Richmond, Va., at a point on an eminence just above the Rocketts Flats, on the north bank of the James river, the site being on the plantation formerly owned by the Mayo family.

**POWNALL, THOMAS**, English statesman, was born in Lincoln, England, in 1720, and died in Bath, England, in 1805. His introduction to American affairs took place in 1753, when he came to this country as private secretary to Sir Danvers Osborne, governor of

New York. His first recorded appearance in a deliberative body was in 1754 at the Albany Congress. While here he seemed to comprehend the necessities of the American political situation, and advocated the delimitation of the French and British possessions in America with a neutral Indian strip between them. He acted as agent for the colonies in London about this time, and in 1755 he helped conduct negotiations between Massachusetts and New York relative to prosecuting the war against the French. In the same year he was made lieutenant-governor of New Jersey, and in the next year he became governor of Massachusetts. In 1760 he became governor of South Carolina, but never served, returning almost immediately to England, where he was elected to parliament. He served with the English forces in Germany, and after the peace of Paris he again sat in parliament. He was always the firm friend of the colonies, and opposed all measures of oppression, direct and indirect. He seemed to understand more clearly than his contemporaries the inevitable result of the Revolutionary war, for six years before its end he declared English sovereignty over the American colonies gone forever, and advocated measures of conciliation in the hope of forestalling French influence. When the independence of the United States was acknowledged he declared that the supremacy of England in the future was a matter of doubt, as the new nation was a formidable rival. It was not only as a statesman that Pownall was conspicuous. He was also a scientist and a man of extensive learning. His literary productions are numerous, the principal and best one, perhaps, being a paper on the *Colonial Constitutions*. He was a member of many learned societies, and by some was thought to have been the author of the *Junius Letters*. His whole career entitles him to be considered rather an American than an English statesman, as he devoted his entire life to the amelioration of American political conditions.

**POYNTER, EDWARD JOHN, R.A.**, English artist, born at Paris, March 20, 1836, studied art both in England and on the Continent. He became principal of the National Art Training School at South Kensington. Among his well known paintings are *Israel in Egypt*, *Rhodope*, *The Festival*, *Atalanta's Race*, *The Fortune Teller*, and *Zenobia*, and the following, which were shown at the World's Fair in Chicago in 1893: *Diadumene*, *Under the Sea Wall*, *On the Terrace* and *White Roses*. He published, in 1879, *Ten Lectures on Art*.

**PRADO, MARIANO IGNACIO**, born at Huánuco, Peru, 1826, declared himself supreme chief of Peru in 1856, united with Chili in declaring war on Spain, and repelled the Spanish attack in Callao, but was exiled in 1868. Returning afterwards he was regularly elected president in 1876 and served until 1879, when, after repeated defeats in the war with Chili, he went to Europe to buy iron clads, and the government was seized by General Pierola.

**PRATT, CALVIN E.**, soldier and jurist, was born in Massachusetts, January 23, 1828. He studied law, beginning to practice in 1852, engaging desultorily in politics. In 1856 he was a member of the Democratic convention that nominated Buchanan for the presidency. In 1861, in New York city, in which place he then resided, he raised a regiment and commanded it at the first battle of Bull Run, afterward participating in the campaigns of the army of the Potomac. In 1862 he was made brigadier-general of volunteers, which position he resigned in 1863. After the war he was collector of the port of Brooklyn; and in 1869 he was chosen a judge of the State Supreme Court, and reelected for a term of fourteen years in 1877.

**PRATT, ENOCH**, philanthropist, was born in North



Middleborough, Mass., on September 10, 1808. He commenced life in a subordinate capacity in a mercantile house in Boston, and in 1831 he removed to Baltimore, engaging in business as a commission merchant, founding two large wholesale iron firms. He early interested himself in works of public charity, founded the House for Reformation and Instruction of Colored Children at Cheltenham, and the Maryland School for the Deaf and Dumb. He also endowed an academy in his native town with \$30,000. But the crowning work of his public philanthropy is the "Enoch Pratt Free Library," which he established in connection with the city government of Baltimore, at a cost of \$1,150,000, besides the amount expended by the city. The library was formally opened January 4, 1886. Died Sept., 1896.

PRATT, ORSON, Mormon apostle, was born in Hartford, N. Y., September 19, 1811, and died in Salt Lake City, October 3, 1881. He was well educated, being a profound mathematician and Hebrew scholar. In September, 1830, he joined the Mormon Church, passing through successive offices of elder and high priest, and becoming one of the apostles in 1835. His abilities made him a great power in the church, and he was especially useful in proselyting, being repeatedly sent on missionary tours to different sections. He and Erastus Snow were the first Mormons to enter Salt Lake Valley. For some time he held the professorship of mathematics in the Deseret University, and for eighteen months edited *The Seer*, a Mormon paper, published in Washington, D. C. He was a member of the legislative assembly of the Territory of Utah at its first session, and subsequently, whenever he was within the limits of the territory; and was seven times its speaker. His theological discussions and polemical writings gave him a wide reputation, and his mathematical treatises are of no mean order of merit. He is the author of the "Law of Planetary Rotation," in which he claims to show that the cube-roots of the densities of the planets are as the square-roots of the periods of their rotation. His writings comprise a long list, and deal with a great variety of subjects, metaphysical and physical.

PREBLE, EDWARD, American naval officer, was born in Portland, Maine, August 15, 1761, and died there on August 25, 1807. He began his seafaring career in 1778 in his seventeenth year, by running away and shipping in a privateer. He next entered the service of Massachusetts in the State navy, shipping on board the *Protector*, with which vessel he was captured afterward, and confined to the British prison ship at New York. On his release he again entered the State navy, and after the war cruised around the world in the merchant service. Upon the organization of the national navy he was one of the original five lieutenants commissioned, and took command of the brig *Pickering*. He was made captain in 1799, and was sent to China in the *Essex* to convoy a merchant fleet from that country. In 1803 he sailed in the *Constitution* at the head of the expedition against the Barbary states, and by his skill and courage forced the Sultan to renew the treaty of 1786. During the blockade of Tripoli the *Philadelphia*, one of his fleet, ran aground and was captured, and Preble perfected plans for her recapture and destruction, which were executed by Stephen Decatur. Preble then blockaded the coast and made an attack on Tripoli, which compelled the Tripolitans to sue for peace and waive all claim for future tribute, offering at the same time to reduce the ransom of American prisoners one-half. He was relieved in 1804 and sailed for home. So thorough was the work he had done, that no fighting was necessary after he left. He arrived in the United States in 1805, and was the recipient of a vote

of thanks and a medal from congress. President Jefferson offered him a seat in his cabinet as secretary of the navy, but ill health compelled him to decline. He then retired to Portland, where he died two years later.

PREBLE, GEORGE HENRY, nephew of Edward Preble, was born at Portland, Me., February 25, 1816, died at Boston, Mass., March 1, 1885. He entered the navy as midshipman, in 1835, was commander of the *St. Louis* and the *Katahdin* in the Civil war and rose to the rank of rear-admiral two years before he retired in 1876. He wrote a Preble family history and *History of the Flag of the United States of America, Naval and Yacht Club Signals, etc.*

PRENDERGAST, LIEUT.-GENERAL SIR HARRY, K.C.B., English soldier, born October 15, 1834, won the Victoria cross for conspicuous bravery at Mundissore, in the Abyssinian war commanded a detachment of three companies of Madras sappers and miners, during Lord Ripon's viceroyalty was appointed an honorary aide-de-camp, and has since held a command in Madras. He marched against King Theebaw of Upper Burmah, in 1885, reached Mandalay on November 28, and surrounded the city and palace, the king surrendering on the next day. He was afterward commander of all the forces in Burmah and served as Governor-General's Agent in Beloochistan and at Baroda.

PRENTICE, GEORGE D., American journalist, was born in Preston, Conn., December 18, 1802, and died in Louisville, Ky., January 20, 1870. He was a remarkable example of precocity, having, it is said, taught school at the age of fifteen. He was a graduate of Brown University, and had studied law, but never practiced, his entire bent seeming to be toward journalism. His first editorial venture was in connection with the *Connecticut Mirror*, his next charge being the *New England Weekly Review*. He removed to Kentucky, and in 1831 became the editor of the *Louisville Journal*, a whig daily. Under his conduct in 1860 this paper was intensely loyal to the Union, but not a supporter of Lincoln's administration. It made a wide reputation for ability, and its editor was regarded as a writer in whom were combined wit, humor, satire, and incisiveness. Prentice resigned the editorship at the outbreak of the war, but continued to contribute to the paper till its consolidation into the present *Courier-Journal*. He wrote several poems, and was a contributor to the wit column of the *New York Ledger*. His other writings are numerous and cover a wide range of subjects.

PRENTISS, BENJAMIN MAYBERRY, American soldier, was born in Wood county, Va. (now West Virginia), November 23, 1819. He emigrated, with his parents, to Missouri in 1835, and then to Illinois, in 1841. He was sent in 1845 with the militia, of which he was lieutenant, to expel the Mormons from Illinois, and the next year entered the Mexican war as captain of volunteers. At the commencement of the Civil war he reorganized his old company, was appointed colonel of the 7th Illinois regiment, and was promoted brigadier general in May, 1861. He was placed in command of Cairo, Ill., and thence was transferred to Missouri, where he fought the battle of Mt. Zion, gaining a victory over a large body of Confederates. He participated in the battle of Shiloh, on the first day of which he, with most of his command, was captured. He was exchanged in 1862, and promoted major-general of volunteers in November of that year. He fought Holmes and Price at Helena, Ark., defeating them on July 3, 1863. He resigned his commission and retired to private life in October of the same year. He was a member of the court-martial that tried and convicted Gen. Fitz-John PORTER, (q.v.) Died Feb. 8, 1901.



PRENTISS, SEARGEANT SMITH, orator, was born in Portland, Me., September 30, 1808, and died at Longwood, Miss., July 1, 1850. His was a most brilliant mind in a weakly body, he being a cripple all his life. He was educated at Bowdoin College, where he graduated in 1826. The next year he emigrated to Mississippi, and at once became the idol of the people of that State. He was sent repeatedly to the State legislature, and in 1837 he was elected to congress, but the seat was contested by Colonel Claiborne; which gave rise to the celebrated investigation, in which Prentiss defended his claims in a speech before the House of three days' duration, the effect of which was to materially enhance his reputation and give him more than a local fame. His claim was rejected by the casting vote of the speaker, and on his return to his constituency he was reelected by an overwhelming majority. His law practice was immense, and his powers as a pleader wonderful; in fact, it was said to be tantamount to a verdict in his favor to allow him to address the jury last. He was the beau ideal of Southern chivalry, and his social qualifications made him the object of the affections of all with whom he came in contact. He remained in Mississippi until the repudiation of the public debt by that State, in 1845, when, considering the commonwealth disgraced, he removed to New Orleans, where he was compelled, by ill-health, to retire from public life, and in 1850 to return to Longwood, near Natchez, Miss., where he died. Two of his most noted orations were one delivered in Boston, in Faneuil Hall, on the occasion of a dinner given in honor of Daniel Webster, and another made before a Kentucky court in a successful defense of Judge Clarke, his friend, who was charged with murder.

PRESCOTT, ALBERT B., American chemist, was born in Hastings, N. Y., December 12, 1832. He studied medicine in the University of Michigan, and on his graduation in 1864 at once entered the army as surgeon. At the close of the war he became assistant professor of chemistry at Ann Arbor, and in 1870 was made professor of chemistry and pharmacy. Since 1876 he has been dean of the school of pharmacy and since 1884 a director of the chemical laboratory of the university. He was a member of the committee for the revision of the United States Dispensary in 1880. He is a member of many scientific societies, both at home and abroad, and has been president of the American Chemical Society, and, in 1891, president of the American Association for the Advancement of Science. He has written much and well on the subject of chemistry and kindred subjects, his publications all being considered standard in their class.

PRESCOTT, WILLIAM, soldier, was born in Greton, Mass., February 20, 1726, and died in Pepperell, Mass., October 13, 1795. He served in the French and Indian war, and his conduct was such as to cause the tender of a commission in the regular British army, which he declined. In 1774, on the commencement of hostilities between the colonists and the English, he was placed in command of a regiment of minute men, and in 1775 he took part in the battle of Lexington. He then conducted his men to Cambridge, where his command was incorporated into the continental army. In June, 1775, he went to Charlestown and fortified Bunker Hill, but afterward changed his position to Breed's Hill, which he took possession of and fortified during the night. On the 17th General Gage attacked this position and Prescott fought the battle, erroneously called the battle of Bunker Hill. Although the colonial forces were forced to retreat, it proved one thing—that the colonial troops could cope with British regulars—and greatly encouraged the Americans in their struggle. Prescott

was among the last to retreat, and offered to return and retake the position if he were reënfenced. He remained with the army for about two years, when he resigned, but in a few months (October, 1777) he joined the northern army under General Gates and participated in the battle of Saratoga. After the battle he retired to his home, and for many years sat in the Massachusetts legislature and aided the cause of the Revolution, both by counsel and also by more material aid.

PRESSENSÉ, EDMOND DE, D.D., a Protestant minister, born at Paris, January 27, 1824; pursued his studies in that city, at Lausanne, under Professor Vinet, and at the Universities of Halle and Berlin. On his return to Paris he was appointed pastor of the Taibout chapel, where he soon gained a high reputation as a preacher. He received the degree of D.D. from the University of Breslau in 1863. He sat in the national assembly as a deputy for the department of the Seine from July, 1871, till the close of the year 1875, and he was elected a life senator, November 17, 1883. Of his numerous works many have been translated into English, and have an extensive circulation both in England and America. He died April 8, 1891.

PRESTON, WILLIAM BALLARD, American statesman, was born in Smithfield, Montgomery county, Va., November 25, 1805, and died there November 16, 1862. He studied law, and early entered politics, it being said of him that throughout his career he was never defeated in any popular election. He was elected to congress in 1846, and held the secretaryship of the navy under President Taylor, retiring on the death of that gentleman. He was sent by the government as commissioner to France to negotiate a commercial compact between the two countries, but the Civil war prevented the consummation of the scheme. He was several times a presidential elector prior to the war. He was an anti-secession member of the secession convention, and only went with his State when war was inevitable. He then became a member of the Confederate Senate, in which he served till his death.

PRESTON, WILLIAM CAMPBELL, statesman, was born of Virginian parents at Philadelphia, December 27, 1794; and died at Columbia, S. C., May 22, 1860. He began his education at Washington College, Va., but on account of his health was sent south and was graduated at the College of South Carolina. He made his permanent residence in South Carolina in 1822, and at once began a public career which ended only with his death. He was elected a member of the legislature in 1832, and in 1836 was sent to the United States Senate, where he was aligned with the Calhoun Democrats—a states rights and free trade advocate. A difference between him and his colleague, Calhoun, led to his resignation in 1842. He was president of the College of South Carolina from 1845 to 1851, and did much to resuscitate that institution. He was the founder of the Columbia Lyceum, donating a large and valuable library. He received the degree of LL.D. from Harvard in 1846. He was a man of profound learning and was admittedly the most finished orator the South ever produced. His death, it is said, was hastened by his grief at the attitude of South Carolina in regard to secession, notwithstanding the fact that he was in his earlier years an advocate of the doctrine of nullification. He received the congratulations of a friend on his departure before the commencement of the strife and acquiesced in the sentiment that it was best to be gone.

PRESTWICH, SIR JOSEPH, F.R.S., was born at Pensbury, Clapham, near London, March 12, 1812. He was educated at various preparatory schools, and in Paris, and finally at University College, London. Mr. Prestwich's first works were papers on the Gambr



ichthyolites, and shells in the Till of Banffshire, and on the geology of Coalbrook Dale, which were followed by a series of papers on tertiary geology, and by two papers on the quaternary beds of the valley of the Somme. He is also the author of a little work on the geology of the neighborhood of London, and of a more elaborate work, *The Water-bearing Strata of the Country around London*. In 1849 the Geological Society awarded him the Wollaston medal for his researches. In 1865 the Royal Society awarded him a royal medal for his contributions to geological science. He served on the royal coal commission of 1866, and on the royal commission on water supply of 1867. He was president of the Geological Society, 1870-72; vice president of the Royal Society, 1870-71. In 1874 the institution of civil engineers awarded him a Telford medal and premium. He became professor of geology at Oxford, June 29, 1874, in succession to the late Professor Phillips. In 1885 he was elected by the Institute of France a corresponding member of the Academy of Sciences. Died June, 1896.

PRICE, THE REV. BARTHOLOMEW, M.A., F.R.S., was born in Gloucestershire, England, in 1818, was educated at Pembroke College, Oxford, and was graduated B.A. in 1840. He was appointed Sedleian professor of natural philosophy at Oxford in 1853, and is a member of the Hebdomadal Council, a delegate of the Clarendon Press, a curator of the Bodleian Library, an honorary fellow of Queen's College, Oxford, a member of the governing body of Winchester College, and a visitor of Greenwich Observatory. He is the author of a work on the infinitesimal calculus. Professor Price died December 29, 1898.

PRICE, BONAMY, M. A., was born in Guernsey, England, May 22, 1807, and was graduated at Oxford. He was appointed assistant master in Rugby School in February, 1830, and professor of political economy in the University of Oxford in February, 1868. Professor Price was the author of many articles in reviews and magazines, besides several more pretentious works. Although Professor Price's views on economical matters were not generally accepted, his great abilities were universally recognized, and he was regarded an authority on agricultural subjects. He was a member of the Royal Commission on Agricultural Depression. He died January 8, 1888.

PRICE, STERLING, American soldier, was born in Prince Edward county, Va., September 11, 1809, and died in St. Louis, Mo., September 29, 1867. He was educated at Hampden-Sidney College, and after a law course removed to Chariton county, Mo., entering actively into politics and public affairs. He was sent both to congress and the State legislature, and when the Mexican war broke out he resigned his seat in the former body to serve as colonel of a cavalry regiment. He made the trip with his command overland from Leavenworth to Santa Fé, and upon his arrival at the latter point was placed in command of the territory comprised in New Mexico, of which he completed the conquest in a short time. He invaded old Mexico, and gained several brilliant victories and was made military governor of Chihuahua. He was governor of Missouri for four years, and served in various other offices within the State. He was president of the State convention of 1861, and on the outbreak of the Civil war he became major-general of the Missouri State forces (Confederate), and fought and defeated General Lyon at Wilson's creek. Soon after he captured Lexington, taking 3,500 prisoners, but was forced to retreat by General Fremont. He then was superseded by Van Dorn. Price participated in the campaigns of that general till the latter was ordered to Tennessee; he also took part in the Mississippi campaign under Beauregard and Pemberton,

being next transferred to the command of the army of the West. He saw service in Tennessee and was again placed under the command of Van Dorn. He was then transferred to the trans-Mississippi department and was assigned the command of Arkansas, whence he was driven by General Steele. From this time he was engaged in guerilla warfare in Missouri. At the close of the war he went to Mexico, but returned in 1866, dying the next year.

PRIESTLEY, SIR WILLIAM OVEREND, a celebrated English physician, born near Leeds, Yorkshire, June 24, 1829, and educated at the University of Edinburgh, settled in London in 1856, and became successively lecturer at the Grosvenor Place School of Medicine, professor of obstetric medicine in King's College, London, and consulting physician to King's College Hospital. He is a member of various learned societies and has written many works on natural history and medicine.

PRIME, SAMUEL IRENÆUS, born at Ballston, N. Y., November 4, 1812, became a Presbyterian clergyman, writer, and editor, taking charge of the New York *Observer* in 1840, contributing widely popular letters under the name of "Irenæus" and publishing *The Power of Prayer* (1859); *The Alhambra and the Kremlin* (1873), and other books of travels. He died July 18, 1885.

PRIME, WILLIAM COWPER, brother of the above, born at Cambridge, N. Y., October 31, 1825, edited the New York *Journal of Commerce* and wrote *Tent Life in the Holy Land* (1859); *Pottery and Porcelain* (1877), and other works.

PRINTZ, JOHAN, colonial governor, was born in Bottneryd, Sweden, circa 1600, and died in 1663. He was the third governor of the Swedish colony in New Jersey, and for an account of his administration the reader is referred to the article on the UNITED STATES.

PRITCHARD, THE REV. CHARLES, D.D., F.R.S., F.G.S., was born about 1808, and was graduated B.A. in 1830 as fourth wrangler at St. John's College, Cambridge, of which society he was elected a fellow. He was well known in the scientific world, and wrote various treatises, many of which are published in the *Transactions of the Royal Astronomical Society*. He was elected president of the Royal Astronomical Society in January, 1866; Hulsean lecturer at Cambridge in February, 1867; and Savilian professor of astronomy at Oxford, February 10, 1870. In 1886 he was awarded the gold medal of the Royal Astronomical Society, and was elected honorary fellow of St. John's College, Cambridge. He died May 28, 1893.

PROCTOR, HENRY A., a British soldier, was born in Wales in 1787, and died in Liverpool in 1859. He entered the army at an early age, and on the outbreak of the war of 1812-15 was sent to Canada in command of a regiment. He compelled Hull to retreat from Amherstburg, and subsequently gained the victory of Brownston, leading to the fall of Detroit and the surrender of Hull. He defeated Winchester near Frenchtown, for which he was made a brigadier, but was in turn defeated by General W. H. Harrison at Lower Sandusky, again by Major Groghan on August 2, 1813, and totally defeated by Harrison at the battle of the Thames in October, 1813; for which latter defeat he was court-martialed and suspended. He was reinstated, however, and afterwards rose to the rank of lieutenant-general.

PROCTOR, RICHARD ANTHONY, B.A., was born at Chelsea, March 23, 1837. He graduated as twenty-third wrangler from St. John's, Cambridge, in 1860. He was appointed an honorary fellow of King's College, London, in 1873, and fellow of the Royal Astronomical Society in 1866. He was appointed honorary secretary



of that society, and editor of its proceedings, in February, 1872, but resigned these offices in November, 1873. Having analyzed results collected by the Herschels, Struve, and others, and carried out a series of original researches, including the construction of a chart of 324,000 stars, Mr. Proctor was led to a new theory of the structure of the stellar universe; investigated the conditions of the transits of Venus in 1874 and 1882, and published many illustrative charts. He was one of the most popular astronomical writers, and his productions are numerous, covering other than professional topics in some instances. In 1879 Mr. Proctor left England for America and Australasia. He lectured in all the principal towns of Victoria, New South Wales, South Australia, Tasmania, and New Zealand. He started *Knowledge* as a weekly journal in 1881, but altered it to the monthly form in 1885. He died in New York city of yellow fever, contracted in Florida, September 12, 1888.

PROCTOR, THOMAS, Revolutionary soldier, was born in Ireland in 1739, and died in Philadelphia in 1806. On the outbreak of the Revolution he raised an artillery company, which was increased to a battalion, and finally to a regiment. He did good service in the campaigns under Knox and Wayne, and participated in the horrors of Valley Forge. His regiment was afterward consolidated with the Continental army, and he was commissioned a colonel of artillery. He resigned his commission after good service, and became a municipal officer in Philadelphia. He was a commissioner in 1791 to treat with the Miami Indians, and two years later commanded the Pennsylvania troops in the Whisky war. He was afterward major-general of the Pennsylvania militia. His organization of artillery exists to-day in the 2d regular regiment United States artillery, which is the lineal successor of Proctor's regiment.

PROVANCHER, LEON, Canadian author and scientist, was born in the Province of Quebec in 1820. He was for some years parish priest in the Roman Catholic communion, but withdrew from the pastorate on account of ill health, and engaged in the pursuit of natural history and general literature. His contributions to the natural history of Canada have been numerous and valuable, and he was made D.S.C. in 1880. He is the founder of *Le Naturaliste Canadien*. His writings, which are of a high order of merit, are in the French language, and are directed chiefly to the description of specimens of insect and floral life of his native land. He is said to have described at least 200 new species of Hymenoptera.

PROVOOST, SAMUEL, the first Protestant Episcopal bishop of New York, was born in New York city in February, 1742, and died there September 6, 1815. He was the foremost of the first seven graduates of Columbia College, and finished his education at Cambridge, England. He was ordained priest in 1766, and, having married, returned to New York, and became assistant rector of Trinity parish, which position he resigned in 1774 on account of political differences with his parishioners. During the Revolutionary war he was engaged in agricultural and literary pursuits, on one or more occasions serving in local defense against the British. He was offered the rectorship of several churches in other parts of the country in the meantime, but declined them. When the war was over he was elected rector of Trinity church. He was made a member of the board of regents of the New York University, and in 1786 was elected the first bishop of New York. Immediately thereupon he received the degree of D.D. from the University of Pennsylvania. In November he sailed for England, where he was consecrated by the English hierarchy, and on his return was made chaplain of the

United States Senate. On the inauguration of Washington Bishop Provoost officiated at the religious services incident to that ceremony. He consecrated the first bishop receiving the imposition of hands in America, the subject being Bishop Claggett of the Maryland diocese. Provoost was a man of great learning, but one so indifferent to literary fame that he left nothing in a permanent shape for future readers. He died of a stroke of apoplexy, and lies buried in Trinity church-yard.

PRYOR, ROGER A., American lawyer, was born near Petersburg, Va., July 19, 1828. He was graduated from Hampden-Sidney College, and studied law at the University of Virginia, but began life as a journalist. He was attached to the Washington *Union* first and subsequently became the editor of the Richmond *Enquirer*, the great political guide sheet of the Southern ante-war Democracy. At an early age he entered politics, and was sent on a special mission to Greece by President Pierce. He was a Democrat of the most extreme states rights stamp, and his utterances were always aggressive and offensive in regard to his opponents. His course involved him in several duels, and one of his speeches in Congress (to which he was sent to fill a vacancy in 1858-59) led to the imbroglio with John F. Potter, of Wisconsin, in which Pryor refused to fight a duel to which he had challenged Potter, on account of the selection of bowie-knives as the weapons. Pryor was an ardent advocate of secession and war, and was a member of the provisional congress at Richmond, being afterward a member of the regular Confederate congress. He entered the Confederate army in 1862 and was made a brigadier-general shortly afterward. He resigned in 1863, and was captured by the Union forces in 1864, and spent some time in confinement in Fort Lafayette. After the war he went to New York and engaged successfully in the practice of law, being regarded as one of the best criminal lawyers in the country. Among the noted cases in which he has recently figured were the Beecher-Tilton suit, the Guiteau murder trial, and the trial of O'Donnell for the murder of James Carey, the Irish informer.

PUGH, JAMES LAWRENCE, American senator, was born in Burke county, Ga., December 12, 1820. He studied law, and commenced its practice in Eufaula, Ala. He began his political career as a presidential elector in 1848, and again in 1856. He was elected to the House of Representatives in 1859, from which he retired on the secession of his State in 1861. He served two terms in the Confederate congress, and was for a time a private in the Confederate army. After the war he resumed his law practice, and again took an active part in politics, being president of the State Democratic convention in 1874, and a member of the Constitutional convention in 1875. He was presidential elector in 1876, and in 1885 was elected to fill a vacancy in the United States Senate caused by the death of Senator Houston; on the expiration of his first term he was re-elected, and is now one of the senators from Alabama, his term to expire in 1897.

PULASKI, KAZIMIERZ or CASIMIR, Polish soldier, was born in Podolia in 1748, and was killed near Savannah, Ga., October 11, 1799. He commenced his career as a soldier in the service of the duke of Courland, and in 1767 was engaged in the partisan warfare consequent on the confederation of Barr. He was active in the campaigns against the Russians, and was made commander-in-chief of the Polish forces, but was defeated, and the political intrigues resultant on a plot to abduct the Polish king, in which he is supposed to have taken part, culminated in the partition of Poland, and Pulaski was outlawed and forced to fly the country, with a price upon his head. He wandered over various countries of



Europe, and finally at Paris made the acquaintance of Benjamin Franklin, through whose influence he came to America, and took part in the war for independence. He entered the army as a staff officer under Washington, and was present at the battle of Brandywine. For services rendered here he was, on Washington's recommendation, made a brigadier-general. He participated in the campaigns of Washington, and cooperated with Wayne, but owing to the jealousy of the American officers for a foreigner, who could scarcely speak English, he was forced to return to the immediate command of Washington, with whom he spent the spring at Valley Forge. Shortly after he raised his famous legion, consisting of cavalry and infantry, and did good service in the northern country. He became dissatisfied with his petty command, and intended to resign and return to Europe, but was dissuaded by Washington, and was transferred to South Carolina, entering Charleston in May, 1779. He forced the British to evacuate South Carolina, and in September was ordered to Georgia to conduct the advance guard of General Lincoln's army. Here he rendered invaluable services, opening communication between the French fleet and the American army. He was active in the siege of Savannah, but was mortally wounded just before the end of the campaign. He was taken aboard the United States brig *Wasp*, and died as the ship stood out to sea. He was buried at sea, and the funeral services were held at Charleston afterward. A monument was erected to his memory by the citizens of Savannah, La Fayette laying the corner stone in 1824, on the occasion of his visit to this country.

PULITZER, JOSEPH, journalist, was born in Budapest, Hungary, April 10, 1847. He received his education in his native land and came to America in early youth. He made St. Louis his first permanent residence, and began his journalistic career as a reporter on the *Westliche Post*, a German newspaper, under the editorial direction of Carl Schurz. He was a member of the Missouri legislature in 1869 and of the constitutional convention in 1874. In 1878 he founded the *St. Louis Post-Dispatch* by purchase and consolidation, and he still retains his interest in the paper. He purchased the *New York World* in 1883, and is now its editor and proprietor. Under his management the paper has taken a new lease of life, and its prosperity has been unexampled. Besides the political offices recounted above Mr. Pulitzer has served as a delegate to several national conventions, and in 1884 was elected to congress, but was a member only a few months, resigning on account of pressure of editorial duties.

PULLING, ALEXANDER, sergeant-at-law, born at St. Arvan's, Monmouthshire, December 1, 1813; was educated at a private school, and afterward at Merchant Taylor's school, and was called to the bar at the Inner Temple in 1843; was made a sergeant-at-law, 1863; and became one of the leaders of the South Wales circuit. He was appointed a revising barrister in 1857, a magistrate for Gloucestershire in 1867. Mr. Sergeant Pulling originated the useful reform in the English law reporting system, which is now carried out by the Council of Law Reporting. He was a working member of that body, and was one of the senior members of the Law Amendment Society. From 1863 he was one of the managing trustees of the *Stamford Mercury* until his death, January 15, 1895. He wrote several works on law and treatises on economic questions.

PURCELL, JOHN B., Roman Catholic archbishop, was born in Mallow, county Cork, Ireland, February 26, 1800, and died in Brown county, Ohio, July 4, 1883. He immigrated to America when a young man and engaged in teaching shortly afterward, beginning

at St. Mary's College, Maryland, his theological course, which he concluded in the College of St. Sulpice, Paris, where he was ordained in 1826. Returning to America he became professor of philosophy in St. Mary's College, Emmettsburg, Md., afterward being elevated to the presidency of the school. Here his success as an educator and organizer attracted the attention of the American prelates, and he was nominated bishop of Cincinnati, and consecrated in 1833. Under his administration the diocese increased rapidly in wealth and numbers, and in 1847 was divided into two, and again subdivided later. He was made archbishop in 1850, and received the pallium from the pope in person. He founded the theological school of Mount St. Mary's of the West, besides a convent and other religious houses. Owing to the pressing needs of his new congregations and educational and benevolent enterprises he was induced to use money which his brother had been allowed to receive on deposit. The amount of liabilities thus contracted reached nearly \$4,000,000. There could be no suspicion of dishonesty on the part of the aged prelate; the failure was due entirely to a lack of knowledge of the banking business. He tendered his resignation in 1880, but it was not received, as it was felt that to do so would imply distrust, and he was given a coadjutor instead, he retiring from active life. His brother Edward, who was vicar-general of the archdiocese, died of a broken heart consequent on their financial troubles. Archbishop Purcell was a profound theologian, an accomplished polemic, and a gifted lecturer and author. He is said to have been one of the most generous of men, donating his entire income to works of charity. He was a member of the vatican council of 1869 and opposed the doctrine of papal infallibility, but subscribed to it when it was finally promulgated.

PUTNAM, FREDERICK WARD, anthropologist and scientist, was born in Salem, Mass., April 16, 1839. He received his early training under Louis Agassiz, and shortly became his assistant at Harvard. Soon after he took charge of the museum at the Essex Institute, and in 1867 he was appointed superintendent of the museum of the East India Marine Society. On the consolidation of these last two institutions with the Peabody Institute, under the title of the Peabody Academy of Sciences, Professor Putnam was made its director, holding this position till 1876. He succeeded Professor Wyman in charge of the Peabody Museum at Harvard, and in 1886 he was made professor of American archaeology and ethnology at that institution. Meantime he had filled the post of instructor in the School of Natural History on Penikese Island, and been appointed assistant on the Kentucky geological survey (1874). A year later he received a commission from the United States engineer department to report on the archaeological collections of the department. He was fish and game commissioner for Massachusetts several terms. His researches, while sometimes invading the field of zoölogy, are generally confined to archaeology and anthropology, on which topics probably no man in the United States is better informed. He is a member and officer of numerous scientific societies, and at the inception of the World's Columbian Exposition in Chicago in 1893 he was appointed chief of the department of Ethnology, Archaeology, Progress of Labor and Inventions. At the close of the fair he became curator of the new Field Columbian Museum.

PUTNAM, ISRAEL, was born at Salem, Mass., January 7, 1718, removing to Pomfret, Conn., in 1739. Courage, strong will, and knowledge of men, rather than of books, soon made him a leader among his neighbors. In the French and Indian war he became one of



the most renowned of the "rangers," or partisan soldiers, who fought the Indians with their own weapons; and at the end of the war he had reached the rank of lieutenant-colonel of the Connecticut troops. At the outbreak of the Revolutionary war, one of the four major-generals' commissions was given to Putnam. He was an active leader at Bunker Hill, commanded at New York and in the battle of Long Island, and was put in charge of the Hudson river defenses in 1777, being the first to see the strategic importance of West Point. In 1779 he was stricken with paralysis and forced to retire from military life. Many fantastic tales are told in regard to the eccentricities and vagaries of the man, it being at this point of time hard to distinguish the true from the false. He died at Brooklyn, Conn., May 19, 1790.

PUVIS DE CHAVANNES, PIERRE, a French painter, was born at Lyons, December 14, 1824. His first considerable work was a series of five compositions intended for the dining-room of his brother. One of these, *Un Retour de Chasse*, was exhibited at the salon of 1859. In 1861 he exhibited *La Paix* and *La Guerre*. These two subjects won for him his first public success. He has also exhibited *L'Automne*, 1864; *La Nuit*, which attracted great attention; *La Vigilance* and *La Fantaisie*, 1866; *Le Jeu*, 1868; *Massilia*, 1869. Shortly after this date M. de Chavannes began to treat a different order of subjects. In 1881 he exhibited *Le Pauvre Pêcheur* in the Salon in 1882; *Doux Pays* in 1884; *Bois Sacré*, and other symbolical pictures at later times.

PYAT, FÉLIX, French political agitator, writer and dramatist, born at Vierzon, October 4, 1810, received an excellent education, studied law at Paris, and was admitted an advocate in 1831. Contrary to the wishes of his friends, he devoted himself to literature, and after writing for the *Figaro* and the *Charivari*, was attached to the *Siècle*. As an author he is best known by his dramas, such as *Mathilde*, *Diogène*, and *Le Chiffonnier de Paris*. At the outbreak of the revolution of 1848, he abandoned literature for politics, joining the ranks of Ledru Rollin, with whom he went into exile. He was tried for some political offense before the correc-

tional police in Paris, and was sentenced to a fine and imprisonment in 1861. Soon after the establishment of the Republic in 1870, he returned to Paris, and became one of the leaders of the communists, and the editor of several revolutionary journals. On the capture of Paris by the Versailles army, Pyat—nicknamed *l'illustre fuyard*—escaped. In March, 1873, he was condemned to death. The amnesty of July 14, 1880, permitted him to return to Paris. He died August 4, 1889.

PYNCHON, WILLIAM, colonist, born in Springfield, England, in 1590; died at Wraybury, England, October 29, 1662. He came to America in company with John Winthrop, in 1630, and settled at Roxbury, Mass., where he engaged in the fur trade, and was made treasurer of the colony. Later, when some of the settlers desired to locate on the Connecticut river, he led them in 1636, to Springfield, Mass., where land was bought, and Pynchon was made chief magistrate. In 1650 he visited London and published a book, *The Meritorious Price of Our Redemption* (London, 1650), which was pronounced heretical, and he was removed from office. In consequence of this violent action of the colonial authorities and the ill treatment to which he became subjected, he returned to England in September, 1652, leaving his children as permanent settlers in New England. He took up his residence near Windsor, on the Thames, and engaged in theological writings in conformity with the teachings of the Church of England. His works are characterized by great ability.

PYNE, LOUISA (MADAME BODDA-PYNE), a popular English singer, born in 1832; made her first appearance about 1842. She sang in Paris with great success in 1847, and visited the United States, where she was enthusiastically received, in 1854. After an absence of three years she returned to her native land, and was, in conjunction with Mr. Harrison, joint lessee for a short season of the Lyceum and Drury Lane, and from 1858 till 1862 of Covent Garden theater. The enterprise having failed, Miss Louisa Pyne transferred her service to Her Majesty's theater, and frequently performed at Queen Victoria's concerts at Windsor Castle and Buckingham Palace. She married Mr. Frank Bodda.

## Q.

QUACKENBOS, GEORGE PAYN, was born in New York city, September 4, 1826; died in New London, Merrimack county, N.H., July 24, 1881. After he was graduated at Columbia, in 1843, he took up the study of law, but abandoned it to become principal of a large collegiate school in New York city, where he remained many years. He was editor of the *Literary Magazine* from 1848 until 1850, and compiled several dictionaries of foreign languages. His productions were chiefly school-books, among which were *First Lessons in Composition* (New York, 1851); *Advanced Course of Rhetoric and Composition* (1854); *School History of the United States* (1857); *Natural Philosophy* (1859); a series of English grammars (1862-64); one of arithmetics (1863-74); and *Language Lessons* (1876). Wesleyan gave him the degree of LL.D. in 1863.

QUACKENBUSH, STEPHEN PLATT, was born in Albany, N. Y., January 23, 1823. He became a midshipman in the United States navy in 1840, was made lieutenant in 1855, and rose to the rank of lieutenant-commander in 1862. He served with distinction during the Civil war, being in charge of the *Delaware*, the *Unadilla*, the *Pequot*, the *Patapsco*, and the *Mingo*, of the blockading squadron. He held the enemy back when Gen. Ambrose E. Burnside's army withdrew

from Aquia creek, throwing a large body of Confederates into confusion and enabling the army to land at Roanoke. He was in the battles of Elizabeth City and New Berne, N.C., where he flew the divisional flag of Commodore Stephen C. Rowan. At Winton, N.C., where 700 or 800 Union men had been reported, and a white flag displayed as a decoy to the naval vessels, he engaged the Confederate batteries and a regiment of infantry. Winton was destroyed in consequence of the display of the white flag. Quackenbush commanded the *Pegot* at Sewell's Point landing, Wilcox landing, and Malvern Hill, on James river, receiving a shot that took off his right leg. In the retreat to Harrison's landing he covered the rear-guard of the army. In 1863, while in charge of the *Unadilla*, he captured the *Princess Royal*, containing engines for an iron-clad then building in Richmond, machinery for shaping projectiles, and quinine. In 1864, while dragging for torpedoes in Charleston harbor, his ship, the *Patapsco*, was struck by one, and sunk. Afterward he protected Georgetown, S.C., with the steamer *Mingo* and a force of light-draught vessels, and prevented the reërection of a fort by the enemy. He was made commander in 1866, captain in 1871, and commodore in 1880. In 1885 he was retired, and died February 4, 1890.



QUAIN, RICHARD, M.D., was born at Mallow, Ireland, October 30, 1816, and educated at the Diocesan School at Cloyne. At the age of twenty he went to London and entered, in January, 1837, the medical faculty of University College. In 1843 he was elected a fellow of University College. He took the degree of M.B. at the University of London in 1840, gaining the scholarship and gold medal in physiology, as well as honors in surgery and midwifery; and in 1842 he graduated M.D. In May, 1860, he was nominated a member of the Senate of the University. In 1846 he became a member of the Royal College of Physicians of London; in 1851 was elected a fellow, and afterward filled the offices of senior censor and member of council; he was Lumléian lecturer (in 1853), and Harveian orator in 1855. He was elected a fellow of the Royal Society in 1871; was a fellow and vice-president of the Royal Medico-Chirurgical and Medical Societies of London. One of the founders of the Pathological Society, he filled its presidential chair, as well as that of the Harveian Society. He was a fellow of the Statistical and Zoological Society, and a member of other learned societies. He died in 1887.

QUARTLY, ARTHUR, artist, was born in Paris, France, May 24, 1839; died in New York city, May 19, 1886. He was taken to London when a child, and from 1848 to 1850 he studied at Westminster. In 1851 he came to the United States and was soon afterward apprenticed to a sign painter in New York, where he followed his trade until 1862. He then went to Baltimore and for ten years was engaged in business, devoting his leisure hours in the meantime to the study of painting. In 1873 he opened a studio, and in 1875 he returned to New York, where he soon became widely known as one of the foremost of American marine painters. He was elected an associate of the National Academy in 1879, and became an academicien in 1886. In 1885 he went to Europe and remained abroad about a year, returning a few months before his death. Among his paintings are *Morning Effect, North River; Close of a Stormy Day, From a North River Pier Head; An Afternoon in August; Trinity from the River*.

QUATREFAGES, JEAN LOUIS ARMAND DE, born at Vallerange (Gard), France, February 10, 1810, of a Protestant family; completed his education at Strasburg, where he took the degree of M.D., and began to write on subjects of natural philosophy as early as 1829. In 1839 he was called to the chair of zoology at Toulouse, but soon resigned that appointment and went to Paris. In 1842, and after having traveled round the coasts of Italy and Sicily, he contributed some papers on natural history to the *Revue des Deux Mondes*, republished in 1854 under the title of *Souvenirs d'un Naturaliste*. He was nominated professor of natural history in the Lycée Napoléon in 1850, was elected a member of the Academy of Sciences, April 26, 1852, was nominated a chevalier of the Legion of Honor April 25, 1845, was called to the chair of anatomy and ethnology in the Museum of Natural History at Paris in 1855, and was promoted grand officer of the Legion of Honor in 1863. He died November 11, 1892.

QUAY, MATTHEW STANLEY, was born in Dillsburg, York county, Penn., September 30, 1833, and was graduated at Jefferson College, in that State, in 1850. He began the practice of law in 1854, and in the following year was appointed prothonotary of Beaver county, an office which he held until 1861, when he resigned to accept a lieutenantancy in the 10th Pennsylvania reserves. Subsequently he was made assistant commissary-general of the State, with the rank of lieutenant-colonel, and shortly afterward was appointed private secretary to Gov. Andrew G. Curtin. In August, 1862, he was

commissioned colonel of the 134th Pennsylvania regiment, but his health having become impaired he was mustered out December 7th of the same year. Afterward, however, December 13th, he took part in the assault on Marye's Heights as a volunteer. He served three terms in the State legislature, and in 1869 he established and edited the *Beaver Radical*. In 1873 he became secretary of the commonwealth, resigning in 1878 to accept the appointment of recorder of Philadelphia. This office he resigned in 1879, and was again appointed secretary of the commonwealth, filling that post until October, 1882. He was elected State treasurer in 1885, and United States Senator in 1887 and 1893, becoming the Republican leader of the State.

QUEEN, WALTER W., was born in Washington, D. C., October 6, 1824. As a midshipman in the United States navy, he served in the Mexican war on the frigate *Cumberland*, taking part in the attacks on Alvarado, Tampico, Tuspan, and Vera Cruz. In 1848 he was dismissed from the service for fighting a duel, but was reinstated in 1853, and two years later attained the rank of lieutenant. In 1861, while on special duty in the steam sloop *Powhatan*, he reinforced Fort Pickens, Fla., and at the bombardment of Fort Jackson and Fort St. Philip, he commanded a division of the mortar flotilla under David D. Porter. He was with Flag Officer David G. Farragut when he passed the batteries with his fleet during the attack on Vicksburg. He was made lieutenant-commander in 1862, and on May 5, 1864, with the steam gunboat *Wyalusing*, he engaged the Confederate ram *Albatross* and her consorts. In 1866 he became commander, with special duty on the *Hartford*, rising to the rank of captain in 1874, commodore in 1883, and rear-admiral in 1886. He was retired in 1886 and died October 24, 1893.

QUINBY, ISAAC FERDINAND, was born near Morristown, N. J., January 29, 1821. He was graduated at the United States Military Academy in 1843, participated in several of the closing skirmishes of the Mexican war, and in 1851 became professor of mathematics in the newly founded university of Rochester, N. Y. He resigned from the army March 16, 1852, and held his professorship until the breaking out of the Civil war, when he became colonel of the thirteenth New York regiment. He resigned his commission August 2, 1861, but on March 17, 1862, he was appointed brigadier-general of volunteers, and assigned to the command at Columbus, Ky. In the following October he was placed in command of the seventh division of the army of the Tennessee, and was with Grant at Vicksburg, participating in the assault of May 19, 1863, and the subsequent movements. Illness compelled him to return to the North in June, and on December 31, 1863, he resigned his commission and resumed his duties as professor in the university. During the two presidential terms of General Grant he was United States marshal for the northern district of New York, and in May, 1885, he was appointed city surveyor of Rochester. General Quinby revised some of the works in *Robinson's Course of Mathematics*, and added a treatise of his own, *Differential and Integral Calculus*. He died Sept. 18, 1891.

QUINCY, EDMUND, American author, born in Boston, February 1, 1808; died in Dedham, Mass., May 17, 1877. He was graduated at Harvard in 1827, and soon after began to attract attention by his writings. His excellent biography of his father, Josiah Quincy, is especially esteemed. In 1854 he published the novel, *Wensley*, which was pronounced by Whittier the best book of its kind since the *Blithedale Romance*. He was an active participant in the anti-slavery movement, and for many years contributed able articles to the anti-slavery press.



QUINTARD, CHARLES TODD, was born in Stamford, Conn., December 22, 1824. He was graduated in medicine at the University of the City of New York in 1847, and afterward removed to Athens, Ga., where he began the practice of his profession. In 1851 he was appointed to the chair of physiology and pathological anatomy in the medical college at Memphis, Tenn., and became one of the editors of the *Medical Recorder*. He was ordained priest in the Protestant Episcopal church in 1856, and at the beginning of the following year was made rector of Calvary church, Memphis. At the end of the year he resigned, and at the request of the bishop accepted the rectorship of the Church of the Advent, Nashville, Tenn. During the war he was chaplain of the first Tennessee regiment. He was elected bishop of Tennessee, September 7, 1865, and later reestablished the University of the South, at Sewanee, Tenn., becoming its first vice-chancellor. Bishop Quintard received the degree of D.D. from Columbia in 1866, and that of LL.D. from Cambridge, England, in 1867.

QUITMAN, JOHN ANTHONY, was born in Rhinebeck, N. Y., September 1, 1799 and died in Natchez, Miss., July 17, 1858. He was educated for the Lutheran ministry, and in 1816 was appointed tutor in the classical department of Hartwick Seminary. Two years later he became a professor in Mount Airy College,

Germantown, Penn., and while there he decided to adopt the legal profession instead of the ministry. In 1819 he went to Ohio and studied law, and in 1821 he settled in Natchez, Miss., where he became trustee of the State University. He was elected to the legislature in 1825, was chancellor of the State from 1828 until 1834, and afterward was president of the State Senate, at which time he was also charged with the functions of governor, that office having become vacant. In 1836, at the head of a body of men which he had raised, he aided the Texans against Mexican incursions, and in 1846 he entered the Mexican war as a brigadier-general under General Taylor. He won distinction by his conspicuous bravery at Monterey, Vera Cruz, and Alvarado, and assisted in taking possession of the city of Pueblo, for which he was brevetted major-general. Later, he stormed the defenses of Chapultepec, and Gen. Winfield Scott appointed him governor of the city of Mexico. On his return to the United States he was elected governor of Mississippi. At that time he advocated the annexation of Cuba to the United States, and was prosecuted for alleged complicity in the filibustering expedition under Lopez. The jury disagreed, but General Quitman resigned the governorship, and from 1854 until 1858 he represented his district in congress, where he was at the head of the military committee.

## R.

RACINE, ANTOINE, Roman Catholic bishop, was born near Quebec, Canada, on January 26, 1822. He was primarily educated by his uncle, a parish priest; entered the seminary in 1834, and was ordained priest ten years later. He held various pastorates, and was active in behalf of emigrants, founding a journal in their interest called the *Canadian Emigrant*. He was transferred to St. John's church, Quebec, in 1853, was nominated bishop of Sherbrooke in 1874, and consecrated by Archbishop Taschereau in October of that year. He immediately proceeded to erect an ecclesiastical college in his episcopal city, which he named for St. Charles Borromeo. This school is now in a flourishing condition. He was also the founder of various other denominational institutions, and administered his diocese most efficiently.

RADEMACHER, JOSEPH, Roman Catholic bishop, was born in Michigan, December 3, 1840. He was graduated from St. Michael's Theological Seminary, at Pittsburgh, and ordained priest in 1863, his first charge being at Attica, Ind. He served in several other parishes, and in 1877 was made chancellor of the diocese. He was nominated bishop of Nashville in 1883, and confirmed and consecrated by Archbishop Feehan of Chicago. Since that time he has given his entire attention to his diocese with marked success.

RADFORD, WILLIAM, was born in Virginia, March 1, 1808. He entered the navy as midshipman in 1825, and became lieutenant in 1837. He saw service in the Mexican war, taking part in the action with the Malek Adel at Mazatlan. He was promoted commander in 1855, captain in 1862, and commodore in 1863. He commanded the ironclad division of Porter's fleet at Fort Fisher, rendering most efficient service. During a portion of the war he was on special duty at Fort Monroe. He was made rear-admiral in 1866, and commanded the European squadron in 1869-70. On March 1, 1870, he retired. He died in 1890.

RAE, JOHN, explorer, was born in the Orkney Islands September 30, 1813. He was graduated from

the University of Edinburgh in 1833, and entered the service of the Hudson Bay Company as surgeon, living at Morse Fort till 1845, during which residence he made many explorations. In 1846 he wintered at Repulse Bay and explored about 635 miles of land. In 1848 he accompanied Sir John Richardson in a search for Sir John Franklin, and in 1850 commanded a similar expedition sent out by the Hudson Bay Company. In this last expedition he found some wood which probably formed a part of Sir John Franklin's ship, and this was the first information of a tangible nature received of the whereabouts of Franklin's party. He received from the English government the reward of £10,000 (\$50,000) for the discovery of the fate of Franklin's expedition. He made extensive explorations during his expedition, adding much to our knowledge of the geography of the Arctic seas. He was also employed in the survey for a cable between England and America, and conducted a telegraph survey across the continent from Winnipeg to the Pacific. He received several honorary degrees from literary institutions, among them those of LL.D., from Edinburgh University, and M.D. from McGill College, Montreal. He published an account of his explorations. He died July 21, 1893.

RAFF, GEORGE WERTZ, author, born in Tuscara-was, Ohio, March 24, 1825; died in Canton, Ohio, April 14, 1888. He was a "self-made" man, as his advantages in youth were extremely limited. He was clerk of the court of Stark county for two years, judge of the probate court for three years, and on his removal to Canton filled several municipal offices. He was president of the Canton savings bank, an institution which he founded. His publications are chiefly guides to legal procedure in various classes of actions and are regarded as excellent specimens of their kind.

RAFF, JOSEPH JOACHIM, musical composer, was born at Lachen, on the Lake of Zurich, Switzerland, May 27, 1822. In 1843 Mendelssohn gave him an introduction to the firm of Breitkopf and Härtel, who first brought his compositions before the public. In



1846 Mendelssohn invited him to become his pupil, but died before the project could be carried out. Later Raff published *Die Wagnerfrage*, a pamphlet which excited considerable attention. In 1850 he went to Weimar, and here his opera, *König Alfred*, was first performed at the Court theater. In 1856 he went to Wiesbaden, and became a highly successful teacher of the piano. His *An das Vaterland* obtained the first prize offered by the Gesellschaft der Musikfreunde in Vienna, in 1863. *Dame Kobold*, a comic opera, was produced at Weimar in 1870. He wrote a large number of symphonies and concertos, and much chamber music. In 1877 he was appointed director of the conservatoire at Frankfurt. He died June 24, 1882.

RAIKES, HENRY CECIL, was born in England in 1838, and was educated at Shrewsbury school, and Trinity College, Cambridge. He was called to the bar at the Middle Temple in 1863, and elected a bencher in 1880. From 1868 to 1880 he sat as a Conservative for Chester; afterward for Preston until November, 1882, when he was elected one of the members for Cambridge University, which he represented until his death. From 1874 to 1880 he was chairman of ways and means and deputy speaker of the House of Commons. In 1886 Lord Salisbury appointed him postmaster-general. He died in November, 1891.

RALSTON, WILLIAM C., banker, was born in Wellsstone, Ohio, January 12, 1826, and died in San Francisco, Cal., August 27, 1875. In 1849 he emigrated to California, where he gave his attention to all kinds of business enterprises, and became president of the Bank of California. In August, 1875, James G. Flood made a demand on the bank for nearly \$6,000,000 and, although the institution was solvent, its assets were so invested as not to be immediately available, and the president was compelled to surrender all his property to meet the call. This so affected his mind that he drowned himself.

RALSTON, WILLIAM RALSTON SHEDDEN, M. A., was born in 1828, and studied at Trinity College, Cambridge, England, from 1846 to 1850, and obtained the degree of M.A. From 1853 to 1875 he served in the British Museum as an assistant librarian. He published several works on Russian folk lore and translations from the literature of that country. He also contributed a great number of articles to English periodicals. He died August 7, 1889.

RAMIREZ, IGNACIO, Mexican statesman and jurist, was born in San Miguel el Grande, June 23, 1818, and died in June, 1879. He was of pure Aztec blood, and was thoroughly educated, graduating in law in 1841. In 1846 he founded a paper, which, becoming obnoxious, was suppressed by the government. Soon after the establishment of the Federal system Ramirez became secretary to the governor of the State of Mexico, and took an important part in organizing resistance to the Americans in the war with this country. From that time forward his life ran parallel with and formed a part of the history of the many internal dissensions and revolutions in Mexico, he being first in power and then in banishment, holding many of the highest offices in the State. His last position was on the bench of the Supreme Court, which he occupied till his death. In addition to his political occupations he was a voluminous author, both of prose and poetry, and was for some years associate editor of *El Correo de Mexico*.

RAMSAY, DAVID, author and physician, was born in Lancaster county, Penn., April 2, 1749, and died in Charleston, S. C., May 8, 1815. He took an active part in the Revolution, and his skill as a physician, and his readiness with his pen, made him a power in the

land. So obnoxious was he to the British, that he was held in close confinement for eleven months as a hostage. He served in the Continental congress, and as a surgeon in the army. He met his death by a pistol in the hands of a lunatic, against whose mental soundness he had testified. His brother NATHANIEL, was also a noted Revolutionary patriot, being a colonel in the Continental army, and undergoing a long imprisonment at the hands of the British. He was a member of congress, and served as marshal of the district of Maryland. He was afterward made naval officer for the Baltimore district, holding the position under five presidents. He was born in Pennsylvania in 1751, and died in Baltimore in 1817.

RAMSAY, GEORGE DOUGLAS, soldier, was born in Dumfries, Va., February 21, 1802, and died in Washington in May, 1882. He was graduated at West Point in 1820, and was assigned to the artillery. In 1835 he was made captain of ordnance, and had charge of various arsenals till the commencement of the Mexican war. He served in this war, and was chief of ordnance for General Taylor's army. After the Mexican war he again took charge of the arsenals, and was made a member of the ordnance board. When the Civil war broke out he was put in command of the Washington arsenal, with the rank of lieutenant-colonel, remaining at that post till 1863. In September of that year he was made chief of ordnance of the United States army, and promoted brigadier-general, serving in this capacity till 1864, when he was retired with the brevet rank of major-general in the regular army "for long and faithful services."

RAMSAY, SIR ANDREW CROMBIE, LL.D., F.R.S., born in 1814, and educated at Glasgow, was appointed to the geological survey of Great Britain in 1841, and became director of the same in 1845. He was nominated professor of geology at University College in 1848, lecturer on geology at the Royal School of Mines in 1851, and was president of the Geological Society in 1862 and 1863. In 1872 he was appointed director-general of the geological survey of the United Kingdom, and of the Museum of Practical Geology. He wrote extensively on scientific subjects, and was a member of many learned societies. He died December 9, 1892.

RAMSEUR, STEPHEN DODSON, American soldier, was born in North Carolina, May 31, 1837, and was killed at Cedar Creek, Va., October 20, 1864. He was graduated at West Point in 1860, assigned to the artillery and placed on garrison duty at Fort Monroe. In 1861 he was transferred to Washington, but resigned and entered the Confederate army as captain of artillery. During the Peninsular campaign he had command of the artillery of the right wing of the Confederate army, with the rank of major. Soon after he was transferred to the infantry and made a colonel. In November, 1862, he was promoted brigadier, and succeeded to the command of Gen. G. B. Anderson's North Carolina brigade, in which position he took a creditable part in the campaigns of Northern Virginia. In June, 1864, he was brevetted major-general and transferred to Early's army in the valley of Virginia, participated in the battle of Winchester, and was mortally wounded at Cedar Creek, while trying to rally his retreating command.

RAMSEY, ALEXANDER, was born near Harrisburg, Penn., September 8, 1815. He was graduated at Lafayette College, and early entered politics, being a clerk in the register's office in 1828. In 1840 he was secretary of the electoral college of Pennsylvania, and in 1841 clerk of the State House of Representatives. In 1842 he was elected to congress, serving four years. He was chairman of the Whig State central committee, and was the first Territorial governor of Minnesota



During his term of office in this capacity he negotiated important treaties with the Indians, and secured the title of large territory for the government. He was mayor of the city of St. Paul in 1855, and governor of the State of Minnesota in 1860-63, being, in the latter year, sent to the United States Senate from that State, and holding his seat twelve years. In 1879 he succeeded Hon. G. W. McCrary as secretary of war, and held the office till the close of Hayes' administration. In 1882 he was a member of the Utah commission, since which time he has acted as commissioner in several instances for the government.

RANDALL, ALEXANDER WILLIAMS, was born in Montgomery county, N. Y., October 31, 1819, and died in Elmira, N. Y., July 25, 1872. He studied law, and commenced to practice at Waukesha, Wis., in 1840. His first political preferment was the postmastership of Waukesha. He was a member of the State Constitutional Convention of Wisconsin in 1847, and in 1855 was sent to the legislature. In the same year he was appointed judge of the Milwaukee Circuit Court. In 1857, and again in 1859, he was elected governor of the State, and at the outbreak of the war was a zealous Union man, exceeding his constitutional powers in the organization and equipment of troops for the army, which actions the legislature afterward approved. At the close of his second gubernatorial term he intended to enter the army, but was sent as minister to Italy by President Lincoln. He resigned in 1862, and was made first assistant postmaster-general, and in 1866 became postmaster-general, serving three years.

RANDALL, JAMES RYDER, American song writer, was born in Baltimore in January, 1839. He traveled in South America, and on his return engaged in journalism in Louisiana. His health not permitting him to enter the army, he employed his pen with ardor in behalf of the Southern cause, writing, among other productions, several songs, one of which, *Maryland, my Maryland*, was styled the *Marseillaise of the Confederacy*. After the war he removed to Augusta, Ga., where he engaged as associate editor of the *Constitutionalist*, and in 1866 became its chief.

RANDALL, SAMUEL JACKSON, American statesman, was born in Philadelphia, October 10, 1828. He was intended for mercantile pursuits, but becoming engaged in ward politics, he was elected to the city council four times successively, and next to the State legislature. In 1863 he was elected to congress, and served without intermission from that date till his death, his district being the only Democratic one in Philadelphia. He early attracted attention by his abilities and qualifications as a debater, and his executive powers were shown during his speakership of the House of Representatives, which office he filled for three successive terms, being first elected to fill the vacancy caused by the death of Michael C. Kerr. His speeches on the force bill gave him great distinction and made his name the foremost in his party with Democrats of all classes. He was regarded as the leader of the protectionist wing of the Democratic party, and, while chairman of the House committee on appropriations, took a decided stand in favor of the economical administration of the government, and forced a proportional reduction of the various appropriations for governmental purposes. During his entire term he was either an officer of the House or a member or chairman of some important committee, holding at the time of his death a membership on the committee on appropriations. He was several times urged as the Democratic candidate for president, but was never nominated. He died April 14, 1890.

RANDOLPH, ALFRED MAGILL, Protestant Episcopal bishop, was born in Winchester, Va., August 31,

1836. He was graduated at William and Mary College, and took a theological course at the Virginia Theological Seminary at Alexandria, being ordained and taking the rectorship of St. George's church, Fredericksburg, Va., in 1858. In 1862, owing to the partial demolition of his church and the scattering of his congregation by the battles around the town, he left Fredericksburg and joined the Confederate army, serving as chaplain till the war closed. He was then rector of Christ church, Alexandria, and in 1867 became pastor of Emmanuel church, Baltimore, where he remained till 1883, when he was elected assistant bishop of Virginia, a position he now fills. He is the leader of the low church wing of the Episcopal Church in that State. The degree of D.D. was conferred on him by William and Mary College, and LL.D. by Washington and Lee University.

RANDOLPH, EDMUND JENNINGS, born in Williamsburg, Va., August 10, 1753; died in Clarke county, Va., September 13, 1813. He read law with his father, and was admitted to the bar. Although his parents were ardent Tories and had sailed for England on the outbreak of the Revolution, Randolph eventually became aide-de-camp to Washington. Later, he was elected mayor of Williamsburg, became the first attorney-general of Virginia, and in 1779 was elected to congress. From 1786 to 1788 he was governor of Virginia; on September 27, 1789, was appointed attorney-general of the United States, and on January 2, 1794, on the retirement of Thomas Jefferson, became secretary of State, which office he was compelled to relinquish in consequence of charges of venality, based on a letter from the French minister, Tauchet, which was intercepted, translated, and published by the British minister in Philadelphia. After his resignation Mr. Randolph returned to the practice of his profession in Richmond, Va. He was one of the counsel of Aaron Burr (*q.v.*) on his trial for treason. His writings were mostly of a political nature.

RANDOLPH, FRANCIS CHARLES HINGESTON, M. A., born March 31, 1833; was educated at Exeter College, Oxford (B.A., 1855; M.A., 1858). Having held a curacy in Oxford (Holywell), he was appointed in 1859 to the perpetual curacy of Hampton Gay, near Oxford, and in 1860 to the rectory of Ringmore, Devon. He was appointed dean-rural, 1879; and prebendary of Exeter, 1885. Since 1850 he has published many valuable works, mostly dealing with antiquities, sacred and profane.

RANDOLPH, GEORGE W., was born at Monticello, Va., March 10, 1818, and died near Charlottesville, Va., April 10, 1878. He was a midshipman in the United States navy till his nineteenth year, when he entered the University of Virginia and was graduated therefrom. He studied law and acquired a large practice in the city of Richmond. At the beginning of the war he raised the command which, under Magruder's leadership, fought Butler at Big Bethel. He was made a brigadier-general, but was subsequently appointed secretary of war of the Confederate States. This office he resigned and again took the field, till compelled by ill-health to retire, when he ran the blockade and spent several years abroad. He was one of the peace commissioners sent to consult President Lincoln shortly after his election, with the object of averting war. After his return to this country he retired from active life and died at his country-seat.

RANDOLPH, PEYTON, patriot, was born in Williamsburg, Va., in 1721, and died in Philadelphia, October 22, 1775. He was graduated at William and Mary; then studied law, and became king's attorney for the colony under the governorship of Sir William Gooch. He early became involved in the disputes be-



tween the crown and the people of the colonies, being sent to England by the colonists to resist the imposition of a tax on land patents. For the offense of leaving the colony without permission, he was removed by the governor from his office of attorney, but was reinstated on the demand of the people. During the French and Indian war he raised a troop, and saw some service under Colonel Byrd. He was a member of the Virginia House of Burgesses, and was appointed speaker in 1766. He was chairman of the committee of correspondence between the colonies, and was president of the convention, 1774, which took the first steps toward organizing the congress at Philadelphia, and he headed the list of the seven members sent thereto by Virginia. For his participation in this convention a bill was introduced into parliament to attain him, but it failed to pass. He was unanimously elected president of the first congress, his even temperament and great legal knowledge giving him unbounded influence over the body. During the exciting times just prior to the commencement of hostilities between England and the colonies, he was a prominent actor, being president both of congress and the Virginia House of Burgesses. On the adjournment of the Burgesses in 1775, he returned to resume his duties in congress, where he was stricken with apoplexy and died. He revised the laws of Virginia, and was one of the examiners of Patrick Henry when he applied for a license to practice law, and his name is attached to the latter's license. He lies buried in the chapel of William and Mary College.

RANDOLPH, THEODORE F., American statesman, was born in New Brunswick, N. J., June 24, 1816, and died in Morristown, N. J., November 7, 1883. After a residence in the South he returned to New Jersey, and settled at Morristown. He was shortly after elected to the legislature, and at once took a prominent place in that body. He was the chairman of the special committee on the peace conference of 1861, and was author of the measures for the relief of soldiers' families. He was elected State senator in 1861, and served till 1865. He had become draft commissioner for Hudson county in 1862. He engaged in railroad affairs for a time after the war, and was made governor of New Jersey in 1868. He was elected United States senator in 1874, and was a member of the special committee on South Carolina election frauds. He was a patentee of several mechanical inventions. His administration, both in state and railroad affairs, was highly energetic and uniformly successful.

RANDOLPH, THOMAS JEFFERSON, was born at Monticello, Va., September 12, 1792, and died near Charlottesville, Va., October 8, 1875. He was educated at the University of Virginia, and early began to take part in the politics of the State. He was the author of a bill in the Virginia legislature to free the slaves in Virginia by a system of gradual emancipation, which had been suggested by his grandfather, Thomas Jefferson. The bill was defeated, owing to the intense feeling caused by the acts of Northern and foreign abolitionists. He was the author of the tax bill of 1842, which saved the State from bankruptcy. In 1851-52 he took part in the constitutional convention, and in 1872 he presided at the Baltimore Democratic convention. He was an author of no mean ability, and was the literary executor of Thomas Jefferson. He was for many years connected with the University of Virginia, being for thirty years a visitor and for seven years its rector.

RANKE, LEOPOLD VON, the great German historian, was born at Wiehe, Saxony, December 21, 1795. He was educated at Leipsic, and in 1818 became a tutor in the gymnasium at Frankfort, being removed thence by

a call to Berlin in 1825 to occupy the post of professor extraordinary of history in the University there. In 1824 he published his first historical work, *A History of the Romance and German Nations*. His original intention was to show the essential unity of European civilization, and the design was to treat the different states all in one combined work, but this plan was afterward modified and he treated them separately, producing a series of the best histories ever penned. In the odd moments of time which he could snatch from his graver labors Ranke diverted himself by writing a few monographs and delivering lectures on literary topics. His work, *The Romish Papacy, its Church and State*, while not his best, is his most widely read effort; having been translated into almost every civilized language. After he had finished his great work on European history, at the age of eighty Ranke began his *History of the World* and lived to complete twelve volumes. He was assisted by the government in every way possible, and he well repaid all favors shown him. In 1865 he was knighted; in 1867 he was made chancellor of the order *Pour le mérite*; in 1882 he was made a privy counselor, and in 1885 his ninetieth birthday was made a national holiday, the Emperor William calling on him at his residence and congratulating him. His later works show no diminution of power, and he wrote till within a few days of his death, which took place in May, 1886.

RANSOM, GEORGE MARCELLUS, naval officer, was born in Otsego, N. Y., January 18, 1820. He entered the navy in 1839 and received his promotion through different grades till he became lieutenant commander, in 1862. He served in the Western Gulf blockading squadron and saw some severe fighting, took part in Farragut's operations against New Orleans, and on the Mississippi river. For his services he was promoted commander in 1863, and was transferred to the North Atlantic blockading squadron, again earning promotion. He was made captain in 1870, and commodore in 1877. He was retired in 1882.

RANSOM, MATT WHITTAKER, senator, was born in Warren county, N. C., October 8, 1826. He was graduated at the University of North Carolina, and was admitted to the bar in 1847. He was a Whig presidential elector in 1852, and was attorney-general of the State for three years. Seceding from the Whig party, he was sent to the legislature by the Democrats, and was one of the North Carolina commissioners to the Confederate congress. He was opposed to the war, but on the outbreak of hostilities he enlisted, and was shortly made colonel in the 35th North Carolina infantry. He participated in all the campaigns of northern Virginia, and was promoted successively brigadier and major-general. After the war he returned to his practice. He was U. S. senator from 1872 until 1895, when he was appointed minister to Mexico by President Cleveland.

RANSOM, THOMAS EDWARD G., soldier, was born in Norwich, Vt., November 29, 1834, and died near Rome, Ga., October 29, 1864. He was a civil engineer by profession, but entered the army on the outbreak of hostilities as lieutenant-colonel of the 11th Illinois. He participated in the Fort Henry and Fort Donelson campaigns and was twice severely wounded. His bravery earned promotion to a colonelcy. At Shiloh he was again wounded, but did not leave the field. He was chief of staff for Gen. J. A. McClelland, inspector-general of the army of the Tennessee, and a member of General Grant's staff. In 1863 he was promoted brigadier, and commanded a division in the Red river campaign. He was fatally wounded at Sabine cross roads, and, though he continued to direct his troops in pursuit of Hood's army, he finally succumbed to the effects of the



wound, two months after receiving his brevet as major-general.

RANTOUL, ROBERT, JR., statesman, was born in Beverly, Mass., August 13, 1805, and died in Washington, August 7, 1852. He was a graduate of Harvard, and began the practice of law in 1829, at once taking very high rank in the legal profession. He was elected to the legislature in 1834, and served four years. He was appointed United States district attorney for Massachusetts in 1845, resigning in 1849. In 1850 he was the organizer of the Illinois Central railroad. In 1851 he was elected United States senator to succeed Daniel Webster, and held the position nine days. Soon after he was elected to the House of Representatives and served till his death. In addition to his political services Mr. Rantoul was prominent as a lawyer, being engaged in many important cases, such as the Dorr rebellion trials, and often successfully opposing the most eminent lawyers of the day. He was an active friend of industrial reform, and a violent opponent of slavery extension. He was also a strong temperance agitator, but deprecated legislative interference.

RAPP, GEORGE, communist, born in Württemberg, Germany, in 1770; died in Economy, Penn., August 7, 1847. He early planned a commune. Hampered in his purpose by the German government, Rapp came to America. In 1803 he arrived with a band of followers who founded the town of Harmony, in Butler county, Penn., and engaged in manufactures and agriculture. In 1815 they changed their location to the Wabash river, Ind., where they bought a tract of 27,000 acres, and began a new settlement under the name of New Harmony. In 1824 the Harmonists sold their land and improvements. Returning to Pennsylvania they founded two settlements, Harmony and Economy, on the banks of the Alleghany river, seventeen miles northwest of Pittsburgh, Penn. The present community possess 3,500 acres of land, engage in agriculture, raise cattle and silk worms, make wine, and produce silk, woolen, and cotton manufactures. The members are celibates, and increase by the accessions of new converts; their society is flourishing and highly respected. George Rapp, during his lifetime, was the director and was succeeded by President Becker.

RASPAIL, FRANÇOIS VINCENT, a noted French chemist and revolutionary leader, was born in 1794. He received a liberal training and in 1830 began his course as a political agitator by taking up arms against Charles X. In 1848 he was a prominent revolutionary figure, and proclaimed a republic at the *Hotel de Ville* far in advance of events. In 1849 he was tried for conspiracy and treason and sentenced to six years' imprisonment. In the commune of 1871 he was again a noted actor, despite his age. He was an excellent writer on professional topics, and several of his works have been extensively translated and are standards of chemistry the world over. He died in 1878 and lies buried in Pere la Chaise, where his tomb forms one of the attractions of the cemetery.

RASSAM, HORMUZZ, was born in 1826, at Mossul, in Northern Mesopotamia. In 1845 he joined Mr. Layard to assist him in his Assyrian researches. When Mr. Layard returned to England in 1847, Mr. Rassam came with him to complete his studies at Oxford, but at the end of 1849 he was sent out by the British Museum authorities to assist Mr. Layard in his second undertaking. Mr. Layard commissioned Mr. Rassam to succeed him. During this expedition Mr. Rassam discovered in Nineveh the palace of Sardanapalus. After this he held a political appointment at Aden. When the quarrel took place in 1861 between the Imam of Muscat and his brother, the Sultan of Zanzibar, Mr. Rassam

was chosen by Lord Elphinstone, the governor of Bombay, to represent the British government at Muscat while the governor-general of India was trying to act as a mediator between the brothers. He was sent as ambassador to King Theodore of Abyssinia to secure the release of some British citizens, but was himself imprisoned for two and a half years, when he and the others were released by Sir Robert Napier. Mr. Rassam published a narrative of the *British Mission to Theodore, King of Abyssinia*. In 1876 he was selected by the trustees of the British Museum to conduct the Assyrian explorations. From that time until July, 1882, he conducted the British national archaeological researches in Assyria, Armenia, and Babylonia. He discovered, among other sites, the great cities of Sippara, or Sepharvaim, and Cuthah, situated in southern Mesopotamia. During the Turko-Russian war he was sent by the British foreign office on a special mission to Asia Minor, Armenia, and Kurdistan, to inquire into the condition of the different Christian communities, who were said to be maltreated by their Moslem fellow countrymen.

RATTAZZI, URBANO, Italian statesman, was born in 1808, and died in 1873. He was elected to the chamber of deputies in 1848, and became a leader of the Democratic section of that body. In this year he was called on to form a new ministry, which lasted only a short while, in consequence of the disastrous battle of Novarra. In 1854 he was minister of justice, and was for a short time prime minister in 1859. He was again prime minister in 1862, resigning the same year. In 1867 he was again in power, but resigned on account of accusations against him of favoring the French cause. His resignation was followed soon after by his death.

RAWLINS, JOHN A., soldier, was born in East Galena, Ill., February 13, 1831, and died in Washington, September 9, 1869. After being engaged as a charcoal burner, he studied law, and was admitted to the bar in 1854. In 1857 he was elected city attorney for Galena; in 1860 he was an elector on the Douglas ticket. He was opposed to any armed interference with slavery, but when the war broke out he upheld the administration heartily, and, on enlisting, was made an aid-de-camp to General Grant, who had a high opinion of Rawlins' ability. He joined Grant at Cairo, with the rank of captain and assistant adjutant-general, and from that time was constantly with him till the end of the war. His promotion was constant and rapid and in 1865 he was brevetted major-general United States army. In 1869 he was made secretary of war, holding that position till his death.

RAWLINSON, GEORGE, M.A., born about 1815, entered Trinity College, Oxford, England, in 1835; took a first class in classics in 1838; and was elected a fellow of Exeter College in 1840. He obtained the Denyer prize for a theological essay in 1842, and again in 1843; and having held for some years a tutorship in his college, was appointed moderator in 1852; became public examiner in 1854; again in 1856, 1868, and 1874; and preached the Bampton lecture in 1859. He was elected without a contest to the Camden professorship of ancient history in the university in 1861. In September, 1872, he was appointed a canon of Canterbury. He wrote *Five Great Monarchies of the Ancient Eastern World*, works on the sixth and seventh oriental monarchies and many other books.

RAWLINSON, SIR HENRY CRESWICKE, K.C.B., F.R.S., born at Chadlington, Oxfordshire, England, in 1810, served in the Bombay army from 1827 till 1833; was sent to Persia in November, 1833, and between that time and December, 1839, was actively employed in various parts of that country. When the rupture with Persia compelled English officers to withdraw



from that country, he proceeded through Scinde to Afghanistan, and in June, 1840, was appointed political agent at Kandahar. In March, 1844, he was appointed consul at Bagdad; in 1850 was promoted to the rank of lieutenant-colonel in Turkey; in 1851 was made consul-general, resigning his post in February, 1855, and was made a director of the East India Company, and K.C.B. in 1856, and a member of the Council of India from September, 1858, to the following April. He was member for Reigate, in the Liberal interest, from February to September, 1858, and was returned for Frome at the general election in July, 1865. He was the author of several papers on Oriental antiquities and geographical research, and was a distinguished archaeologist. He died March 5, 1895.

RAWLINSON, SIR ROBERT, C.B., civil engineer, born in Bristol, February 28, 1810. In 1831 he entered the Liverpool dock engineer's office, and in 1836 passed on to the Blisworth contract (London and Birmingham railway) under Robert Stephenson. He was then engaged in the construction of several other works of internal improvement. In the autumn of 1848 Mr. Rawlinson was appointed one of the first superintendent inspectors under the Public Health Act. In the spring of 1855 he was sent as engineering sanitary commissioner to the British army in the East. Here his work was most efficient, and afforded the pattern for various other national systems of hospital sanitation—prominent among the beneficiaries being the United States in the Civil war. Died May 31, 1898.

RAY, JOHN, American lawyer, was born in Missouri, October 14, 1816, and died in New Orleans March 4, 1888. He received a university education, removed to Monroe, La., and studied law, being admitted to the bar in 1839. From the first he took a high rank. He served in early life in both houses of the State legislature, and was candidate for lieutenant-governor on the Whig ticket. He was a presidential elector in 1860 for Bell and Everett. During the war he was a Union man, and at the end of the war was elected to congress, but was not allowed to take his seat. For four years, 1868–72, he was State senator, and was engaged in revising the State code of Louisiana. He was registrar of the State land office in New Orleans four years. In 1873 he was elected to the Senate by the Kellogg legislature, but was again rejected. He was special attorney in 1878 to prosecute the "whisky ring" cases. He was also counsel in many other *causes célèbres*, among the most noted being the suit of Mrs. Myra Clark Gaines. He was the author of *Ray's Digest of Louisiana Law*.

RAYMOND, HENRY JARVIS, American journalist, was born in Lima, N. Y., January 24, 1820, and died in New York city, June 18, 1869. He was graduated from the University of Vermont, and studied law. On the establishment of the New York *Tribune*, Mr. Raymond became assistant editor. His next journalistic engagement was with the *Courier and Enquirer*. In 1849 he was a Whig member of the State legislature, and in 1850 was made speaker. He founded the New York *Times* in 1851. In 1854 he was lieutenant-governor of the State. He was one of the organizers of the Republican party. After the battle of Bull Run he favored the organization of a provisional government, with greater powers than then existed. In 1864 he was elected to congress, where his position as to the reconstruction of the seceding States was unique. He was tendered various other political preferments, but declined them all, and returned to his profession. He was the author of several party platforms and addresses, and was equally powerful as an orator or writer.

RAYMOND, JOHN T., actor, was born in Buffalo, N. Y., April 5, 1836, and died in Evansville, Ind.,

April 10, 1887. His real name was John O'Brien. He made his debut at the Rochester theater in 1853, in *The Honeymoon*. His first tour was made with E. A. Sothorn, in our *Our American Cousin*, he taking the part of "Asa Packard." After playing in various other comedies, Raymond, in 1871, went to New York, where he scored the success of his life in *The Gilded Age*. This play he made peculiarly his own, and delighted thousands with his whimsically humorous rendition of "Colonel Sellers." He made a European tour in the character, but did not meet with success, and soon returned to America. He made his last appearance on the stage in Hopkinsville, Ky.

RAYMOND, ROSSITER W., mining engineer, was born in Cincinnati, April 27, 1840; and was educated in the Brooklyn Polytechnic Institute and the Royal Mining Academy at Freiberg, Saxony. He also took university courses at Heidelberg and Munich. He served in the United States army as aide-de-camp from 1862 to 1864, when he resigned and settled in New York city as a consulting engineer. In 1868 he was made census commissioner, holding the office eight years, and publishing many valuable metallurgical reports. He lectured on economic geology at Lafayette College for twelve years. He is a member of various mining and engineering societies, and was one of the founders of the American Institute of Mining Engineers. He has written extensively on professional subjects, and has sometimes found diversion in literary work of a lighter character. He has edited several mining journals, and has held various government commissions, for which his technical knowledge makes him peculiarly fit.

READ, CLARE SEWELL, a distinguished agriculturist, was born at Ketteringham, Norfolk, England, in 1826. He entered parliament in 1865 in the Conservative interest, as a member for East Norfolk. After the dissolution in 1868 he was returned for the southern section of the county, and continued to represent that constituency until 1885. In 1874 he was appointed parliamentary secretary of the local board. He is president of the Norfolk Chamber of Agriculture, and an associate of the Farmers' Club.

READ, GEORGE, signer of the Declaration of Independence, born in Cecil county, Md., September 17, 1733; died in Newcastle, Del., September 21, 1798. He was educated in Chester, Penn., and, at the early age of nineteen, became a member of the Philadelphia bar. In 1754 he went to Newcastle, Md., and from 1763 to 1774 was attorney of Kent, Delaware, and Sussex counties. In 1774 he was elected to the first congress that met at Philadelphia. From 1789 to 1793 he was United States senator, and subsequently became chief justice of Delaware.

READ, JOHN MEREDITH, F.R.G.S., was born at Philadelphia, February 21, 1837, and received his education in a military school. He graduated M.A. at Brown University in 1858, and LL.B. at the Albany Law School in 1859, and studied civil and international law in Europe. He entered the army and won the rank of brigadier-general at the age of twenty-three. He was chairman of a committee of three to draft a bill appropriating \$3,000,000 for the purchase of arms and equipments, and received the official thanks of the war department for his ability in the organization and equipment of troops during the war. He was appointed, in 1869, consul-general of the United States for France and Algeria, to reside at Paris. General Read likewise acted as consul-general of Germany during the Franco-German war, and afterward, for nearly two years, directed all the consular affairs of that empire. From 1873 to 1879 he was United States minister to Greece. General Read was president of the American



Social Science Congress at Albany in 1868, and a vice-president of the British Social Science Congress at Plymouth in 1872. He is an honorary fellow or member of a great number of learned bodies.

READ, OPIE P., was born in Nashville, Tenn., December 22, 1852, and was educated at a private school. In 1873 he became associated with the Franklin (Ky.) *Patriot*, and afterward had charge of the city department of the Little Rock (Ark.) *Gazette*. Here he first became known through his sketches of Southern life and his inimitable negro dialect stories. In 1882 he began the publication of the *Arkansas Traveller*, and he has written many popular novels.

READ, THOMAS BUCHANAN, poet, born in Chester county, Penn., March 12, 1822; died in New York city, May 11, 1872. In 1839 he went to Cincinnati, where he found a home with S. V. Clevenger, the sculptor, learned sign-painting, and at intervals attended school. Later he wandered from place to place, painting signs or portraits, giving public entertainments, or making cigars. During the Civil war he gave public readings, and recited war-songs in the camps of soldiers; his poem, *The Wagoner of the Alleghanies*, was read throughout the country by Mr. J. E. Murdoch, the elocutionist. Among his paintings are several well-known compositions of undoubted merit.

REAGAN, JOHN H., senator, was born in Sevier county, Tenn., October 8, 1818. In 1839 he went to Texas, where he served against the Indians under A. S. Johnston, declining a commission in the army. He began the study of law and was licensed to practice. In 1846 he became probate judge of Henderson county, and the next year was sent to the legislature, where he served on important committees. In 1852 he was district judge, and he was successful in driving out of his district a large portion of the lawless element that infested it. He was elected to congress in 1856, serving till the war broke out, when he became a member of the State Secession Convention; voted for secession, and was sent to the provisional congress. He was made postmaster-general of the Confederacy, and was for a short time acting secretary of the treasury. After the fall of the Confederacy he was captured with Jefferson Davis, and confined for many months in Fort Warren. After his release some of his utterances were misconstrued, and he was relegated to private life for nine years, but he was elected to congress in 1874, and successively till 1887, in which year he was elected senator for Texas, resigning in 1891. He was almost continuously chairman of the committee on commerce, and was one of the authors of the inter-state commerce law.

REALF, RICHARD, poet, was born in England in 1834, and died in California in October, 1878. His early life was spent in his native country, where some of his poems were published. In 1854 he came to America, and was engaged as a city missionary and street exhorter in New York city. In 1856 he emigrated to Kansas, and at once became an adherent of John Brown, having assigned to him the office of secretary of state in the new government which Brown proposed to found. When Brown was captured at Harper's Ferry, Realf was arrested in Texas, and narrowly escaped lynching on his trip to Washington. He enlisted in the army in 1862, and served till the close of the war. Some of his best poems were written in the field, and they became widely popular among the soldiers. He rose to the rank of captain. After the war he established a negro school in South Carolina, and was collector of revenue for Edgefield district. He resigned the position, and turned his attention to journalism and lecturing, residing in Pittsburg. His lectures were highly spoken of, and he was much

admired. He committed suicide on account of domestic complications.

RECLUS, JEAN JACQUES ELISÉE, a French geographical writer, was born at Sainte-Foy-la-Grande (Gironde), March 15, 1830, and educated in Rhenish Prussia. Holding extreme democratic opinions, he left France after the *coup d'état* of December 2, 1851, and traveled from 1852 to 1857 in England, Ireland, the United States, Central America, and New Grenada, where he stayed several years. On his return to Paris he communicated to the *Revue des Deux Mondes*, the *Tour du Monde*, and other periodicals, the results of his voyages and geographical researches. When the insurrection of March 18, 1871, broke out, M. Reclus, after publishing an eloquent appeal to his countrymen in favor of conciliation, flung in his lot with the Commune. For this he was sentenced to transportation for life (November, 1871). His sentence was, however, commuted into one of banishment in February, 1872. He subsequently resided at Lugano, in Switzerland. He was admitted to the benefit of the amnesty in March, 1879.

REDFIELD, ISAAC F., was born in Connecticut, April 10, 1804, and died in Charlestown, Mass., March 23, 1876. He was graduated from Dartmouth, and began the practice of law in 1825. He was attorney for Orleans county from 1832 to 1835, when he became judge of the supreme court of Vermont. In 1852 he became chief justice and retired from the bench in 1860. From 1857 to 1861 he held the chair of medical jurisprudence at Dartmouth. In 1861 he made Boston his home, where he remained till his death. He was sent to Europe in 1867 as special attorney for the United States, and had charge of many important cases in England and France. He received the degree of LL.D. from both Trinity and Dartmouth. He wrote a long list of legal works, and for fourteen years was the editor of the *American Law Register*.

REDGRAVE, RICHARD, R.A., was born in Pimlico, April 30, 1804. He began to study from the marbles in the British Museum in 1822, and was admitted a student in the Royal Academy in 1826. He twice competed, but without success, for the academy gold medal. A picture exhibited at the British Institution, *Gulliver on the Farmer's Table*, bought for the purpose of engraving, was his first success. In conjunction with Mr. H. Cole he formed the Museum of Ornamental Art at Marlborough House, which enlarged under their joint charge into the Museum of Art at South Kensington. In 1851 Mr. Redgrave was named one of the jurors on the section of fine arts. The arrangements for representing British art in the Paris Universal Exhibition of 1855 were intrusted to him. In 1858 he was appointed surveyor of crown pictures. Mr. Redgrave resigned his appointment as keeper of the royal pictures and his connection with the Department of Science and Art in 1880. He died December 14, 1888.

RED JACKET, or Sagoxewatha, chief of the Seneca Indians, born near Geneva, N. Y., 1751; died in Seneca village, N. Y., January 30, 1830. After the death of Brant he became the most important member of his tribe. During the Revolution he served the cause of Great Britain, but in the war of 1812 fought on behalf of the United States. In 1810 he gave information to the Indian agents of the attempts of Tecumseh and the Prophet to draw the Senecas into the western conspiracy, and in the same year visited Washington city, where he delivered an eloquent speech on the subject. Red Jacket was a patriot, and loved his nation, but predicted the eventual extinction of the Indian race. In his old age he became drunken and lost his intelligence. His remains were buried in Forest Lawn cemetery, Buffalo.



REDMOND, J. E., born in Ireland in 1856, entered parliament in 1880 as member for New Ross, and was elected for Wexford in 1885, and for Waterford City in 1892. He was one of the most popular of Parnell's lieutenants and an ardent champion of his chief in the divisions among the Irish nationalists, becoming one of the leaders of the Parnellite wing, which in 1895 took his name, becoming known as the Redmondites.

REDPATH, JAMES, author and journalist, born in Scotland, 1833, died February 10, 1891. He became an editor of the New York *Tribune* at the age of nineteen, was a noted abolitionist; Kansas correspondent of the *Tribune* during the border warfare, and war correspondent during the Civil war. He founded colored schools and an orphans' asylum in South Carolina; traveled through Ireland during the famine of 1881 for the *Tribune*; lectured in the United States on Ireland; published *Redpath's Weekly* in behalf of the Irish cause, and became an editor of the *North American Review* in 1886.

REDWOOD, ABRAHAM, philanthropist, born in Antigua, West Indies, in 1709, died in Newport, R. I., March 6, 1788. He gave \$2500, in 1747, for a public library in Newport, still known as the Redwood Library, \$2500 for a Quaker school, and \$2500 for a college in Providence, R. I.

REED, HENRY, born in Philadelphia, July 11, 1808, and lost at sea, September, 1854, graduated at the University of Pennsylvania, and was professor of English literature there from 1831, his courses of lectures having great literary merit.

REED, JOSEPH, born in Trenton, N. J., August 27, 1741; died in Philadelphia, Penn., March 5, 1785. He was graduated at Princeton in 1757; studied law, was admitted to practice in 1763, and spent two years as a law student in the Middle Temple in London. In 1765 he returned to Trenton, and followed his profession; but in 1770 again went to England, where he married. Returning, he settled in Philadelphia. In January, 1775, he was chosen president of the second provincial congress. When the Revolutionary troubles began, Mr. Reed was chosen lieutenant-colonel, and later became military secretary to General Washington. In October, 1775, he returned to Philadelphia, and on June 5th of the following year became adjutant-general of the American army, with the rank of colonel. In 1777 Colonel Reed was made brigadier-general and was appointed chief-justice of Pennsylvania under the new constitution but declined both these appointments, however. He was with the army at the battles of Brandywine, Germantown, and Monmouth. Later he declined a number of proffered offices, and in December, 1778, was chosen president of the supreme executive council of Pennsylvania, in which office he continued three years. He was an author of some pretensions.

REED, SIR EDWARD JAMES, M.P., born at Sheerness, September 20, 1830, was educated at the School of Mathematics and Naval Construction, Portsmouth, served in a subordinate capacity in Sheerness dockyard, and was afterward editor of the *Mechanics' Magazine*. He paid great attention to naval architecture, on which he became an authority, and was induced to accept the secretaryship of the Institution of Naval Architects. He submitted to the admiralty proposals to reduce the dimensions, cost, and time required for building ironclads, and was soon after appointed chief constructor of the navy. He was returned to parliament in the Liberal interest as member for the Pembroke boroughs at the general election of February, 1874. He represented that constituency till April, 1880, when he was returned for Cardiff. He was reelected for Cardiff at the general election in November, 1885, and again in

February, 1886, on his appointment as a lord of the treasury in Mr. Gladstone's administration. He has been several times decorated and knighted by different sovereigns, and he also appeared before the public as an author.

REED, THOMAS ALLEN, born at Watchet, Somersetshire, England, April 6, 1826; was associated with Mr. Isaac Pitman in the promulgation of phonography, and he was for many years the head of a firm of shorthand writers in London. He was also president of the London Phonetic Shorthand Writers' Association; past president of the Shorthand Society; member of the Council of the Institute of Shorthand Writers; and honorary member of many foreign shorthand associations.

REED, THOMAS BRACKETT, statesman, was born in Maine, October 18, 1839. He was graduated from Bowdoin in 1860, and studied law. In 1864 he entered the navy as acting assistant paymaster, remaining in that position till 1865. He then resumed his profession. In 1868 he was a member of the lower branch of the Maine legislature, and next session was a senator. He was attorney-general of the State for two years, and city solicitor for Portland for four years. He was elected a member of congress in 1876, and has since been continuously reelected. In the fifty-first congress he was elected speaker of the House of Representatives, and the vigor of his administration attracted widespread attention. He is a Republican, and one of the leading members of his party. With the defeat of Harrison in 1892 Reed became a leading candidate for president in 1896.

REEDER, ANDREW HORATIO, first governor of Kansas, was born in Easton, Penn., August 6, 1807, and died there July 6, 1864. He was a Democrat, and was made governor of Kansas on account of his political antecedents; but on his arrival in Kansas, the state of affairs existing there caused a change of faith. He endeavored to secure fair elections, but failed, men from Missouri taking possession of the polls and "stuffing" the ballot-boxes with atrocious audacity. In the first legislative election, the number of illegal votes was four times that of the legal. Reeder being a lawyer and a strict constructionist, was fain to be governed by the face of the returns, issuing certificates of election to the fraudulently elected candidates, at the same time seeking aid from Washington to prosecute the participants in the frauds. The attorney-general refused to aid him in this measure, and President Pierce requested his resignation as governor of the Territory. He then settled in Lawrence, Kan., and took an active part in the free-state movement, which originated at Lawrence, and held its first convention near that place. He was twice chosen as delegate to congress, and twice refused his seat by that body. Under the Topeka constitution, he, in company with James H. Lane, was elected to the United States Senate, but neither gentleman was allowed to take his seat. On the outbreak of the Civil war, he and Gen. Nathaniel Lyon, of Missouri, were among the first brigadiers appointed by President Lincoln, but Mr. Reeder refused to serve on the ground that he was too old to learn a new profession. He then retired to private life at Easton, where he died.

REEVE, HENRY, C.B., born in Norfolk, England, in 1813, was educated at Geneva and Munich, and appointed in 1837 to the office of registrar of the privy council, holding it until 1887. He succeeded the late Sir G. C. Lewis as editor of the *Edinburgh Review* in 1855. He published numerous historical and political essays. He was elected in 1865 a corresponding member of the institute of France by the Académie des Sciences Morales et Politiques. The University of Oxford conferred on him the degree of D.C.L. Died Oct., 1895.



REEVES, HELEN B. See MATHERS, H. B.

REEVES, SIMS, famous tenor singer, born at Shooters Hill, Kent, England, October 21, 1822, made his first appearance on the stage at Newcastle, in 1839, and soon sang in Italian opera at La Scala, Milan. His first original character was in Balfe's opera of the *Maid of Honor*, and he appeared at the Queen's theater, as "Carlo," in *Linda di Chamouni*, in 1848, and long held the rank of first English tenor and a great popular favorite. He died Oct. 25, 1900.

REHAN, ADA C., a noted actress whose real name is Crehan, was born at Limerick, Ireland, February 22, 1860, was brought to America in 1866, and made her debut at the age of sixteen at Albany, New York, in "L'Assommoir." After playing with Edwin Booth, she was engaged in 1878 by Augustin Daly, as leading lady of his famous stock company, retaining that position until 1895, when she began starring under his management. In 1888 and later years she achieved a splendid success in repertoire in London, and is immensely popular in the United States, where she has created over 40 roles in light comedy and is most successful in the exacting part of "Katherine" in *Taming of the Shrew* and as "Rosalind," as "Viola" and as "Countess Vera" in the *Last Word*.

REICHEL, CHARLES PARSONS, D. D., Bishop of Meath from 1885, and professor at Dublin University, was born near Leeds, England, and educated at Berlin and Dublin, and was prominent in the councils of the Church of Ireland. He died March 29, 1894.

REID, SAMUEL CHESTER, born at Norwich, Conn., August 25, 1795, entered the American navy, as commander of a privateer, repulsed a British attack on Fayal in 1814 and designed the American flag in its present form. He died January 28, 1861.

REID, SIR THOMAS WEMYSS, born at Newcastle-on-Tyne, England, in 1842, conducted provincial newspapers, became editor of the *Speaker* in 1890, has contributed largely to leading reviews and magazines, and has written several works of fiction, political and economic essays, and sketches of English statesmen in *Cabinet Portraits*. He was knighted in 1894.

REID, WHITELAW, born at Xenia, Ohio, October 27, 1837; was graduated at Miami University in 1856, and took editorial charge of the *Xenia News* during the year following. At the breaking out of the Civil war he became the Washington correspondent of the *Cincinnati Gazette*, and his letters, written from the capital over the *nom de plume* of "Agate," attracted wide-spread attention. Afterward he accompanied the Union army on its march South, and his descriptions of the engagements which occurred at various points in Virginia, Pennsylvania, and Tennessee, were valuable contributions to the record of the war. In 1865 he accepted an editorial position on the staff of the *New York Tribune*, and, upon the death of Horace Greeley, he succeeded to the ownership and management of that paper. In the local, State, and national campaigns which have occurred since Mr. Reid became a resident of New York, he has exercised a powerful influence in shaping public opinion, and upon the accession of President Harrison he was appointed United States minister to Paris. He is the author of a number of books relating to the history of Ohio during the war, to the condition of the South after the war, and upon subjects of a political and journalistic character. Mr. Reid resigned his post at Paris in June 1892 and received the Republican nomination for Vice-President at the National Convention held in Minneapolis.

REINHART, BENJAMIN F., an American artist, born at Waynesburg, Penn., August 29, 1829, and studied his art at the New York National Academy.

In 1850 he visited Europe and continued his studies at Düsseldorf, Paris, and Berlin. Upon his return to the United States he located in New York, remaining there until 1860, when he went to England, and for the next eight years resided in London. In 1869 he again became established in New York, and in 1871 was made a member of the National Academy. His paintings, which consist largely of historical subjects and portraits of distinguished public men of Europe and the United States, are highly valued. He died in Philadelphia, May 3, 1885.

REINKENS, JOSEPH HUBERT, D.D., one of the leaders of the "Old Catholic" movement in Germany, was born at Bertschried, Aix-la-Chapelle, March 1, 1821, and was ordained priest in 1848. He filled various ecclesiastical positions, and was professor in the university for several terms. He was one of the fourteen professors who, at Nuremberg, protested against the Vatican decrees in August, 1870. For this he was suspended from his professorship, and in 1872 he was excommunicated. Doctor Reinkens became a prominent leader of the so-called "Old Catholics," and was elected bishop of the new sect, June 4, 1873, at Cologne. Doctor Reinkens has published numerous works in German on the theological controversies of the day. He died Jan. 5, 1896.

REMINGTON, JOSEPH P., an American chemist; was born in Philadelphia, Penn., March 26, 1847, and became a graduate of the college of pharmacy in that city during 1866, succeeding to the professorship of theory and practice in the Philadelphia college eight years later. He was given the degree of master in pharmacy by the same institution in 1880. During the latter year he became the first president of the American Pharmaceutical Association, and vice-president of the committee appointed to revise the United States Pharmacopoeia. He is also a member of the leading pharmaceutical associations of Europe, and of similar associations in several States of the Union. He is editor of the *United States Dispensary* and a contributor of articles on scientific subjects to American and foreign periodicals.

REMINGTON, PHILO, an American inventor, was born at Litchfield, N. Y., October 31, 1816; was educated at the common schools, and upon his graduation from the academy at Cazenovia, N. Y., became an apprentice in a factory, of which he was subsequently appointed superintendent. Later, he became a member of the firm of E. Remington & Sons, engaged in the manufacture of fire-arms, and making a specialty of the Remington breech-loading rifle. Later still, the firm came into possession of an invention which was perfected as a type-writer under their direction and has come into almost universal use. Since 1886, when the firm was dissolved, Mr. Remington has taken no active part in business affairs.

REMSEN, IRA, was born in New York city, February 10, 1846, and is a graduate of the medical department of Columbia College. He studied chemistry in the universities of Munich and Göttingen, and in 1870 became an assistant at Tübingen, returning to the United States during 1872, when he was appointed to the chair of chemistry and physics in Williams College. He remained there four years, and then resigned to accept a similar position at the Johns Hopkins University. The results of his investigations and experiments there include saccharine, sulphur-fluorescens and other chemical developments. In 1881 he made a successful examination of the causes of the unhealthy condition of the water used for drinking and domestic purposes in Boston, and was also employed by the National Board of Health to conduct certain investigations. In 1870 the degree of Ph.D. was conferred upon him by the



University of Göttingen. He is also a member of the National Academy of Sciences, and of the leading associations of the same character in Europe. The American *Chemical Journal* was established by him in 1879, and in 1901 he became president of Johns Hopkins.

RENAN, JOSEPH ERNEST, philologist, member of the French Institute, born at Tréguier, Côtes-du-Nord, France, February 27, 1823; was destined for the ecclesiastical profession, and went to Paris at an early age in order to study. But his independence of thought did not accord with the necessary qualifications for the priesthood, and he quitted the seminary in order to be better able to pursue his own course. In 1848 he gained the Volney prize for a memoir upon the Semitic languages. His work, entitled *Etude de la Langue Grecque au Moyen Age*, published in 1845, was crowned by the Institute. In 1849 he was sent to Italy on a literary mission by the Académie des Inscriptions et Belles-Lettres, in 1851 was attached to the department of manuscripts in the Bibliothèque Nationale, and in 1856 was elected a member of the Académie des Inscriptions in place of M. Augustin Thierry. At the end of 1860 he was sent on a mission to Syria. In 1862 he was appointed professor of Hebrew, but did not permanently occupy the chair for fear of a renewal of the manifestations which occurred at his opening lecture in February. In 1863 he published his well-known *Vie de Jésus*, the result being that the author was dismissed from his professorship. M. Duruy, the minister of public instruction, endeavored to conceal the significance of this dismissal by giving him an office in the Bibliothèque Imperiale; he, however, strongly protested against the appointment, which was revoked June 11, 1864. At the elections to the Corps Législatif in May, 1869, he was an unsuccessful candidate in the second circumscription of the department of Seine-et-Marne. M. Renan was elected a member of the French Academy, June 13, 1878, in the room of M. Claude Bernard. He attended the congress of Orientalists held at Florence in September, 1878. M. Renan, in addition to the works already mentioned, published also numerous memoirs on comparative philology, and other articles of a literary character, in the different periodicals. He was elected director of the French Academy in 1881; and in 1883, became manager of the Collège de France. He died October 2, 1892.

RENDEL, SIR ALEXANDER MEADOWS, civil engineer, born in 1829; educated at King's School, Canterbury, and Trinity College, Cambridge (scholar and wrangler), studied as engineer under his father, on whose death, in 1856, he became engineer to the London Dock Company, the Leith harbor and dock commissioners, the East Indian railway, and other companies. He visited India in 1857-58, and subsequently built the Shadwell New Basin, the Royal Albert Dock, and other works, and became engineer in England to the secretary of state for India. He is a member of the Institution of Civil Engineers.

RENDEL, GEORGE WHITWICK, was educated at Harrow, and as a civil engineer in his father's office. He joined Sir William Armstrong's firm at Elswick in 1858, as managing partner of the new Elswick Ordnance Works. He took a large part in the development of guns, ironclads and ships of war. He devised and carried out the system of hydraulic machinery for mounting and working heavy guns. He designed and directed the building of the *Esmeralda* for the Chilean Government, the swiftest and most powerful unarmored cruiser of her time, and the numerous gunboats known as the "alphabetical gunboats," built on the Tyne for the Chinese Government. He was a member of the committee on designs of ships of war, appointed by the

English Government in 1871, and was appointed a civil lord of the admiralty in March, 1882, resigning in June, 1885.

RENDEL, LORD, formerly STUART RENDEL, M. P., was born in 1834 and educated at Eton and at Oriel College, Oxford, where he graduated in 1856. He was called to the bar in 1861, but never practiced; was appointed (on behalf of Sir William Armstrong) member of the Armstrong and Whitworth Committee, which sat from 1861 to 1863, and carried out the most exhaustive known series of artillery experiments; became a member of Sir William Armstrong's firm in February, 1870, and its managing partner in London; was long closely associated with the growth of the great works at Elswick, Newcastle-on-Tyne, and was an officer of the Order of Charles Albert of Italy, and a knight of the Order of Charles XII. of Spain. In 1880 he retired from the Armstrong firm, and contested and won the representation in parliament of the county of Montgomery as a Liberal. In December, 1886, he was elected president of the North Wales Liberal Federation. He was raised to the peerage by Gladstone in 1894 as Baron Rendel of Hatchlands.

RENO, JESSE L., was born at Wheeling, Va., June 20, 1823, and graduated at West Point in 1846. He served in the Mexican war, participating in the siege of Vera Cruz and all the leading battles of the campaign, during which he was promoted to lieutenant and captain. In 1849 he became professor of mathematics at the United States Military Academy, and was in charge of the arsenal at Mount Vernon, Ala., when it was seized by the Confederates in 1861. During the Civil war he commanded a brigade in Burnside's army on its march into North Carolina, and was present at the assault upon Roanoke Island, also in the battles of Camden and New Berne. In the fall of 1862 he was promoted to be major-general of volunteers, and participated in the battles of the second Bull Run and Chantilly. He was killed while leading the ninth army corps at the battle of South Mountain, September 14, 1862.

RENOUF, SIR PETER LE PAGE, Oriental scholar, was born in the isle of Guernsey, Great Britain, in 1824; received his early education in Elizabeth College there, and afterward became a scholar of Pembroke College, Oxford. At Easter, 1842, he became a member of the Roman Catholic Church. On the opening of the Catholic University of Ireland, in 1855, he was appointed by Doctor Newman professor in that institution, where he filled the chairs of ancient history and Eastern languages. In 1864 he became one of the inspectors of schools, and he has since continued to hold that appointment. While at the Catholic University he was one of the editors of the *Atlantis* and of the *Home and Foreign Review*; and he has since contributed to various other periodicals. Some papers by Mr. Renouf are published in the *Transactions of the Society of Biblical Archaeology*. A list of his writings would include a long list of books, treating chiefly of archaeology and antiquities of the East. After the death of Dr. Samuel Birch, in 1885, Mr. Renouf was appointed to succeed him as keeper of Egyptian antiquities at the British Museum. He died Oct. 14, 1897.

RENSHAW, WILLIAM B., naval officer, was born at Brooklyn, N. Y., October 11, 1816, and entered the navy December 22, 1831. He secured promotion through the various official grades during the period intervening between 1837 and 1861, when he became commander and was attached to Adm. D. G. Farragut's squadron. On October 10, 1861, he effected the capture of Galveston, Texas, after a prolonged blockade of that port. In December of the same year, the city was



captured by the Confederates under Gen. J. B. Magruder. While the action was in progress, Renshaw was mortally wounded, dying January 1, 1863.

RENWICK, JAMES, LL.D., born at Liverpool, May 30, 1790, graduated at Columbia College, 1807, became professor of chemistry there in 1820, served in the engineer corps of the United States army, and was a member of the government commission to determine the boundary line between the United States and the British possessions. He died June 12, 1863.

RESZKE, EDOUARD DE, famous bass singer, brother of JEAN, was born at Warsaw, 1855, made a continental reputation in grand opera as early as 1880 and sang with great success in the United States in 1892, 1894 and 1895. He has a powerful voice, artistic execution and fine presence and is equally perfect in serious or comic parts. His "Mephistopheles" in *Faust* is one of his best rôles.

RESZKE, JEAN DE, romantic tenor singer, was born at Warsaw, January 14, 1852, first sang as a baritone at Venice, in 1874, later assumed tenor rôles, and in 1884 made a great hit in Paris in *Hérodiade*. He sang in grand opera in the United States in 1893, 1894 and 1894 and his magnificent rendition of "Romeo," "Faust," "Rhadames" and other rôles made him a popular idol.

REUTER, BARON PAUL JULIUS, was born at Cassel, Germany, in 1818. He was connected with the electric telegraph system from its earliest establishment. The practical working of the telegraph, in 1849, between Aix-la-Chapelle and Berlin—the first section open to the public—convinced him that a new era in correspondence had arisen, and in the former town he established the first center of an organization for collecting and transmitting telegraphic news. As the various telegraph lines were opened in succession, they were made subservient to his system; and when the cable between Calais and Dover was laid in 1851, Mr. Reuter, who had become a naturalized British subject, transferred his chief office to London. Previously to the opening of his office, the leading London papers had furnished the public with scanty and incomplete intelligence, which was reproduced by the rest of the press, and Mr. Reuter, to remedy this defect, established agencies in all parts of the world to supply him with news, since which time the British press has contained a daily record of the latest important events connected with politics, commerce, and science. Died Feb. 25, 1899.

REVERE, PAUL, born in Boston, Mass., January 1, 1735; died there May 10, 1818. In 1756 he was appointed a lieutenant of artillery, and stationed at Lake George, N. Y. He took part in the expedition to capture Crown Point. After establishing himself in Boston, Revere learned the art of copper-plate engraving. In 1775 he engraved the paper money ordered by the Massachusetts legislature, and took part in the destruction of tea in Boston harbor. On the night of April 18, 1775, occurred his famous ride, in which he notified the people of the British expedition to seize the military stores at Concord. Subsequent to the evacuation of Boston a regiment of artillery was formed there, of which Revere became lieutenant-colonel. He took part in the unsuccessful Penobscot expedition of 1779, and after the war he resumed his business. In 1795, as grand master of the Free Masons, he laid the corner-stone of the Boston State house.

REVILLE, ALBERT, pastor and French Protestant writer, was born at Dieppe, November 4, 1826. He contributed to the most important French Protestant organs, and took a prominent position among his co-religionists by his writings. For some months he was vicar at Nîmes, then pastor at Luneraz, near Dieppe, and in 1851 he was called to Rotterdam as pastor of the

Walloon church. In 1862 the University of Leyden conferred upon him the degree of doctor; and in 1880 he was appointed titular professor of religious history at the College of France. He has written numerous theological essays, and is one of the chief French Protestant Liberals.

REYER, ERNEST, whose real name is Rey, born at Marseilles, France, Dec. 1, 1823, composed the music for several successful operas, wrote for the *Paris Press*, and, after the death of Berlioz, became musical critic to the *Journal des Débats*. He was afterward appointed librarian to the Opéra, and succeeded David at the Institute in 1876.

REYNA BARRIOS, JOSÉ MARIA, who was elected president of Guatemala for four years, beginning March, 1892, prepared to go to war with Mexico in 1894 over a disputed boundary line, but owing to the repudiation by Guatemala, shortly before, of its foreign debt President Barrios was unable to raise a war loan and in 1895 was obliged to apologize to Mexico and meet its terms.

REYNOLDS, ALEXANDER, W., was a native of Clarke county, Va., and was born in 1817, and graduated at West Point in 1838. He was a general in the Confederate army from 1863, and at the close of the Civil war entered the service of the Khedive of Egypt. He was prominent in the war with Abyssinia, but later on resigned his commission and located at Cairo, Egypt. He died at Alexandria, in that country, May 26, 1876.

REYNOLDS, HENRY ROBERT, D.D., was born at Romsey, Hampshire, England, February 26, 1825, and educated at Howard College and at University College, London. He graduated B.A. in 1844; was elected a fellow of University College in 1848, and received the degree of D.D. from the University of Edinburgh in 1869. He was appointed minister of the Congregational church at Halstead, in Essex, in 1846; removed to Leeds and became minister of the East Parade Congregational church in that town in 1849; was appointed president of the Countess of Huntingdon's College at Cheshunt in 1860, and also professor of theology and exegesis. Doctor Reynolds was one of the editors of the *British Quarterly Review* from 1866 to 1874. He was the editor of and contributor to two series of essays on church problems, entitled *Ecclesia*, in 1869 and 1870; is author of numerous other homiletic and exegetical papers, and has also written several scriptural commentaries. He died Oct. 10, 1896.

REYNOLDS, JOHN FULTON, was born in Lancaster, Penn., in 1820, and died near Gettysburg, July 1, 1863. He was graduated at West Point in 1841, and was commissioned first lieutenant in 1846. He served in the Mexican war, against the Rogue River Indians, in the Utah expedition, and in 1859 became commandant at West Point. On the outbreak of the Civil war he was appointed lieutenant-colonel, and was soon promoted brigadier-general of volunteers. He took part in the campaigns of the army of the Potomac, and it was due to him that at second Bull Run the Union army was saved from a disastrous rout. He was promoted major-general of volunteers in 1862, and succeeded Hooker in command of the first army corps. On the first day of the battle of Gettysburg he was in command of the left wing, consisting of three corps, and early in the fight was struck by a rifle ball, which caused instant death. Several monuments have been erected to his memory, one of which stands on the spot on which he met his death.

RHETT, ROBERT BARNWELL, an American senator and politician, was a native of Beaufort, S. C. He was born December 24, 1800; was admitted to the



bar in 1821, entered the State legislature in 1826, was attorney-general of the State in 1832, a member of congress, 1837-49, and in 1851 was elected United States senator to succeed Calhoun. He was an earnest state's right supporter and wrote the document issued by the secession convention of South Carolina, vindicating the right of that State to dissolve its connection with the Federal government. During the Civil war he sat in the Confederate Congress, and died September 14, 1878.

RHIND, ALEXANDER COLDEN, born October 31, 1821, in New York city, entered the navy in 1838, commanded the *Constellation*, and watched the Southern blockade at the outbreak of the war, throughout which he did most gallant service, became rear-admiral and was retired in 1883.

RHODES, ALBERT, born February 1, 1840, at Pittsburgh, has served as American consul at Jerusalem, in Germany and in France, and now resides at Paris. He has written books of life abroad, and contributed to American and foreign publications.

RHODES, CECIL, the "Diamond King" of South Africa, premier of England's Cape Colony since 1890, and one of the most remarkable men of the time, was the younger son of an English gentleman of moderate means, went out to Africa to hunt diamonds and at first met with but little success, but by energy and shrewdness combined various Kimberley mines under his direction, and amassed an immense fortune. He entered politics and the same qualities forced him to the front. He held office in several ministries, was the prime mover in obtaining mining rights over Matabeleland, and in 1890 became premier of the Cape and has held office ever since. He personally directed the successful war with King Lobengula and the Matabeles in 1893. While in England, in 1891, he gave \$50,000 for the support of Home Rule. Died March 25, 1902.

RIBOT, ALEXANDER FÉLIX JOSEPH, lawyer, born at St. Omer, France, in 1842, was elected to the Chamber of Deputies in 1878, as a moderate Republican, and became Minister of Foreign Affairs in 1890, and Prime Minister in December, 1892, holding the latter office three months.

RICASOLI, BETTINO, BARON, born at Florence, March 9, 1809, took active part in the liberation of Italy, was governor of Sardinia, 1860; member of the first Italian Parliament, 1861; and twice premier, 1862 and 1866. He died October 28, 1880.

RICE, ALLEN THORNDYKE, was born June 18, 1853, at Boston, Mass., and graduated at Oxford, 1875. In 1876 he became the owner and editor of the *North American Review* and in 1884 purchased *Le Matin*, a leading journal of Paris, France. He originated and directed an expedition to Mexico and Central America, conducted by the United States and France, to investigate conditions of prehistoric civilization in those countries, and brought the Australian ballot system to public attention. He was defeated for congress in 1886, and in 1889 was appointed United States minister to St. Petersburg, but died May 16, 1889, before entering upon his official duties.

RICE, JAMES, soldier, born in Worthington, Mass., December 27, 1829; died near Spottsylvania C. H., May 11, 1864. He was colonel of the 44th New York regiment, participated in the battle of Yorktown and subsequent campaigns of the army of the Potomac, was commissioned brigadier-general of volunteers in 1863, and in the Wilderness campaign led his brigade until killed in the engagement near Spottsylvania C. H.

RICE, THOMAS D., born in New York city, May 20, 1808; died September 19, 1860, was one of the first of negro impersonators and became very popular.

In 1836 Rice performed at the Surrey theater in London, and at other playhouses in England, Scotland and Ireland. For a long time he was the recipient of a large income, which he squandered in reckless profusion.

RICHARDS, VICE-ADMIRAL SIR GEORGE HENRY, C.B., F.R.S., was born January 13, 1820, at Anthony, Cornwall, England. After receiving a suitable education at a private school, he was appointed to the naval service in 1833, made a lieutenant in 1842, a commander in 1846, a captain in 1854, rear-admiral in 1870, and vice-admiral in 1877. While a captain he served as naval aide-de-camp to the queen, was present during the Chinese war of 1841-42, at the action and storming of the forts at Obligado in the Parana river, 1845, and was commander of H.M.S. *Assistance*, in search of Franklin in the Arctic regions during 1852-54. He was knighted in 1877. He is a member of many learned societies, and has been engaged in many nautical surveys. Died Nov. 14, 1896.

RICHARDS, THOMAS ADDISON, landscape painter, is a native of London, England. He was born December 3, 1820; arrived in the United States in 1831, and for ten years was a resident of Georgia, but studied art in New York city. He was chosen a member of the National Academy in 1848, secretary of that organization in 1852, and in 1858 became director of the Cooper School of Design. In 1878 he was made an M.A. by the New York University, and has been art professor there since 1867. His paintings are numerous, and his publications on art well known and popular.

RICHARDS, WILLIAM T., artist, born at Philadelphia, November 14, 1833, where he also received instruction in his art, going abroad in 1855 to complete his studies. He returned to the United States in 1856, but has since revisited Europe, and in 1878 resided in London, where he practiced his profession, and exhibited at the Royal Academy. He established a studio in Philadelphia in 1880, became a member of the local and national academies, and in 1885 was awarded the Temple medal. His specialty is the painting of marine views. He also excels in water-colors.

RICHARDSON, ALBERT DEANE, journalist, born at Franklin, Mass., October 6, 1833, and educated at the common schools of that village. His first journalistic experience was at Pittsburgh, Penn., whence he went to Kansas in 1857, and took part in the political movements of that period, acting with the anti-slavery party, and giving the result of his observations through the columns of the *Boston Journal*. During 1859 he accompanied Horace Greeley to Pike's Peak, and in the winter preceding the war, made a tour of the South as correspondent of the *New York Tribune*. During the earlier part of the war he acted in a similar capacity for the same paper, but on the night of May 3, 1863, he was captured while attempting to run the batteries of Vicksburg. Junius Henri Browne, also of the *Tribune* staff, and Richard T. Colburn, of the *New York World*, who accompanied Richardson, were captured with him, and all were imprisoned at various points in the South for nearly two years. They effected their escape, however, from the prison at Salisbury, N. C., making their way to the Federal lines, and upon their arrival home published a list of the Union soldiers who had died in Southern prisons up to the date of their escape. After the war Richardson was engaged in lecturing, also doing work on the *Tribune*, and was shot in the office of that paper, November 26, 1869, by Daniel McFarland, on account of the sympathy Richardson had manifested for Abby Sage McFarland, wife of his assailant, from whom she had obtained a divorce. He died at New York, December 2, 1869, having been previously married to Mrs. McFarland by Henry Ward Beecher. Besides works on his experience during cap-



tivity, Richardson was the author of a *Life of General Grant*.

**RICHARDSON, SIR BENJAMIN WARD, F.R.S.**, born October 31, 1828, at Somerby, in the county of Leicester, England; was educated at Anderson's University, Glasgow. He graduated in medicine at the University of St. Andrews in 1854, and received the honorary degree of M.A. from the same university in 1859. He gained the Fothergillian gold medal in 1854, for an essay on the diseases of the child before birth; and the Astley Cooper prize of \$1,500 in 1856, for an essay on the coagulation of the blood. Dr. Richardson became a member of the Royal College of Physicians by examination in 1856, and was elected a fellow of the college in 1861; he was elected a fellow of the Royal Society in 1867, and Croonian lecturer in 1873; honorary member of the Philosophical Society of America in 1863; of the Imperial Leopold Carolina Academy of Sciences in 1867; and of the Physiological and Statistical Academy of Milan in 1870. He is the originator of several new methods in antiseptic surgery. He originated, and for some years edited, the *Journal of Public Health*, and afterward the *Social Science Review*. Dr. Richardson's principal contributions to medical and scientific literature have been directed to the advancement of medical practice by the experimental method. He has been president of the Medical Society of London and four times president of the St. Andrews Medical Graduates' Association. In 1869 he succeeded Lord Jerviswoode as assessor for the general council in the University Court of St. Andrews. He is honorary physician to the Royal Literary Fund, the Newspaper Press Fund, and the National Society of Schoolmasters. Dr. Richardson's most recent researches have been directed to the study of the diseases incident to modern civilization. He has written a novel, besides scientific works, and was knighted in 1893. Died Nov. 21, 1896.

**RICHARDSON, CHARLES FRANCIS**, an American author, who was born at Hallowell, Me., May 29, 1851, graduated at Dartmouth College in the class of 1871, and subsequently was attached to the editorial department of various New York weeklies. In 1882 he was called to the chair of English Literature of Dartmouth. He has written a number of books on American literature, also a volume of poems.

**RICHARDSON, HENRY HOBSON**, architect, born in Priestley's Point, La., September 29, 1838; died in Brookline, Mass., April 28, 1886. He was graduated at Harvard in 1859, after which he went to Paris to study architecture. In 1865 he returned to the United States, and found his first employment in Springfield, Mass. His best work began in 1871, when he erected the Brattle Street Church in Boston. In the year following his plans were chosen from among many for Trinity Church, Boston, which was finished in 1877, and is considered one of the handsomest church buildings in the United States.

**RICHARDSON, ISRAEL B.**, born at Fairfax, Vt., December 15, 1815; died at Sharpsburg, Md., November 3, 1862. He was graduated at West Point in 1841, and served through the Florida and Mexican wars, obtaining promotion in each. He retired from the army in 1855, but reentered the service at the breaking out of the Civil war as colonel of the 2d Michigan infantry. He was present at Bull Run, fought through the Peninsular campaign, becoming a major-general of volunteers, and was prominently mentioned for his services at the second Bull Run, South Mountain, and Antietam, receiving wounds at the latter which subsequently proved fatal.

**RICHARDSON, WILLIAM A.**, was born at Tyngsborough, Mass., November 2, 1821; graduated at Har-

vard in 1841, and was admitted to the bar in 1843. From the latter year until 1869, when he was appointed assistant secretary of the treasury, he was engaged in the practice of law, and held a number of State offices in Massachusetts, besides revising the statutes of that State. In 1871 he negotiated, in Europe, the sale of bonds of the funded loan of the United States, and in 1873 became secretary of the treasury. The year following he accepted a position on the bench of the Court of Claims, and in 1885 was elected to the position of chief-justice of that tribunal, and was also a professor in the Law School of Georgetown, D. C. In 1873 he received the degree of LL.D. from Columbia University. He is the author of works on banking, and on the debt of the United States. Died Oct., 1896.

**RICHMOND AND GORDON, DUKE OF (CHARLES HENRY GORDON LENNOX, K.G.)**, was born at Richmond House, Whitehall, England, February 27, 1818, and educated at Westminster School and Christ Church, Oxford. In 1860 he succeeded his father as Duke of Richmond, to which dukedom was added in 1876 that of Gordon. He represented West Sussex in the Conservative interest from July, 1841, till he succeeded his father. He was the acknowledged leader of the Conservative party in the House of Peers from February 26, 1870, till Mr. Disraeli's elevation to the peerage as earl of Beaconsfield. When that party returned to office in February, 1874, he was made lord president of the council, and he retained that office until the defeat of the Conservatives in April, 1880. In Lord Salisbury's first ministry the duke of Richmond held the position of president of the board of trade from January to August, 1885, and was then appointed to fill the new post of secretary for Scotland.

**RICHMOND, DEAN**, was born at Barnard, Vt., March 31, 1804, and when eight years of age removed with his parents to western New York. In 1842 he engaged in commercial ventures at Buffalo, and later invested in railway interests. Through his labors and influence the present New York Central railroad system was established by the consolidation of minor roads, and in 1853 he was elected vice-president of that corporation, succeeding to the presidency in 1864. Mr. Richmond became prominent in New York politics early during his residence there, and at the date of his death in New York city, August 27, 1866, was the recognized leader of the Eastern Democracy.

**RICHMOND, GEORGE, R.A. (retired)**, born in 1809; early began to study art, and in 1824 became a student at the Royal Academy. In 1837 he left England for Italy, and spent two years in the study of the great works in Venice, Florence, and Rome. In 1854 he exhibited a whole-length portrait of Sir Robert Harry Inglis, and from this time he has been almost exclusively employed in oil painting. In 1847 he was appointed by Mr. Gladstone a member of the council of the Government Schools of Design; and in 1856 by Sir G. Cornewall Lewis, one of the royal commissioners for determining the national gallery site, etc. In 1867 the University of Oxford conferred upon him the honorary degree of D.C.L. He died March 21, 1896.

**RICHMOND, WILLIAM BLAKE, A.R.A.**, was born in London, November 29, 1843. In 1859 and 1860 he traveled in Italy, working at several pictures, which were not exhibited. In 1865 he again went to Italy, and studied at Rome, working at sculpture, architecture, fresco, and tempera painting. Between 1865 and 1868 he painted *The Procession of Bacchus*. In 1870 he settled in England, and painted numerous portraits and other pictures. Since that time Mr. Richmond has exhibited at the Grosvenor and the Academy. Mr. Richmond was elected Slade professor at Oxford, but resigned the



post a few years later. He received an honorary M. A. degree, and was elected fellow of the Society of Antiquarians.

RICHTER, EUGEN, born at Düsseldorf, Prussia, July 30, 1838, a radical politician, entered the Reichstag in 1867 and the Prussian Landtag in 1869, and has been in succession the leader of the progressist party, of the German liberal party, and of their successor, the radical peoples party (Freisinnige Volkspartei). He is an able speaker and one of the foremost members of the German parliament. He has written *Pictures of the Future* and other socialistic works.

RICHTER, HANS, a celebrated conductor of orchestral concerts, was born April 4, 1843, at Raab in Hungary. At first a hornplayer, Esser brought him under the notice of Wagner, who took him to Lucerne where he made the first fair copy of the score of the *Meistersinger*. He first attracted general attention in January, 1875, when he conducted a grand orchestral concert at Vienna, and he was invited to assume direction of the Court Opera theater on the retirement of Herbeck in April of the same year. In 1877 he produced the "Walkyrie" in Vienna, and followed it in 1878 by other portions of the tetralogy. In 1879 he began the series of orchestral concerts in London, which, under his direction, have excited much attention.

RICHTER, HENRY JOSEPH, born in Oldenburg, Germany, April 9, 1838, emigrated to the United States in 1854, was ordained a priest and became the first Catholic bishop of the diocese of Grand Rapids, Mich., in 1883.

RICKETTS, JAMES B., GEN., was born in New York city, June 21, 1817, and graduated at West Point in 1839, being assigned to the artillery branch of the service. He was engaged in the Mexican war, and in the wars with the Seminole Indians in Florida, and at the outbreak of the Civil war was a captain. He was taken prisoner at Bull Run, and later was promoted to be lieutenant-colonel and brigadier-general by brevet. He participated in all the battles in Virginia during the summer of 1862; was made major of the 1st artillery June 1, 1863, and brevet colonel in the regular army for heroic conduct at the battle of Cold Harbor. His further services were rendered at Petersburg, Cedar Creek, and in the Shenandoah Valley against Early. He was later promoted to be major-general; retired from active service in 1867, and died at Washington, D. C., September 22, 1867.

RICORD, PHILIPPE, M.D., an eminent physician and surgeon, born at Baltimore, Md., December 10, 1800; began the study of medicine at Philadelphia, and in 1820 made a voyage to Europe, and settled in Paris. In 1826 he engaged in the practice of his profession at Olivet, returning at the expiration of two years to Paris, where he accepted an invitation to give a series of lectures, and in 1831 became head surgeon of the leading hospital in that city. His services were in continual demand there for nearly thirty years, during which he extended his reputation as a specialist to all parts of the world. In July, 1862, he became the physician of Prince Napoleon, and consulting surgeon of the emperor, who testified his appreciation of the services rendered in the most substantial manner. During the siege of Paris he was president of the ambulance corps, and was promoted to be grand officer of the Legion of Honor. He died October 22, 1889.

RIDDELL, MRS. CHARLOTTE ELIZA LAWSON, is the youngest child of James Cowan, of Carrickfergus, county Antrim, Ireland. She is married to J. H. Riddell, Esq., a civil engineer, by whose initials she is generally known. Mrs. Riddell is the author of many popular novels.

RIDDING, GEORGE, D.D., born in England about 1829, and educated at Balliol College, Oxford, was head master of Winchester College, 1868-84, and became Bishop of Southwell in 1884.

RIDDLEBERGER, HARRISON HOLT, born in Edenburg, Shenandoah county, Va., October 4, 1844, received a common school education, served three years in the Confederate army, becoming captain of cavalry, studied law, was commonwealth's attorney of his county for two terms, twice a member of the house of delegates of Virginia and once of the State Senate. He also edited three newspapers—the *Tenth Legion*, the *Shenandoah Democrat* and the *Virginian*, was a member of the State committee of the conservative party until 1875, and in 1881, while commonwealth's attorney and State senator, was elected to the United States Senate as a Readjuster, in the place of John W. Johnson, Conservative, and took his seat December 3, 1883. His term of service expired March 3, 1889, when he was succeeded by John S. Barbour, Democrat. He died at his home in Woodstock, Va., January 21, 1890.

RIDPATH, JOHN CLARK, LL.D., historian, born in Greencastle, Indiana, in 1840, graduated at Indiana Asbury University in 1873, became professor of history and vice president there, and secured for the institution an endowment of nearly two million dollars, the name being changed to De Pauw University in honor of the donor. Since 1879 Dr. Ridpath has devoted himself to literature, producing his *Popular History of the United States*, a sale of nearly half a million copies justifying the title; *Cyclopedia of Universal History*, *Great Races of Mankind* and other works, all marked by broad learning and a dignified but readable style. He died July 31, 1900.

RIEDELSE, FREDERICA CHARLOTTE LOUISA, BARONESS VON, born in Brandenburg, Germany, in 1746; died in Berlin, Germany, March 29, 1808. She was married to the German general of that name (see below), who served in the war of the Revolution. The wife followed the husband wherever he was stationed. She attended the sick and wounded, and nursed Gen. Simon Fraser on his death-bed. Her *Letters and Journal* were published in Berlin in 1800.

RIEDELSE, FREDERICK ADOLPH, BARON VON, German soldier, born in Lauterback, Germany, June 3, 1738; died in Brunswick, Germany, January 6, 1800. He studied at the University of Marburg and, entering the army, was employed by the British in the Seven Years War. In 1767 he was adjutant-general in the Prussian army, and in 1772 became colonel. At the beginning of the American Revolution, 20,000 Hessians were imported into America by the British. Colonel Riedesel took service as brigadier-general of the Brunswick contingent of 4,000 men, and arrived at Quebec on June 1, 1776. After spending a preparatory year in Canada, he united with the expedition under General Burgoyne, and aided at the capture of Ticonderoga. On October 7th he was made prisoner at Saratoga, was exchanged in 1779, and later was placed in command on Brooklyn Heights. In 1781 General Riedesel went to Canada, and two years later returned to Germany, where he eventually was promoted lieutenant-general, and commandant of the city of Brunswick.

RIEL, LOUIS, a Canadian revolutionist, was born at St. Boniface, Manitoba, October 23, 1844, and completed his education at the Jesuit College, Montreal. The son of a representative leader of the Indians in the northwest who headed the opposition to the authority of the Hudson Bay Company, Riel early in life manifested his defiance of Canadian domination, and in 1869 headed a company which resisted the admission into the Dominion of Lieutenant-Governor William McDougall.

The same year the insurgents set up a government at Fort Garry, with Riel as president, and between that date and the arrival on the scene of a force under General Wolseley, in 1870, they captured two parties of Canadians, severally under the command of a Doctor Schultz and Major Bolton, and executed one of the number named Thomas Scott. Riel escaped, and in 1873 secured an election to the Dominion parliament. He was refused admission, and afterward was twice elected a representative, but did not qualify. He was declared an outlaw by the authorities, and was next heard of in Montana, whence he removed to Duck Lake, in 1884, accompanied by his followers, and in 1885 again organized a provisional government. This was succeeded by his seizure of the goods stored by the government at Duck Lake. On March 26, 1885, the forces under Riel defeated a detachment of police commanded by Maj. L. N. F. Crozier, and committed numerous depredations. Soon after this, a force of Canadian soldiers put a period to further insurrectionary movements and effected the capture of Riel. He was tried and convicted of treason at Regina, where he was executed November 16, 1885, notwithstanding the efforts made to secure a commutation of the penalty.

RIGDON, SIDNEY, Mormon leader, born in St. Clair township, Penn., February 19, 1793; died in Friendship, N. Y., July 14, 1876. He began life as a farmer, learned the printer's trade, studied for the ministry, and was licensed to preach in the Baptist church. Later he went to Bainbridge and Mentor, Ohio, where a traveling Mormon elder and former Baptist preacher, Parley P. Pratt, requested the privilege of preaching in Mr. Rigdon's pulpit. The occasion led to Mr. Rigdon's "conversion," and he was baptized a member of the Latter-Day Saints in October, 1830. The new "convert" thereafter met Joseph Smith at Fayette, N. Y., and together they devised a scheme for the extension of their teachings. Rigdon transferred to Smith as many of his followers as he could influence, and unitedly the two went to Ohio, proselyting at various places. Eventually they erected a mill, opened a store, and established a bank in Kirtland. In November, 1837, their bank stopped payment, and the two associates fled to Missouri, to avoid arrest by the authorities. Here they were arrested, imprisoned for several months, and escaped. When the new church was established at Nauvoo, Rigdon was one of its presidents, and while at that place was twice tarred and feathered, and once imprisoned for misdemeanors. When Joseph and Hiram Smith were killed at Carthage, Ill., on June 27, 1844, Rigdon and Brigham Young became candidates for the leadership, and the "Twelve Apostles" chose the latter. Rigdon then refused to submit to their authority, was cut off from communion with "God's chosen people," went to Pittsburg, Penn., and thence to Friendship, N. Y. Here he remained for many years, and to the last declared his belief in the *Book of Mormon*.

RIGG, JAMES HARRISON, D.D., was born in 1821, at Newcastle-on-Tyne, England. He received his education at Old Kingswood school, where he was afterward a teacher, and in 1845 he entered the Wesleyan ministry. He was one of the leading writers for the *Biblical Review* (1846-49), and at the time of the controversy in Methodism (1849) wrote many articles for the *Watchman*. In 1851 he went to Guernsey as Wesleyan minister, and in 1853 removed to Brentford, which place he left in 1856; and he next resided in Stockport, Manchester, and the neighborhood for eight years. In 1864 he was removed to Folkestone. In 1867 he removed to Tottenham, in 1868 he became principal of the Wesleyan Training College, and, in 1878, president of the Wesleyan conference.

RIIS, JACOB, born at Ribe, Denmark, May 3, 1849, became a reporter on New York newspapers and an investigator of the conditions of life among the poorer classes in New York which he has truthfully and graphically depicted in his *How the Other Half Lives* (1890), and *Children of the Poor* (1892).

RILEY, BENNETT, born at Alexandria, Va., November 27, 1787; entered the army when a youth, and was promoted to be ensign of the 8th infantry, January 19, 1813. He fought in the wars with Great Britain and Mexico, also in Florida, and secured steady advancement in rank from ensign to brigadier-general. After the Mexican war he was invested with the command of the department of the Pacific, subsequently becoming military governor of California, and later still the governor of that Territory, so remaining until California was admitted. He died at Buffalo, N. Y., June 9, 1853.

RILEY, CHARLES VALENTINE, born at London, England, September 18, 1843, and educated at Dieppe, France, also at the University of Bonn; came to America in 1860, and located in Illinois, later becoming associated with the *Chicago Evening Journal* and *Prairie Farmer*, in an editorial capacity. He served during the Civil war as a member of the 134th Illinois infantry, and, after a brief connection with the *Prairie Farmer*, was appointed State entomologist of Missouri. In 1877 he resigned that position to accept the office of chief of the entomological commission of the United States, and was appointed entomologist of the agricultural department in 1878. He organized the entomological branch of that department in 1881, in the charge of which he has since continued, also having the custody of the insect department of the National Museum, which now contains over 100,000 specimens given it by Professor Riley. He has also delivered lectures on entomology at many of the leading colleges in the country. He received the degree of Ph.D. from Missouri State University in 1873, a gold medal from France for his investigations concerning the insects injurious to the growth and development of the vine, and a like token of appreciation for his collection of insects displayed at the Edinburgh International Exhibition, and is a member of the leading scientific organizations in this country and in Europe. He has been a voluminous writer on entomology, and is the author of works dealing with the various phases of that science. Died Sept., 1895.

RILEY, JAMES WHITCOMB, born at Greenfield, Ind., 1852, a popular poet and writer of dialect verse whose pieces, largely descriptive of rural life, have appeared in magazines and newspapers all over the country. He was connected with the *Indianapolis Journal* early in his career. He has published *The Old Swimmin' Hole, etc.* (1873); *Afterwhiles* (1887); *Character Sketches* (1887); *Old Fashioned Roses* (1888); *Pipes o' Pan* (1889); *Green Fields and Running Brooks* (1893); *Armazindy* (1894), and other volumes of poetry.

RIMMER, WILLIAM, born at Liverpool, England, February 20, 1816; came to America with his parents when he was two years old. Prior to 1860, Rimmer, who had meanwhile graduated in medicine, practiced his profession. In that year, however, he exhibited the result of his art studies, a head of *St. Stephen* sculptured from a section of granite, and soon after he opened a studio in Boston, whence he was called to the chair of art anatomy at Harvard University. He also painted many pictures, and was for four years director of the Cooper Institute School of Design in New York city. He died at South Milford, Mass., August 20, 1879.

RINEHART, WILLIAM HENRY, sculptor, born near Union Bridge, Md., September 13, 1825; died in Rome, Italy, October 28, 1874. He received an ordinary education. In 1844 he went to Baltimore to learn



the stone cutter's trade, and in his leisure hours he studied drawing and the elements of sculpture. In 1855 he went to Italy for study, and two years later returned to Baltimore, where he opened a studio; in 1858 he settled in Rome. In 1866 and 1872 he made visits to the United States, where, from time to time, he received many remunerative orders for statues and busts. He left \$45,000 in his will for a lectureship on sculpture in Baltimore, and also a fund for needy art-students.

RINGGOLD, SAMUEL, an artillery officer and commander of Ringgold's battery during the Mexican war; was born in Washington county, Md., about 1800, and graduated at West Point in 1818. For gallantry in the Florida war he was made major by brevet. In the Mexican war he originated a branch of the artillery service which immediately became popular and has since been known as "flying artillery," also inventing improvements in the equipment of the cavalry service, more especially in respect to cavalry saddles. He was fatally wounded at Palo Alto, and died at Point Isabel, Tex., May 11, 1846.

RIORDAN, PATRICK WILLIAM, Roman Catholic archbishop, was born in Ireland in 1841. He was educated in Chicago and Paris. He was ordained in 1865, and returned to the United States, being appointed professor at the Catholic Seminary in Chicago. In 1883 he was made Bishop of Cabasa and assistant to the Archbishop Alemany, of San Francisco, and after the third plenary council of Baltimore he succeeded to the archbishopric, which position he now holds.

RIPLEY, GEORGE, American scholar, was born in Greenfield, Mass., October 3, 1802, and died in New York, July 4, 1880. He was graduated at Harvard in 1823, and spent three years in a divinity school, taking holy orders in 1826. He was one of the founders of the Transcendental Club, and the whole of his long life was devoted to the pursuit of literature. He was a contributor to the leading papers of the day and joint editor with Charles A. Dana of the *New American Encyclopedia*. The University of Michigan conferred on him the degree of LL.D. in 1874.

RIPON, MARQUIS OF (GEORGE FREDERICK SAMUEL ROBINSON, K.G.), was born in London, October 24, 1827, and succeeded to his father's titles, January 28, 1859, and to those of his uncle, as third Earl De Grey, November 14th, in the same year. He began his political life as *attaché* to a special mission to Brussels in 1849. At the general election in 1852 he was returned as member for Hull, and continued to sit for that borough until 1853. At the general election for 1857 he was returned for the West Riding of Yorkshire. In June, 1859, the year in which he succeeded to the peerage, Lord Herbert selected him for the post of under-secretary for war, and in February, 1861, upon the accession of Sir George C. Lewis as chief secretary, he was made under-secretary for India. Upon the death of Sir G. C. Lewis, in April, 1863, he took the place of his chief as secretary for war, together with a seat in the cabinet. He remained at the war office nearly three years, and in February, 1866, when Sir Charles Wood, afterward Viscount Halifax, withdrew from the ministry, was appointed secretary of state for India. On Mr. Gladstone's accession to office, in December, 1868, he was appointed lord president of the council. He was created a knight of the garter in 1869. In 1871 he acted as chairman of the high joint commission, which arranged the treaty of Washington, and was created Marquis of Ripon. In 1870 he was installed as grand master of the Freemasons of England, which position he resigned upon joining the Catholic Church. On the return of Mr. Gladstone to power the Marquis of Ripon

was appointed viceroy of India, in which capacity he gained the friendship of the natives and the hatred of the official class. He was recalled by the Tory ministry. Lord Ripon was first lord of the admiralty, 1886, and colonial secretary, 1892-95.

RISTICH, JOHN, a Servian statesman, born at Kragujevatz in 1831, began his studies in Germany, and continued them at Paris. Under the government of Prince Karageorgevitch he was appointed secretary and afterward head of a department of the office of the minister of the interior. Milosch Obrenovitch III., on his return in 1858, appointed M. Ristich secretary to a deputation which he sent to Constantinople, and at a later period the same prince accredited him as the representative of Servia at the Sublime Porte. Scarcely had he been installed in his post, however, when the crisis commenced which culminated in the bombardment of Belgrade (1862). M. Ristich extricated himself with such ability from the difficulties which ensued, that five years later (1867) he succeeded in obtaining the evacuation of all the Servian fortresses occupied up to that time by the Turkish troops. This service gained for him the portfolio of foreign affairs, but he soon resigned it. On the assassination of Prince Michael he was sent to Paris to escort Prince Milan to his dominions. He was a member of the council which governed the country during the minority of Prince Milan. This council, on the prince's attaining his majority, became a ministry, in which M. Ristich held the portfolio for foreign affairs. When the insurrection occurred in Herzegovina he became minister for foreign affairs. He held the office of foreign minister during the disastrous war with Turkey (1877), in which the Servians were thoroughly defeated. In 1878 he was sent to the congress of Berlin. From that date he was often prominent in Servian affairs, and was chief of the council of regency of the young King Alexander from the abdication of his father, MILAN OBRENOVITCH (*q. v.*), March 6, 1889, until Alexander dismissed the regency and assumed control in his own name in 1893.

RISTORI, ADELAIDE, tragic actress, was born at Cividale, in Italy, in 1821. Having accepted in 1855 an engagement in Paris at the time when Rachel was in the zenith of her fame, her appearance was regarded by the French as an open challenge to contest the supremacy of their tragic queen. The genius of Ristori triumphed and from that moment her position was unassailed. Her reception in England was equally enthusiastic, and she appeared in Spain in 1857, in Holland in 1860, in Russia in 1861, at Constantinople in 1864, in the United States, and other parts of the world, with success. Among her most famous characters are those of "Medea," "Lady Macbeth," "Phædra," "Deborah," "Judith" and "Camilla." She is married to the Marquis del Grillo.

RITCHIE, ANNA ISABELLA. See THACKERAY, MISS.

RITCHIE, CHARLES THOMSON, M. P., was born at Dundee, Scotland, in 1838, and is engaged in business in the east of London. In 1874 he was elected as a Conservative member for the Tower Hamlets, and continued to hold the seat until 1885, when, after the Redistribution bill, he was returned for the St. George's division of the old borough. In Lord Salisbury's first administration, having gained a considerable reputation for practical ability and converseance with affairs, he was made secretary to the admiralty, and in his second cabinet he was president of the local government board. He took a prominent part in the agitation against foreign bounties on sugar. He was defeated in 1892.

RITCHIE, MRS. See MOWATT, ANNA CORA.

RITTENHOUSE, DAVID, astronomer, was born in



Roxborough, Penn., 1732, and died in Philadelphia, June 26, 1796. He early displayed a predilection for mathematics and astronomical studies, and in 1751 established himself as an instrument maker in Norriston. In 1763 he took part in the survey which determined the line between Pennsylvania and Maryland, now known as Mason and Dixon's line. He was also engaged in several other surveys for the colonies; and made numerous instruments for the use of educational institutions.

RIVES, AMÉLIE, the daughter of the Hon. W. C. Rives, was born in Richmond, Va., August 23, 1863. She was educated at home, and at an early age exhibited the inherited literary powers she possessed. Her first story, *A Brother to Dragons*, appeared in the *Atlantic Monthly* in 1888. Since that time her contributions to novelistic literature have but confirmed her claims to distinction. She is married to J. A. Chanler of New York city. An erotic novel called *The Quick or the Dead* brought her name into prominence.

RIVES, WILLIAM C., American statesman, was born in Nelson county, Va., May 4, 1793, and died near Charlottesville, Va., April 25, 1868. He was graduated at William and Mary College and studied law under Thomas Jefferson. He early entered politics and was several times a member of the State legislature. In 1822 he was first sent to congress, and served for three successive terms, after which he was minister to France and negotiated the treaty of 1831. In 1832 he was made a senator, and resigned at the instance of his constituency, because he would not censure President Jackson for removing the deposits from the United States bank. He was reelected in 1835 and voted for Benton's famous "expunction resolution." He was again minister to France in 1849-53. In 1861 he was one of the five Southern "peace" commissioners. He was an anti-secessionist, but served in the first two Confederate congresses. He was a writer of great ability and was the author of several historical and philosophical pamphlets.

RIVIERE, BRITON, R.A., a distinguished animal painter, was born in London, August 14, 1840. He entered the University of Oxford, took his B.A. degree in 1867, and that of M.A. in 1873. The first pictures he exhibited were home rural scenes. From this date till 1864 he was absent from the academy as an exhibitor, but in the last-mentioned year he sent *Iron Bars* and *Romeo and Juliet*. From this time he has been constantly before the public and his productions are very numerous. He was made a member of the academy in 1881.

RIVINGTON, JAMES, journalist, born in London, England, about 1724; died in New York city in July, 1802. In 1760 he came to America. For a year he lived in Philadelphia, but in 1761 went to New York city, where he opened a book store, and in 1773 began to publish the *Gazetteer*. In his newspaper he severely reflected on the patriotic movements of the day, and on November 23, 1775, the "Sons of Liberty" destroyed his press and molded his type into bullets. Thereafter Rivington went to England, where he was appointed royal printer for New York. On his return, in October, 1777, he published the *Loyal Gazette*, which afterward became the *Royal Gazette*. When the British evacuated New York city he remained there, removed the royal arms from his office, and began to publish *Rivington's New York Gazette and Universal Advertiser*. In 1783 this newspaper ceased to exist.

ROACH, JOHN, shipbuilder, was born in Mitchells town, Ireland, in 1815, and died in New York in 1887. He emigrated to America at an early age, and was employed in a machine shop in New York. He then en-

gaged in land speculation in Illinois, but returned to New York and started business on his own account. A fire, destroying his shop, nearly bankrupted him, but beginning over and making a specialty of large compound engines, he was soon on the high road to prosperity. He bought and consolidated several large iron works and the ship yards in Chester, Penn., and began ship-building for the government. He built the monitors constructed during General Grant's presidency, and later the *Chicago*, *Atlanta*, and *Boston*, besides the dispatch boat, *Dolphin*. The failure of his business was precipitated by the refusal of the government to accept the *Dolphin*. After some alterations, however, it was accepted, and Roach resumed business. This failure is said to have hastened his death.

ROBERT I. (ROBERT-CHARLES-LOUIS MARIE DE BOURBON), ex-Duke of Parma, born July 9, 1848, succeeded his father, Duke Ferdinand Charles III., March 27, 1854, as Robert I., under the regency of his mother, the dowager-Duchess Louise-Marie-Thérèse de Bourbon, daughter of the Duke de Berry. Her rule came to an end in 1859, in consequence of the revolution, and, with her son, she sought refuge in the Helvetic States. The ex-Duke Robert married at Rome, April 5, 1869, the Duchess Maria Pia, daughter of the late Ferdinand II., King of Naples.

ROBERTS, GENERAL LORD FREDERICK SLEIGH, BART., G.C.B., V.C., was born in 1832, and educated at Eton, Sandhurst, and Addiscombe, England. He received his first commission as second lieutenant in the Bengal artillery, and, after passing through the various other grades, was promoted to lieutenant-general in 1879. He served with distinction throughout the Indian Mutiny campaign. Throughout the Abyssinian campaign of 1868 he held the office of assistant quartermaster-general. He also acted as assistant quartermaster-general with the Cachar column in the Looshai expeditionary force (1871-72). At the beginning of the Afghan campaign he was appointed commander of the Kuram field force; subsequently he had the chief command of the army in Afghanistan, and annihilated the power of Ayob Khan. On the return of Sir Frederick Roberts to England he was loaded with honors, and was created a baronet. In February, 1881, he was appointed to succeed Sir George Colley in the command of the troops in Natal and the Transvaal, but peace was concluded with the Boers before his arrival in the colony. He was afterward appointed a member of the council of Madras, commanded the troops in that presidency, 1881-85, then became commander-in-chief in India, conducted the Burmese expedition and was raised to the peerage in 1892 as Lord Roberts of Kandahar and Waterford. From 1899 to 1901 he served in South Africa.

ROBERTSON, GEORGE CROOM, was born at Aberdeen, Scotland, March 10, 1842, educated at Aberdeen Grammar School, and graduated M. A. in Aberdeen University in 1861. He was assistant professor of Greek in the University of Aberdeen from 1864 to 1866, and professor of philosophy and logic in University College, London, from December, 1866, besides being philosophical examiner in the Universities of London, Aberdeen and Cambridge successively for many years. He assisted Professor Bain in editing Grotes's *Aristotle*, contributed to the ninth edition of the *Encyclopædia Britannica* and wrote much for educational journals. He died September 21, 1892.

ROBERTSON, JAMES, pioneer, born in Brunswick county, Va., June 28, 1742; died in Chickasaw county, Tenn., September 1, 1814. He received only the rudiments of an education, and in 1759 accompanied Daniel Boone on his third expedition beyond the Alleghany Mountains. In the spring following he pioneered



sixteen families westward. In 1779, Robertson, followed by some of the settlers of the Watuga Valley, settled at Nashville, Tenn. During the Revolutionary war he supported the American cause. In 1790 he was appointed a brigadier-general, and held the post of Indian commissioner until his death.

ROBERTSON, MISS AGNES, stage name of Mrs. Dion Boucicault, born in Edinburgh, Scotland, December 25, 1833, gave concerts in public before she was eleven years old, began her theatrical career in Hull at sixteen, married Dion Boucicault in 1853 and came to America where she at once became, and long continued, a popular actress. Her son, AUBREY BOUCICAULT, was in 1895, a rising young actor.

ROBESON, GEORGE M., secretary of the navy under Grant, was born in Warren county, N. J., in 1827. He was graduated at Princeton, and studied law. He was made prosecuting attorney for Camden county, N. J., in 1859, and took an active part in organizing troops on the outbreak of the war, being a brigadier-general under the State commission. After the war he was attorney-general of New Jersey, and resigned this office to become secretary of the navy under General Grant in 1869. Since that time he has been several times a member of congress.

ROBINSON, ANNIE DOUGLAS, poet, was born in Plymouth, N. H., January 12, 1842. Her maiden name was Green. Under the pen name of "Marian Douglas" she has written much for the magazines and newspapers, and has also published a prose story entitled *Peter and Polly or Home Life in New England One Hundred Years Ago*.

ROBINSON, BEVERLY, soldier, born in Virginia in 1723; died in Thornbury, England, in 1792. He was a major under General Wolfe at the taking of Quebec in 1759. Although he opposed many measures that led to the separation of the colonies from Great Britain, he became colonel of a regiment of Loyalists. He is supposed to have been somewhat concerned in the treason of Gen. Benedict Arnold. His country house opposite West Point, standing about half a mile back from the river, was Arnold's headquarters. After the conviction of Major André he accompanied the commissioners sent by Sir Henry Clinton to Washington's headquarters, to plead for André's life. On the return of peace between Great Britain and her former colonies, Colonel Robinson went to New Brunswick, and afterward retired to a country home near Bath, England, until his death.

ROBINSON, EDWARD, biblical scholar, was born in Southington, Conn., April 10, 1794; died in New York city, January 27, 1863. He was graduated from Hamilton College in 1860, and after a short time spent in reading law, he became professor of Greek and mathematics in that college. He also occupied chairs in the theological seminary at Andover, and wrote much of an expository and exegetical character on the Bible and biblical literature. He was a member of many learned societies, and received the honorary degrees of LL.D. and D.D. from several colleges and universities. His publications include a long list of works, of deep research and great learning, covering all phases of biblical criticism.

ROBINSON, EZEKIEL GILMAN, educator, was born in Attleboro, Mass., March 23, 1815. He was graduated at Brown, and then took a course in the Newton Theological Seminary. After a few years pastorate he became professor of biblical interpretation in the theological seminary at Covington, Ky., and in 1853 he became professor of theology at Rochester; in 1860 he became its president. This position he resigned in 1872 to become president of Brown University, which

post he held until 1889. He had several honorary degrees conferred on him, and wrote much for the press, chiefly in the nature of sermons and review articles. He died June 13, 1894.

ROBINSON, SIR J. CHARLES, born 1824, formerly art superintendent of the South Kensington Museum, was an F.S.A., honorary member of the Academy of St. Luke in Rome, Florence, Bologna, Madrid, Lisbon, etc., and a knight commander of the Order of Isabella la Catolica and of Santiago of Spain and Portugal. In association with the Marquis d'Azeglio, Italian minister in London, and the late Baron Marochetti, Mr. Robinson founded, and for many years directed as honorary secretary, the well known Fine Arts Club, now the Burlington Fine Arts Club. In 1869 he resigned his appointment at South Kensington on a retiring pension.

ROBINSON, SIR JOHN R., born at Witham, Essex, England, November 2, 1828. On coming to London, in 1846, he joined the paper which had been known as *Douglas Jerrold's Newspaper*, and soon afterward undertook the editorship of the *Evening Express*. This was the property of the *Daily News*, and Mr. Robinson soon took an active part in the conduct of the morning paper. On the change of proprietorship in 1868, when the *Daily News* joined the ranks of the penny papers, he was appointed sole manager. For many years Mr. Robinson was a copious contributor to the columns of the American press, including the *Boston Advertiser* and the *Chicago Tribune*. He also edited a work on shorthand. He was knighted in 1893.

ROBINSON, LUCIUS, ex-governor of New York, was born in Windham, Greene county, N. Y., November 4, 1810. He was admitted to the bar in 1832, and was successively district attorney and master in chancery for New York city. He was elected to the legislature as a Republican in 1859, and State comptroller in 1861 and 1863. He was a member of the constitutional commission of 1871, and was reelected comptroller in 1875. In 1876 he was chosen governor, and was renominated in 1879, but defeated. He died March 23, 1891.

ROBINSON, PHILIP STEWART (known as PHIL ROBINSON), born at Chunar in India, October 13, 1849; and educated at Marlborough College, joined the *Pioneer* as sub-editor to his father in 1869, contributing to that journal (1870-71) the papers afterward republished as *In My Indian Garden*. He was appointed (1872) editor of the revenue archives of the Benares Province. Meanwhile he was gazetted professor of literature (1873), and exchanged (1875) to the chair of logic and metaphysics, and held simultaneously the appointment to the supreme government of censor of the vernacular press. He retired from the service in 1877, joined the *Daily Telegraph* in the same year, and served as one of the war correspondents of that journal. He traveled over the United States as special commissioner of the *New York World*. He is a regular contributor to the *Contemporary Review*, *Gentlemen's Magazine*, and *Harper's Monthly*, besides having written several books.

ROBINSON, SIR HERCULES GEORGE ROBERT, G.C.M.G., was born in 1824; died October 28, 1897. Was educated at Royal Military College, Sandhurst, England; held a commission in the 87th foot, but retired from the service in 1846, and was employed in various capacities in the civil service in Ireland until 1852. He was appointed president of Montserrat in 1854, lieutenant-governor of St. Christopher's in 1855, succeeded Sir John Bowring as governor of Hong Kong in 1859, when he received the honor of knighthood, was promoted to the governorship of Ceylon in January, 1865, and to the governorship of New South Wales in March, 1872. In August, 1874, he proceeded



to the Fiji Islands on special duty, held other posts and was commissioner to Mauritius, in 1886.

ROBSON, STUART, a popular American comedian, born at Annapolis, Md., March 4, 1836, went on the stage at Baltimore in 1852. His first great success was as "Captain Crosstree" in *Black-eyed Susan* at Boston in 1870. Soon after he formed a partnership with W. H. Crane which was remarkably successful in *Our Boarding House*, in sumptuous revivals of *The Comedy of Errors* and *Merry Wives of Windsor*, the two comedians playing the two "Dromios" in the first named comedy, and in *The Henrietta*, Bronson Howard's drama of Wall street life, which had a phenomenally successful run, Mr. Robson's part of "Bertie, the Lamb" being considered by many his greatest success. He separated from Mr. Crane in 1889 and has since produced *The Henrietta*, *She Swoops to Conquer* and other plays.

ROCA, JULIO A., born at Tucuman, July, 1843, an Argentine general and statesman who led the military expedition of 1879 which opened Patagonia to settlement and was president of the Republic, 1880-86.

ROCHAMBEAU, JEAN BAPTISTE DONATIEU DE VIMEURE, COUNT DE, French soldier, born in Vendome, France, July 1, 1725; died at Thoré, France, May 10, 1807. In 1742 he entered the army and served in Germany and Bohemia. In 1749 he became governor of Vendome, and, after successive promotions, on March 1, 1780, attained the grade of lieutenant-general. In the last named year Count Rochambeau, at the head of 6,000 men, was sent to America, to aid the cause of the patriots. The French troops embarked at Brest. On July 12th the soldiers were landed in a body in Rhode Island, where Newport became the general's headquarters. On September 22d Rochambeau had an interview with the American commander-in-chief, when the operations of the following campaign were concerted. Soon afterward the French army was reinforced by the arrival of Admiral de Grasse with 3,000 additional troops. On June 18, 1781, Rochambeau left Rhode Island, defeated a detachment of the British army, and joined the Americans nine miles above King's Bridge on the Harlem river. This movement compelled the British commander to abandon his purpose to relieve General Cornwallis. The united armies then pushed forward to Williamsburg, Va., and on September 29, 1781, began the siege of Yorktown. Admiral de Grasse having intercepted the British fleet, Lord Cornwallis found his defense hopeless, and surrendered. Later the French general sent de Lauzun's legion to the assistance of General Greene. On January 14, 1783, having completed his purpose, Rochambeau embarked for France at Chesapeake Bay, arriving at Brest in March. He was made governor of Picardy and Artois, and in 1791 became a marshal of France. Two years later his conduct at the head of the army of the North greatly disappointed expectation. Rochambeau narrowly escaped the guillotine. In 1804 Napoleon conferred on him a pension and the grand cross of the Legion of Honor.

ROCHEFORT-LUCAY, VICTOR HENRI, COUNT DE, commonly known as Henri Rochefort, a French journalist, was born in Paris in 1830. After contributing to various papers he joined the staff of the *Figaro*, but in 1865 he retired to save the journal from prosecution and established the *Lanterne*. The paper was soon suppressed on account of its violent attacks upon the imperial family, and its author was condemned to a year's imprisonment, and to pay a fine of 10,000 francs. M. Rochefort fled to Brussels and continued to publish the *Lanterne* till August, 1869, when, on his election to the legislative body, he was permitted to re-

turn to Paris. In the same year he founded the *Mar-seillaise*, in which Victor Noir was a collaborator. The attacks in this journal on Prince Pierre Bonaparte led to the assassination of Victor Noir by the Prince; the paper was seized and M. Rochefort committed to the prison of Sainte Pélagie. On the proclamation of the Republic in September, 1870, he was released by the mob, and was for a short time connected with the government of national defense. On May 19, 1871, while endeavoring to escape from Paris, he was taken, tried by court-martial, and sentenced to imprisonment for life. Subsequently M. Rochefort was transported to New Caledonia, but effected his escape in 1874. He returned to Europe and attempted to revive the *Lanterne* in London and Geneva, but without success. The general amnesty of July 11, 1880, permitted M. Rochefort to return to Paris, where he at once assumed the direction of a new Radical paper, *L'Intransigeant*, and renewed his attacks upon all the governments in turn. He was again elected for Paris, but parliament was irksome to him, and he resigned. In 1888 he advocated the election of General Boulanger, and when the latter fled to escape arrest Rochefort went with him to England, where he resided for several years.

ROCKEFELLER, JOHN D., born in Owego, N. Y., in 1839, removed with his parents to Cleveland, O., and was educated in its public schools. He evinced great aptitude for business, and from very small beginnings soon began to get rich. In 1860, when petroleum discoveries created the "oil fever," he was proprietor of a refinery in Cleveland with a modest capital. He took prominent part in developing the Standard Oil Company, a monopolistic corporation which bought up or killed off competition until it secured control of the oil production of the country. Mr. Rockefeller became president of the Company, by which he was made enormously wealthy. Since 1890, he reconstructed the Chicago University with a total endowment of nearly \$4,000,000 and has also given liberally to other public and religious objects.

RODGERS, JOHN, naval officer, born in Harford county, Md., 1771, served in the merchant marine, becoming captain, entered the navy as lieutenant of the *Constellation*, earned distinction fighting the Tripolitans and in the war of 1812 commanded the *President*, and took twenty-three prizes. He became president of the naval commission, holding the office till his death in 1838.

RODGERS, JOHN, naval officer, born in Harford county, Md., August 8, 1812, son of the preceding, entered the navy in 1828, was commander at the outbreak of the Civil war, superintended the construction of river gunboats, captured the Confederate iron-clad *Atlanta*, in Warsaw sound, and performed other notable services. He became rear admiral in 1869; and was superintendent of the naval observatory from 1877 till his death, May 12, 1882.

RODMAN, ISAAC P., soldier, was born in South Kingston, R. I., August 18, 1822, and died in Sharpsburg, Md., September 30, 1862. He was educated in the common schools, and early entered politics, being several times sent to the legislature. In 1861 he raised a company of the 4th Rhode Island regiment, and for gallantry at Bull Run he was made lieutenant-colonel of the regiment. In 1862, in reward for gallant services, he was promoted brigadier-general, and while leading the third division of the ninth army corps United States army, at Sharpsburg, he fell mortally wounded.

RODMAN, THOMAS JEFFERSON, soldier and inventor, was born in Salem, Ind., July 30, 1815, and died in Rock Island, Ill., June 7, 1871. He was graduated



at West Point in 1841, and assigned to the ordnance department. He gave all his time and attention to the production of improved cannon and ammunition, the Rodman gun being his invention. He was superintendent of various arsenals during his service, and was the first to propose the use of the mammoth powder in heavy ordnance. At the time of his death he was superintendent of the Rock Island arsenal, and had reached the rank of lieutenant-colonel in the regular army.

RODNEY, CÆSAR, signer of the Declaration of Independence; born in Dover, Del., October 7, 1728; died there, June 29, 1784. Previous to 1774 he had been chosen to a number of minor offices, and in that year was made a delegate to the Continental Congress, and again served as such in the following year. In 1775 Mr. Rodney was appointed brigadier-general of the Delaware militia. On June 5th he was chosen judge of admiralty, and later in the same year made major-general of militia, and president of Delaware. The last named office he held four years, and declined a reelection.

ROE, EDWARD PAYSON, author, born in Moodna, N. Y., March 7, 1838; died in Cornwall, N. Y., July 19, 1888. He was educated at Williams, but did not graduate. Later he studied at Auburn and at Union Theological Seminary in New York city, and from 1862 until 1865 was a chaplain of volunteers in the Union army. Thereafter he became settled as pastor of a Presbyterian church at Highland Falls, N. Y., and in 1874 removed to Cornwall, on the Hudson river. Most of his books have been reprinted in England. Mr. Roe's sixteen works, mostly novels, have found entrance into many households.

ROEBLING, WASHINGTON AUGUSTUS, civil engineer, was born in Saxenburg, Penn., May 26, 1837. He was graduated as a civil engineer, and began by assisting his father, on the Alleghany suspension bridge. In 1861 he enlisted in the United States army, and was engaged first in engineering and then in balloon service. After the war, during which he attained the rank of colonel, Roebling assisted his father on the Cincinnati suspension bridge, and in various other undertakings. In 1869 he began operations on the great Brooklyn bridge, which he completed in 1883, at a cost of \$13,000,000. Since that time he has been engaged in the wire-making business in Trenton, N. J. He is the author of a treatise on military engineering.

ROEBUCK, JOHN ARTHUR, politician, was born in Madras, India, December 29, 1802, and died in England, November 30, 1879. He studied law, and in 1832 was elected to parliament, becoming prominent as a radical leader. In 1835 he was agent for the Lower Canada Assembly, in the deadlock between that body and the governor. In 1878 he was a privy counselor. He was always a strong opponent of England's encroachments on what he regarded as the Canadian prerogative. He wrote several works of a historical and political nature.

ROGERS, GEORGE CLARKE, soldier, was born in Piermont, Grafton county, N. H., in 1838. He removed to Illinois, and, having studied law, was admitted to the bar in 1860. He raised a company of men in Lake county on the outbreak of the war, and was soon made its captain. For gallant conduct at Shiloh he was promoted lieutenant-colonel and soon after colonel. He gained great distinction in the Atlanta campaign, and on March 13, 1865, was brevetted brigadier-general of volunteers. He resumed his law practice after the war, and has been since 1885 chairman of the board of pension appeals.

ROGERS, HENRY DARWIN, geologist, was born in Philadelphia, August 1, 1808, and died near Glasgow,

Scotland, May 29, 1866. He was graduated at William and Mary College, Virginia, and in 1830 was elected professor of chemistry and natural philosophy at Dickinson. He afterward lectured at Franklin Institute, and in 1835 he was professor of geology and mineralogy at the University of Pennsylvania. He conducted several geological surveys for the different State governments, and in 1858 he was elected professor of natural history at Glasgow, where he remained till his death. He has published about fifty papers—almost all of them relating entirely to geology and mineralogy.

ROGERS, JOHN, sculptor, was born in Salem, Mass., October 30, 1829. He was educated in the Boston public schools, and was apprenticed to a machinist. Here his attention was drawn to sculpture, and in 1858 he went to Europe to study. In 1859 he returned and located in Chicago, where his work soon brought him into notice. The Civil war was prolific in furnishing him with subjects, and he has illustrated almost every phase of life in his groups. His compositions are over fifty in number, and have met with a large sale. He was also the modeler of the statue of Gen. John F. Reynolds, at the city hall in Philadelphia.

ROGERS, RANDOLPH, sculptor, was born in Watertown, near Auburn, N. Y., July 6, 1825. He was engaged in mercantile pursuits till 1848, when he went to Europe to study art, remaining there two years. He returned to New York and opened a studio, where he remained five years. He then again went to Italy, where he has since resided. He has executed numerous ideal groups and heroic statues, the most noted of his works in the latter line being the figures surrounding the equestrian statue of Washington at Richmond, Va., and the monument to Col. Samuel Colt, in Hartford, Conn. He died Jan. 15, 1892.

ROGERS, WILLIAM, was born in London in 1819; and educated at Eton and at Balliol College, Oxford, where he took his B.A. degree in 1840. In 1843 he was appointed curate at Fulham, and in 1844 incumbent of St. Thomas, Charterhouse. In 1863 he was appointed rector of St. Botolph, Bishopsgate, which post he has held ever since. He was also chaplain in ordinary to the queen, and prebendary of St. Paul's Cathedral. He is a prominent educator.

ROGERS, WILLIAM BARTON, geologist, was born in Philadelphia, December 7, 1804, and died in Boston, May 30, 1882. He was graduated from William and Mary College, and succeeded his father in his professorship there in 1828. He was next professor of geology and natural philosophy at the University of Virginia, where he attained a high reputation. He organized the State geological survey, and in 1853 resigned his professorship and went to Boston. Here he founded the Institute of Technology, of which he became first president. This office he resigned on account of ill health, but again filled from 1878 till his death. He was a member of a number of learned societies, and had received honorary degrees from several institutions of learning. He was the author of numerous papers on geology and natural philosophy, besides several treatises on mechanics.

ROLFE, WILLIAM JAMES, editor and scholar, was born in Newburyport, Mass., December 10, 1827. He was graduated from Amherst in 1849, and at once engaged as a teacher in the Cambridge (Mass.) high school. In 1869 he began his career as an editor, and since that time has been engaged on several high class journals and also in annotating various classic poems and prose productions. His editions are all regarded as standard works of their kind, his notes on Shakespeare being particularly excellent.

ROLLINS, EDWARD HENRY, senator, was born in

Somersworth (now Rollinsford), N. H., October 3, 1824. He was educated in Dover, and went to Boston, where he learned the druggist's business, and established himself in the trade. In 1855-57 he was a member of the legislature, serving as speaker one year. In 1860 he was chairman of the delegation to the National Republican Convention. He served in congress for six years, and in 1868 he became secretary and treasurer of the Union Pacific Railroad Company. He was United States senator, 1877-83, and president of the Boston, Concord and Montreal railroad. He died July 31, 1889.

ROMANES, GEORGE JOHN, F.R.S., born in Kingston, Canada, May 20, 1848. In 1867 he entered Gonville and Caius College, Cambridge, where he became a scholar in natural science. In 1870 he graduated in natural science honors, was Burney prize essayist in 1873, and Croomian lecturer to the Royal Society in 1875. Having published a series of papers in the *Philosophical Transactions* on the nervous system of *Medusa*, he was elected a fellow of the Royal Society in 1879. Subsequently he had continued to contribute papers both to the *Transactions* and to the *Proceedings* of the Royal and other learned societies; and in 1881 was again appointed Croomian lecturer on the locomotor system of *Echinodermata*. Shortly afterward he became zoological secretary to the Linnean Society. He was a champion of Darwinianism and wrote *Darwin and after Darwin* (1892). He died May 23, 1894.

ROMERO, MATIAS, Mexican statesman, was born in Oaxaca, February 24, 1837. He was educated in the law, and was at an early age given a diplomatic post under Juarez. In 1859 he was made secretary of legation in Washington, and later *chargé d'affaires*. In 1863 he resigned his post and entered the army, but was returned to Washington as minister to the United States in 1868, and negotiated several important treaties between the two countries. He afterward became secretary of treasury under Juarez, and on his resignation of this office served as congressman. He was a cabinet officer under Diaz and became postmaster-general in 1880. During Garfield's administration he was again Mexican minister to the United States, and he adjusted the difficulties pending between the two countries. He still holds the office of minister, having been successively reappointed. He has been a prolific author, chiefly of official books and papers, and has had some experience as a railroad financier.

ROOSEVELT, ROBERT BARNWELL, lawyer and sportsman, born in New York city, August 7, 1829, was fish commissioner of the State of New York, 1868-88, Democratic member of congress, 1871-73, and United States minister to the Netherlands in 1888. He wrote *Game Fish of North America*, *Game Birds of North America*, *Five Acres too Much* and other works.

ROOSEVELT, THEODORE, merchant and philanthropist, born in New York city, September 22, 1831; died February 9, 1898. He founded the Orthopædic Hospital, and was chairman of the State Board of Charities.

ROOSEVELT, THEODORE, son of the above, born in New York city, October 27, 1858, graduated at Harvard 1880, was elected to the State Assembly, 1881-84, as a Republican, was an active and effective civil service reformer and was appointed United States Civil Service Commissioner by President Cleveland. He wrote *Hunting Trips of a Ranchman*, *lives of Thomas H. Benton and Gouverneur Morris*, *The Winning of the West* (3 vols., 1894) and other works. In 1895 he became Police Commissioner of New York, and in 1901 President of the United States.

ROOT, GEORGE FREDERICK, musician, born in Sheffield; Mass., August 30, 1820. He was self-

taught, became a teacher in 1838, studied in Paris, 1850-53. He published *Tramp, Tramp, Tramp, the Boys are Marching*; *The Battle Cry of Freedom* and many other popular songs. He died August 6, 1895.

ROSA, CARL, violinist and conductor, was born at Hamburg, March 22, 1842, made his début when eight years old, and studied at Leipsic and Paris. Returning to his native city, he was appointed conductor of the Philharmonic, and gave a successful series of popular concerts of chamber music. Next he visited the United States, where he was engaged by the late Mr. Bateman to conduct a concert tour. There Mr. Rosa married Madame Parepa, the leading singer of the company; and afterward he undertook the production of opera on his own account. The success which attended the English opera season in America in 1871-72 led to the determination to make an essay in England. In 1872 Mr. Rosa and his wife, with a strong company, went to England, and on September 11, 1875, inaugurated a seven weeks' successful season of opera at the Princess' theater. The great merit of Mr. Rosa was that he gave a great impetus to English opera. It was he who created a growing appetite for the performances of operas in English, and who fostered the compositions of English-speaking musicians. He died April 30, 1889.

ROSAS, JUAN MANUEL DE, Argentine dictator, was born in Buenos Ayres, March 30, 1793, and died in England, March 14, 1877. He early entered the army, first as a captain of militia, and after participating in the various revolutions and internal commotions that disturbed his country, he was made governor, December 6, 1829. At first his government was a mild one, but it soon became arbitrary, and when his resignation was accepted by the legislature he fomented difficulties which prevented his successor holding office, and he was again elected—being given extraordinary powers—and held office from 1835 till 1852, when he fled the country, his tyranny having caused a revolution that endangered his life.

ROSCOE, SIR HENRY ENFIELD, M.P., F.R.S., LL.D., born January 7, 1833, in London. He was educated at Liverpool High School, University College, London, and Heidelberg (B.A., London, 1852); was appointed professor of chemistry at Owen's College, Victoria University, Manchester, in 1858; elected a fellow of the Royal Society in 1863; and received the royal medal of that society in 1873. Professor Roscoe has published several series of investigations on the measurement of the chemical action of light in conjunction with Professor Bunsen, of Heidelberg, and is author of many papers in the *Philosophical Transactions* and scientific journals on other subjects. The University of Dublin conferred upon him the honorary degree of LL.D. in 1878, that of Cambridge in 1883, and that of Montreal in 1884, and he is honorary member of the German Chemical Society, and of many foreign academies. He is joint editor with Professors Huxley and Balfour Stewart of Macmillan's Science Primer Series, and author of the *Chemistry Primer*. He was elected a member of parliament in 1885, 1886, and 1892 for South Manchester as a Liberal.

ROSE, CHAUNCEY, philanthropist, born in Wethersfield, Conn., December 24, 1794; died in Terre Haute, Ind., August 13, 1877. He received a common school education, and in 1817 traveled through the western and southwestern States, finally settling in Terre Haute. Here he became a successful land and railway speculator, and also inherited a large estate from one of his brothers. The proceeds of his brother's legacy, amounting to more than \$1,500,000, he expended in various charities; from his own resources he contributed \$12,000 to endow an academy in Wethersfield, and



made philanthropic donations in and around Terre Haute, amounting to over \$1,000,000.

ROSE, SIR JOHN, BART, born in Aberdeenshire, Scotland, emigrated to Canada in 1836, was a volunteer in suppressing the rebellion of 1837 and assistant recorder of the court martial established for the trial of offenses occurring during the insurrection. He became a lawyer in 1842 and solicitor-general in 1857, was a member of parliament for the city of Montreal, 1857-69, held several cabinet offices, was active in promoting federation and in 1870 removed to England, where he became a banker and was created K.C.M.G. in 1870. He died August 24, 1888.

ROSEBERY, EARL OF (THE RIGHT HON. ARCHIBALD PHILIP PRIMROSE), premier of England, 1894-95, was born in London in 1847, and educated at Eton, and at Christ Church, Oxford. He succeeded to the title on the death of his grandfather, the fourth earl of Rosebery, in 1868, making his maiden speech in the House of Lords in 1871. He was a president of the social science congress which met at Glasgow, October 1, 1874; on November 16, 1878, he was elected lord rector of the University of Aberdeen and in November, 1880, he was elected lord rector of the University of Edinburgh. A strong Liberal and Home Ruler in politics, he was appointed under-secretary of state for the home department in August, 1881, resigning in June, 1883, and in November, 1884, became lord privy seal and first commissioner of works. In Mr. Gladstone's short government in 1886 he was secretary for foreign affairs, and established a high reputation. Though a peer, he moved in 1884 for a select committee to inquire into the best means of improving the efficiency of the House of Lords. He is a strong advocate of imperial federation, takes great interest in movements for the improvement of the social condition of the masses, and presented a magnificent swimming bath to the People's Palace in the east end of London. He was elected, with Sir John Lubbock, for the city division to the London county council in 1889, and became chairman of that body in 1890 and again for a short time in 1892. When Mr. Gladstone succeeded to power Lord Rosebery became secretary for foreign affairs, and on the resignation of Mr. Gladstone in March, 1894, he became premier and carried on the government successfully for fifteen months with the small majority of his party, which kept growing smaller with every by-election. Early in 1895 a severe attack of illness disposed Lord Rosebery to resign the premiership but he was persuaded not to do so. When Lord Rosebery leaped into prominence in 1894 as the head of the government it was said of him that when a youth at college he declared he would do three things, marry the richest heiress of her year, win the Derby and become premier. That year saw the completion of the prophecy. He had married in 1878, Hannah, daughter of Baron Mayer de Rothschild, who died in 1890, and in 1894 he not only became prime minister of England, but won the English Derby with his horse, Ladas. He won a second Derby in June, 1895, and lost his premiership a few days later, June 24, resigning on a Liberal defeat in the Commons. Lord Rosebery published a monograph on *William Pitt, the Younger*, in 1891.

ROSECRANS, WILLIAM STARKE, soldier, born at Kingston, Ohio, September 6, 1819. He was graduated at the United States military academy in 1842, and entered the engineer corps as brevet second lieutenant. In 1847 he was employed on repairs at Fort Adams, R. I. In 1854 he resigned from the army, and became a civil engineer at Cincinnati, Ohio. At the beginning of the Civil war he was made colonel

of the 23d Ohio volunteers on June 10, 1861, and in the same year was promoted brigadier-general of the United States army. In April, 1862, he joined General Buell's army, and at the siege of Corinth commanded a division. On September 19th he defeated Gen. Sterling Price at Iuka. In October, 1862, he commanded the army of the Cumberland at Murfreesboro, Tenn. He fought the unsuccessful battle of Chickamauga. On October 16th he was relieved of his command, and transferred to Missouri to defend that State against the invasion of Gen. Sterling Price. After the close of the war he was brevetted major-general, and on March 28, 1867, resigned from the army. In 1868 he was for some months United States minister to Mexico, and in 1881 was chosen to congress from California, serving two terms. In June, 1885, he was made register of the United States treasury. He died March 11, 1898.

ROSELIOUS, CHRISTIAN, lawyer, was born near Bremen, Germany, August 10, 1803, and died in New Orleans, September 5, 1873. He emigrated to America in 1820, and, having learned the printing business, he established and edited a literary paper called the *Halcyon*, which was a failure. He then turned his attention to the law, and he was admitted to the bar in 1828. He rapidly rose to the front in his profession, and soon became the most eminent civil lawyer in Louisiana. In 1841 he was attorney-general of the State and served two years. In 1863 he was tendered the supreme judgeship of the State, but refused to accept unless the court were preserved from military interference. He was at one time offered a partnership with Daniel Webster, but declined, preferring to remain in the South.

ROSS, ALEXANDER MILTON, M.D., was born at Belleville, Ontario, Canada, December 13, 1832. While yet a boy he went to New York, and became a compositor on the *Evening Post*, then edited and owned by William Cullen Bryant. In 1851 he began the study of medicine, taking his degree in 1855. From 1855 to the outbreak of the Civil war he took an active part in the anti-slavery agitation. During that war he served for a short time as surgeon in the Federal army, and was subsequently employed by President Lincoln as confidential correspondent in Montreal. He afterward became a member of the College of Physicians and Surgeons of Quebec and Ontario. He was one of the founders of the society for the diffusion of Physiological knowledge in 1881; and in 1885 attempted to prevent the small-pox epidemic by directing public attention to the sanitary condition of Montreal. He has been a member of the British Association of Science for fifteen years, and of the American and French associations for eleven years, and is a fellow of a number of scientific societies. He has been knighted by the emperor of Russia, king of Italy, king of Greece, king of Portugal, king of Saxony, and shah of Persia, and has received many other honors. For many years he has been eminent as a naturalist. Died Oct., 1897.

ROSS, GEORGE, signer of the Declaration of Independence, was born in New Castle, Delaware, in 1730, and died in Lancaster, Penn., in July, 1779. He began to study law at the age of eighteen, and was admitted to the bar in 1751, settling in Lancaster, Penn. He was a member of the Pennsylvania Assembly in 1768-70, and was one of the commission appointed to draft a declaration of rights on the dissolution of the proprietary. He was elected to the first general congress at Philadelphia in 1774, and continued a member till 1777, when his health compelled him to resign. He was an active promoter of the American cause against the British, and was the author of the report urging the

fortification of Philadelphia. In 1779 he was made judge of the court of admiralty of Pennsylvania, holding that position till his death.

ROSS, JOHN, Cherokee Indian chief, born in the Cherokee country, Georgia; died in Washington, D. C., August 1, 1866. He was a half-breed Indian, acquired a good English education, and in 1828 became principal chief of his tribe. In 1835 trouble arose between the Cherokees about their removal from Georgia, and they were conveyed to lands farther west with much difficulty. When the Civil war opened Ross called a council of the Cherokees, and formed an alliance with the Confederates, which was more defensive than aggressive against the national forces, in consequence of which his tribe lost their lands. Ross was the author of *Letters to a Gentleman in Philadelphia* (1836).

ROSS, SIR JOHN, K.C.B., born at Stonehouse, Cumberland, England, March 18, 1829, began his service on April 14, 1846, when he joined the Rifle Brigade as second lieutenant. As adjutant of the second battalion, this officer was present at Alma and Inkerman, and received a brevet majority with three medals for his services in the Crimea. He was engaged in the suppression of the Indian mutiny. For services he obtained a brevet lieutenant-colonelcy, medal and C.B. He was present at the action of the Shukkudder with the Rifle Brigade in January, 1864, and commanded the Bengal troops in the Perak expedition of 1875-76. In 1878 he was selected to command the brigade of Indian troops which, during the Eastern crisis, was brought to Malta. From this he was appointed to the command of the reserve division of the Afghanistan Field Force under Sir Frederick Roberts, with whom, in 1880, he made the march from Cabul to Candahar, in command of the infantry brigades. In 1881 he was placed in command of the Poonah division of the Bombay army, which he relinquished in 1886, on promotion to the rank of lieutenant-general. He died in 1888.

ROSS, LEONARD FULTON, an American lawyer, soldier and farmer, born in Fulton county, Illinois, July 18, 1823, served in the Mexican war, raised the 17th Illinois regiment in 1861, and was commissioned brigadier-general of volunteers, April 25, 1862, being promoted later to the command of a division.

ROSS, ROBERT, born in Ross Trevor, England, about 1770, led the British corps sent to this country in 1814, commanded at the battle of Bladensburg and at the sacking and burning of Washington, and was killed at North Point, Md., September 12, 1814, while leading the advance on Baltimore.

ROSSER, THOMAS LAFAYETTE, Confederate soldier, was born in Campbell county, Va., October 15, 1836. He was about to graduate from the West Point Academy, but, on the breaking out of the war, he resigned, and entered the Confederate army as lieutenant of artillery. He was rapidly promoted, and in June, 1862, he was transferred from artillery and given the command of a cavalry regiment. He was soon made brigadier, and given the command of the cavalry in the Shenandoah Valley. He served under Jubal A. Early, and participated in the battle of Cedar Creek, earning laurels by his brilliant fighting qualities. After the war he turned his attention to engineering, and was engaged on the Northern Pacific and Canadian Pacific railways. He is now engaged in mining, and is the consulting engineer of several roads.

ROSSETTI, CHRISTINA GEORGINA, was born in London, December, 1830, and educated at home. She was the daughter of the well-known commentator on Dante, and sister of Dante Gabriel, William Michael, and Maria Rossetti. She wrote numerous prose and poetical compositions and died December 29, 1894.

ROSSETTI, WILLIAM MICHAEL, brother of Dante Gabriel and Christina Georgina Rossetti, was born in London, September 25, 1829, and educated at King's College School, London. He was appointed, in February, 1845, to an extra clerkship in the excise office, London (now the inland revenue office), and became, in July, 1869, assistant secretary in the same office. Mr. Rossetti has been a critic of fine art and literature since 1850. He has acted in that capacity for numerous journals. He has published *Dante's Comedy, the Inferno*, translated into blank verse, 1865, and original work in the shape of art criticisms, poems, etc.

ROSSI, ERNESTO, an Italian actor, born at Leghorn in 1829, received his early education in his native town, and afterward studied law in the University of Pisa. Having a great liking for the stage, he often took a part in amateur theatricals. After having appeared at Milan, Turin, and other Italian cities, he went in 1853 with Mdle. Ristori to Paris, where, by his masterly acting, he enabled the French public to appreciate the works of several Italian dramatists. After having visited Portugal and Spain, he returned to Paris in 1875; and gave at the Salle Ventadour, with remarkable success, a series of Shakspearean representations, in which he himself played the leading parts. M. Rossi, who has been styled the "Italian Talma," is the author of some dramatic pieces of no great merit. He has been decorated with the cross of SS. Maurice and Lazarus. Died June 4, 1896.

ROSSITER, THOMAS PRICHARD, painter, born in New Haven, Conn., September 29, 1817; died in Cold Spring, N. Y., May 17, 1871. In 1841 and 1842 he studied in Paris and London, and for the next five years had a studio in Rome, sketching during the summers in Italy, Germany, and Switzerland. On his return to the United States he settled in New York city. In 1853 he again visited Europe, and later opened a studio in Paris, where he remained three years. At the universal exhibition of 1855 he received a gold medal for his *Venice* (1854), and at the Salon of the same year a third-class medal. From 1856 until 1860 he lived in New York city, and later retired to Cold Spring. In 1849 he was elected a national academician.

ROST, REINHOLD, Ph.D., was born February 2, 1822, at Eisenberg, in Saxe-Altenburg, where his father was archdeacon, and educated at the Gymnasium at Altenberg and the University of Jena, where he took his degree of Ph.D. in 1847. Doctor Rost went to London in the same year; was appointed Oriental lecturer in St. Augustine's College, Canterbury, in 1850; secretary to the Royal Asiatic Society in 1863; and librarian to the India office (1869). Died Feb., 1896.

ROTHERMEL, PETER FREDERICK, painter, born in Nescopack, Penn., July 18, 1817. He received an ordinary education, studied land surveying, and at the age of twenty-two devoted his time to art studies. From 1856 to 1859 he was in Europe. Since his return to the United States he has lived in Philadelphia, where, from 1847 until 1855, he was a director of the Pennsylvania academy. He devoted his early days mostly to portrait painting, and died August 15, 1895.

ROTHSCHILD, ALFRED DE, second son of the late Baron Lionel de Rothschild, was born July 20, 1842, and educated at Cambridge. He was a member of the firm of N. M. Rothschild & Sons, a director of the Bank of England, and consul-general for the Austro-Hungarian Empire. Like almost all the members of his family, he is a passionate collector of works of art; especially of Dutch, French, and old English pictures, Sèvres china, Louis XVI. furniture and bronzes, and Renaissance enamels and metal work.

ROTHSCHILD, BARON FERDINAND JAMES DE,



M. P., son of Baron Aurelius de Rothschild, of Vienna, was born in Paris, December 19, 1839, and educated at Vienna. He has been long resident in England, and at a bye-election in 1885 was returned member for Aylesbury, being reelected at the general election of 1885, and again as a Unionist Liberal in 1886 and 1892. He died December 17, 1898.

ROTHSCHILD, NATHANIEL MAYER DE, first Lord Rothschild, eldest son of Baron Lionel Nathan de Rothschild, was born in London, November 8, 1840, and educated at King's College School, London, and Trinity College, Cambridge. He was elected as Liberal member for Aylesbury, 1865, and retained the seat until 1885, when he was created a peer. He is head of the London banking firm of N. M. Rothschild & Sons.

ROUSSEAU, LOVELL H., soldier, was born in Kentucky, August 4, 1818, and died in New Orleans, January 7, 1869. Hereceived but little schooling, but studied law and was admitted to the bar in 1841. He was sent to the legislature of Indiana, at once taking a prominent place in that body. He enlisted in the Mexican war, and saw hard service. Immediately on his return from the war he was elected to the Indiana Senate, and served two terms. At the outbreak of the Civil war he was a member of the Kentucky Senate (having moved to that State in 1849), and was earnest in his efforts to keep Kentucky in the Union. He resigned his seat and set about organizing troops for the United States army, and was made colonel of a regiment. In October, 1861, he was promoted brigadier-general and took part in the Shiloh campaign, and was further promoted major-general for bravery. He subsequently commanded the fifth division of the army of the Cumberland, and participated in Grant's and Sherman's campaigns. He commanded one of the Southern military districts till 1865. He was elected to congress from Kentucky, serving for a year when he resigned. He was made brigadier-general in the regular army by President Johnson, and was brevetted major-general for meritorious services. He was sent as commissioner to receive Alaska from Russia, and was first governor of that territory. He was afterward assigned to the command of the department of the Gulf, and remained there till his death.

ROUSSET, CAMILLE FÉLIX MICHEL, a French historian, born at Paris, February 15, 1821; became professor of history at Grenoble, next at the Collège Bourbon (afterward called the Lycée Bonaparte), from 1845 to 1863, and in 1864 was appointed historiographer and librarian to the ministry of war. On December 30, 1871, he was elected a member of the French Academy by seventeen votes against twelve recorded for M. Vielcastel. He died October 20, 1892.

ROUTH, EDWARD JOHN, M.A., D. Sc., LL.D., F.R.S., was born at Quebec, Canada, in 1831. At the age of eleven he was brought to England, and subsequently was sent to University College school. In October, 1851, he entered Peterhouse, Cambridge. In 1854 he graduated as senior wrangler. He was then elected a fellow of Peterhouse, and adopted the profession of teaching. From 1861 to 1886 (with the single exception of 1883), the senior wrangler has every year been his pupil, besides twice before that date; in all twenty-five times. He has also had among his pupils forty-one Smith's prizemen. In 1884 Doctor Routh was appointed a fellow of the University of London, and is a member of the governing body of that university. He has had several degrees conferred on him, and is a member of many learned societies.

ROWAN, STEPHEN C., was born in Ireland, December 25, 1808. He came to this country in early life, and was appointed midshipman from Ohio in 1826. He was commissioned lieutenant in 1837, and served in the

Coast Survey. He took part in the Mexican war, and was highly commended for meritorious services in this campaign. He was on ordnance duty at various times, and when the Civil war broke out was commander of the *Pawnee*. He was a citizen of Virginia, and had married there, but remained loyal and retained command of the *Pawnee*. His services on this vessel were of inestimable value to the Union. In 1862 he was transferred to the *Delaware* and commanded the attacking force at Roanoke Island. So conspicuous were his services that he was promoted captain and commodore in the same day. He received a vote of thanks and in 1866 was promoted rear-admiral. He served on various naval boards, commanded the Norfolk navy yard, and while chief of the Asiatic squadron, in 1870, was made vice-admiral. He served as governor of the Philadelphia Naval Asylum, and from 1882 as chairman of the lighthouse board. He died in 1890.

ROWSELL, THOMAS JAMES, M.A. (1816-1894), chaplain to the Queen, educated at Tonbridge School and Cambridge, was for seventeen years engaged as rector of St. Peter's district, Stepney, and was appointed rector of St. Margaret's, Lothbury, in 1860. He was three times the select preacher before the University of Cambridge. In November, 1881, he was appointed a canon of Westminster. Died, 1894.

ROWTON, LORD (MONTAGU WILLIAM LOWRY CORRY), was born in London, October 8, 1838. He was educated at Harrow and at Trinity College, Cambridge, taking his degree in 1860. Called to the bar at Lincoln's Inn in 1863, he practiced for three years on the Oxford circuit, and in 1866 was appointed private secretary to Mr. Disraeli, then chancellor of the exchequer. At the termination of Lord Beaconsfield's government in 1880, he was raised to the peerage. Lord Beaconsfield bequeathed to Lord Rowton the whole of his letters, papers, documents, and manuscripts.

ROZE, MARIE, operatic singer, was born March 2, 1850, in Paris. From her earliest childhood Marie Roze showed a passion for music, and at the age of thirteen, on the advice of Auber, she was sent to the Paris Conservatoire to study singing, where she speedily gained the highest honors, and was selected to sing before Napoleon III. In 1867 she first appeared in opera, singing the part of Hérold's *Marie* with such success that she soon became the most popular actress and singer in Paris. During the Franco-Prussian war and the siege of Paris, Marie Roze remained in the city, turning her house into a hospital for wounded soldiers, and organizing numerous concerts for the benefit of the sick and wounded. In 1877 she married Colonel Mapleson, and in the same year undertook a tour through America, which lasted over two years.

RUBINSTEIN, ANTON, a Russian pianist and composer, was born at Wechwoynetz, on the frontier of Roumania, November 30, 1830. He made his first appearance in public when only eight years old. At Berlin he studied composition under Dehn. He then returned to his native country, where he was appointed pianist to the Grand Duchess Helena, and subsequently director of the concerts of the Russian Musical Society. In 1872-73 he visited America. After 1867 Rubinstein held no official post, spending his time in traveling and composing. Both in playing and in composition he aimed at what may be called the "grand style," excelling more in splendor and sublimity than in correctness and delicacy of detail. He died November 20, 1894.

RUDOLF, FRANZ KARL JOSEF, archduke and prince imperial of Austro-Hungary, was born August 21, 1858, and died of a gunshot wound January 30, 1889. He was the only son of the present emperor, and had been carefully educated, his taste seeming to

incline more to science and art than to politics. He was the author of several geological and topographical papers, and at the time of his death had planned a more pretentious volume. He was an officer of rank in the imperial army, but gave little attention to military matters. The circumstances of his death are obscure, one authority advancing the theory of suicide, while another asserts that he was shot through mistake by a forester. He was married to the duchess of Saxony, and his death will probably involve the alienation of the imperial throne from the house of Hapsburg, as there is now no direct male heir of that line.

RUFFIN, EDMUND, agriculturist, was born in Prince George county, Va., January 5, 1794, and died in Amelia county, June 15, 1865. He was graduated from William and Mary College, and held many public offices. He was a practical agriculturist and edited several newspapers in the interest of the farming community. He was a State's rights man, a secessionist, and a member of the military company selected by Beauregard to open fire on Fort Sumter. Being the oldest member of the company, to him was delegated this duty. After the war he committed suicide, being unwilling to live under the United States government. He was the first to discover the agricultural value of marls and other calcareous deposits, and thus added many millions to the agricultural wealth of Virginia. His writings are numerous and valuable.

RUFFINI, GIOVANNI, Italian novelist, was born in 1807, and died in 1881. He was, for political reasons, compelled to leave Italy and sojourned temporarily first in France and then in England, being finally, after the accession of Victor Emmanuel, allowed to return to his native country. While a resident of England he produced his first novel—a book written in English—and this was followed by other works of fiction.

RUGER, THOMAS HOWARD, born at Lima, New York, April 2, 1833, graduated at West Point in 1854, resigned from the army to study law but volunteered in 1861, commanded a division at Gettysburg, aided in suppressing the draft riots in New York in 1863, became a colonel in the regular army in 1865, was superintendent at West Point, 1871-76; promoted brigadier-general, 1880, and promoted major-general, 1894, with command of the division of the Missouri.

RUGGLES, GEORGE DAVID, born in Newburg, N. Y., September 11, 1833; graduated at West Point, 1855, saw frontier duty, served in Indian expeditions, became assistant adjutant-general, 1861; engaged in the organization of volunteer companies, commenced active field service in 1862, was in many important battles, including Antietam and South Mountain, and at the close of the war was adjutant-general of the Army of the Potomac. He rose through various grades, becoming adjutant-general of the United States army in 1894.

RUGGLES, TIMOTHY, born at Rochester, Mass., October 20, 1711, was a lawyer, a general in the French and Indian war and president of the Stamp Act Congress of 1765, but refused to sign the address and petitions it drew up for which the general court publicly censured him. He emigrated to Nova Scotia, 1776, and died there August 4, 1795.

RULISON, NELSON S., born in New York, April 24, 1842, was educated at the Gouverneur Wesleyan Academy, and the Episcopal General Theological Seminary, New York city, was ordained in 1866, held various pastorates, and in 1884 was elected assistant bishop of Central Pennsylvania.

RUMBOLD, SIR HORACE, BART., born in England, 1820, entered the diplomatic service as attaché at Washington, 1848, and rose to be envoy extraordinary

and minister plenipotentiary to the Argentine Republic in 1879; to Sweden and Norway, 1881; and to Greece, 1884.

RUNYON, THEODORE, LL.D., born in Somerville, N. J., October 25, 1822; graduated at Yale, 1842, became a lawyer, held many local and State offices and at the outbreak of the war took the first fully equipped and organized brigade to the front and was personally thanked by President Lincoln. He became a brevet major-general. He was appointed by President Cleveland, in 1893, ambassador extraordinary and minister plenipotentiary to Germany. Died Jan. 27, 1896.

RUSDEN, GEORGE WILLIAM, F.R.G.S., was in 1849 appointed agent for the establishment of national schools in Victoria, held various offices in the colony from 1851 to 1882, and wrote several works of history and fiction.

RUSH, JAMES, physician, was the son of the noted Dr. Benjamin Rush, and was born in Philadelphia, March 1, 1786, and died there May 26, 1869. He was graduated at Princeton, and took a course of medicine at the universities of Pennsylvania and Edinburgh. On the completion of his medical studies he returned to Philadelphia and began the practice of his profession, which he soon relinquished for literary and scientific pursuits. He bequeathed \$100,000 for the foundation of the Ridgeway branch of the Philadelphia library. His publications were not numerous, and were mostly of a purely speculative turn, although some of them dealt with physical and literary topics.

RUSH, RICHARD, statesman, was born in Philadelphia, August 29, 1780, and died there July 30, 1859. He was a graduate of Princeton, and was admitted to the bar in 1800. He soon became a prominent advocate, and held several offices of importance. In 1811 he was comptroller of the currency, and in 1814 United States attorney-general. In 1817 he was for a short time secretary of state, and was then appointed minister to England, where he performed some important diplomatic services. In 1825 he was secretary of the treasury, and in 1828 he was candidate for the vice-presidency under Adams. Subsequently he held several minor political offices, was from 1847 to 1851 minister to France, and was the first to recognize the new republic. He was a member of several scientific societies, and an author of no mean pretensions. He was the commissioner who secured the legacy left for the establishment of the Smithsonian Institution. In politics he was anti-Mason, and a Democrat after 1834, writing powerful arguments against the U. S. bank.

RUSK, JEREMIAH McLAIN, governor of Wisconsin and secretary of agriculture, was born in Morgan county, Ohio, June 17, 1830. He received a common school education, and was engaged in farming till the outbreak of the Civil war. He enlisted, and in 1862 was made major of the 25th Wisconsin. He served with Sherman from this date till the close of the war, attaining the rank of lieutenant-colonel. In 1865 he was brevetted brigadier-general of volunteers. After the war he held a number of civil offices in Wisconsin, and in 1870 he was sent to congress, and served three terms. He declined the offices of minister to Paraguay and Uruguay, and of chief of the bureau of printing and engraving. In 1882 he was elected governor of Wisconsin and served three successive terms. He was a candidate for the Republican nomination for President in 1888 and on March 4, 1889, he entered President Harrison's cabinet as the first secretary of agriculture. He died November 21, 1893.

RUSK, THOMAS J., American senator, was born in Camden, S. C., August 8, 1802, and died in Texas, July 29, 1856. After practicing law for some time in



Georgia, in 1835 he removed to Texas. He was a member of the convention which declared the independence of Texas, was the first secretary of war of the republic, and after Gen. Houston was wounded at San Jacinto became commander-in-chief of the Texan army, continuing in this position till 1836. He was again chosen secretary of war, but resigned after a few months' service. He was a member of the supreme court of Texas, and president of the convention that declared the annexation of Texas to the United States, and on the admission of Texas to the Union was chosen its first United States senator, serving from 1846 to 1856, when he committed suicide, having been crazed by domestic troubles.

RUSKIN, JOHN, M.A., LL.D., son of a London merchant, was born in London in February, 1819, and was educated privately and at Christ Church, Oxford, where he gained the Newdigate prize in 1839. He then devoted himself to painting. The author's success as a writer on art was decided by the warm reception accorded to a volume entitled *Modern Painters*, of which several editions have since been published. Mr. Ruskin temporarily diverted his attention from the study of painting to that of architecture, and wrote *The Seven Lamps of Architecture*, published in 1849, as a first result, followed by the first volume of *The Stones of Venice*, in 1851, the second and third volumes of which appeared in 1853. The illustrations in the last-named productions, which excited some of the same professional hostility that his first publication evoked, displayed to much advantage his artistic powers. Mr. Ruskin has expounded his views both in lectures and in newspapers and reviews. Mr. Ruskin was appointed Rede lecturer at Cambridge, in April, 1867, and the senate conferred the degree of LL.D. upon him, May 15th. He was also selected Slade professor of fine arts at Oxford, being thrice reelected. He was obliged to resign the post in 1884 on account of failing health. Of late he has been issuing, in parts, his autobiography, under the title of *Præterita*. For several years he has lived in retirement at Brantwood, Coniston. He died Jan. 20, 1900.

RUSSELL, OF KILLOWEN, CHARLES, LORD, first lawyer of Great Britain, was born in Ireland, 1833, was elected to parliament in 1880 as a Radical, was attorney-general in 1886 and again in 1892, was appointed a life peer early in 1894 and Lord Chief Justice of England in July, 1894. As a lawyer he had a world-wide reputation, defended Parnell successfully against the *Times*, defended Mrs. Maybrick, was of English counsel in the Bering Sea arbitration in 1893 and was an eloquent supporter of Home Rule in the Commons. He died August 10, 1900.

RUSSELL, DAVID A., soldier, was born in Salem, N. Y., December 10, 1820, and died near Winchester, Va., September 19, 1864. He was graduated from West Point in 1845, served in the Mexican war and was promoted for gallantry. When the Civil war broke out he had attained the rank of captain, and was for a year employed on the defenses of Washington city. In 1862 he was made colonel of the 7th Massachusetts volunteers, and served with the Army of the Potomac in the Peninsular campaign. He was several times brevetted and promoted in the regular army, and in November, 1862, he became brigadier-general of volunteers. He took part in the Rappahannock and Gettysburg campaigns, again earning promotion. During the Rapidan campaign he was made a brigadier in the regular army. After this campaign he was once more engaged on the defenses of Washington, whence he was transferred to the Shenandoah Valley, and met his death in the battle of Opequan, just two months after having again earned

promotion in the regular army, this time being made major-general.

RUSSELL, GEORGE WILLIAM ERSKINE, was born in England, February 3, 1853, and educated at Harrow and University college, Oxford. He entered the Inner Temple, 1875, was elected Liberal member of parliament for Aylesbury, 1880 and 1885, and was parliamentary secretary to the local government board, 1883-85. He stood unsuccessfully for the Fulham division of Chelsea in 1885 and 1886, but was elected for North Beds in 1892, and was appointed under secretary for India in that year, and under secretary for the Home Department in 1894. He wrote a *Life of Gladstone*, *George Eliot*, *The Trustees of Posterity*, and many lectures and essays.

RUSSELL, HENRY, vocalist, was born in England in 1813. He was of Jewish birth, and early evinced dramatic and musical talent. He settled in Rochester, N. Y., in 1833, and became widely known as a composer and vocalist. He accumulated considerable wealth by his concerts and entertainments, and, after successful tours in the United States and Europe, abandoned the business, and became a money lender. His songs are still sung, and are good specimens of lyric effort, especially *A Life on the Ocean Wave*, while *There's a Good Time Coming*, *To the West*, and others stimulated emigration to this country.

RUSSELL, JOHN HENRY, naval officer, born in Frederick city, Md., July 4, 1827. He entered the navy as a midshipman in 1841, and was attached to the *St. Mary's* in the Gulf of Mexico during 1844-46. He participated in the first operations of the Mexican war. He was commissioned master in 1855, and lieutenant later in the same year. He was on duty at the Washington navy yard when the rebellion broke out, and was one of the officers remaining loyal to the Union, though his natural sympathies were with the South. Lieutenant Russell rendered valuable assistance in preventing the vessels at the Norfolk navy yard from falling into the hands of the secessionists. In September, 1861, he commanded a boat expedition to cut out the privateer *Judah*, at Pensacola, under the protection of shore batteries and 9,000 men. With one hundred men Russell, after a severe hand-to-hand fight, succeeded in destroying the privateer and regaining his own boat. This act was alluded to by Admiral Porter in his *Naval History* as one of the most daring feats taking place during the war, and the navy department took occasion to compliment the officer on his gallant conduct. Russell was placed in command of a steamer in Farragut's squadron, and when at Baton Rouge he did another gallant act, for which he was publicly thanked by the admiral and personally thanked by President Lincoln. It was bravely saving the lives of the officers and men in the flagship during the guerilla attack. Russell was rapidly promoted, and became a captain, commanding the sloop *Plymouth* in 1875. It was by his prompt measures that the vessels and men of the North Atlantic squadron were saved from an epidemic of yellow fever at Key West. October 30, 1883, he was made a commodore, and placed in charge of the navy yard at Mare Island. On March 4, 1886, he was promoted to the rank of rear-admiral, and voluntarily went upon the retired list August 27th of the same year.

RUSSELL, WILLIAM CLARK, an English novelist, born in 1844. His stories are nearly all sea tales, or, at least, sea incidents figure very prominently in most of them. His *Wreck of the Grosvenor* is said to be his best work, but he has written many others of absorbing interest.

RUSSELL, WILLIAM HOWARD, SIR, born at Lilyvale, Dublin, March 28, 1821; was educated at a



private school in Dublin, and at Trinity College. In 1843 he accepted an engagement on the staff of the *Times*, and in 1844 was appointed to report on the potato famine in Ireland. In 1846 he entered the Middle Temple, and in 1850 was called to the bar, but soon gave up legal practice, in order to act as special correspondent to the *Times* during the Crimean war. His letters during this time were the chief means of making known to England the condition of the army, and the terrible hardships endured by the British soldiers in the winter months. When the Indian mutiny broke out he proceeded to Calcutta, and was with Lord Clyde, from the capture of Lucknow till the suppression of the mutiny. In 1858 he returned to England, and established the *Army and Navy Gazette*, of which he is now editor and principal proprietor. In 1861 he was once more engaged as war correspondent during the early part of the Civil war, and was present at Bull Run. When war between France and Prussia was declared in 1870, Mr. Russell went to Berlin, and thence accompanied the staff of the Crown Prince, being present at the battle of Sedan, and at the siege and fall of Paris. In 1875 he was attached as honorary private secretary to the staff of the Prince of Wales. He has published some of his notes in book form. In June, 1895, he was knighted by Queen Victoria.

**RUTGERS, HENRY**, patriot, born in New York city, October 7, 1745; died there, February 17, 1830. Graduating at Columbia College in 1766, he became a captain in the American army, and later was colonel of a militia regiment in New York. Colonel Rutgers was, for several terms, a member of the New York State legislature. He was a man of unbounded liberality, and gave his property freely for schools, churches, and like charities. He gave \$5,000 to revive Queens College in New Jersey, the name of which was afterward changed to "Rutgers College."

**RUTHERFORD, REV. WILLIAM GUNION**, born 1853; was educated at St. Andrew's University, and at Balliol College, Oxford, where he graduated M.A. in 1876. He also received the degree of LL.D. from St. Andrew's in 1884. He was ordained deacon in 1883, and priest in 1885. He held a classical mastership at St. Paul's School from 1876 to 1883, when he was appointed, without examination, fellow and praelector of University College, Oxford. In the same year he became head-master of Westminster School. He has published translations of several classics.

**RUTHERFURD, LEWIS MORRIS**, famous American scientist, born in Morrisania, N. Y., November 25, 1816. He was graduated at Williams College in 1834, and studied law with William H. Seward. Although admitted to the bar, and practicing law with Hamilton Fish in New York city, he soon abandoned it, and devoted his time to scientific studies, more particularly in the direction of astronomical photography. Mr. Rutherford invented and constructed a number of instruments which have proved of great value to astronomers. He constructed a micrometer for the measurement of astronomical photographs, for use upon pictures of solar eclipses or transits and upon groups of stars, of which he has measured several hundred, showing, as he claims, that the photographic method is at least equal in accuracy to that of the heliometer or filar-micrometer, and far more convenient. In 1870 he constructed a ruling engine, which produced interference-gratings on glass and speculum metal, that were superior to all others until a recent invention by Prof. Henry A. Howland. Mr. Rutherford was one of the original members named in the act of congress in 1863, creating the National Academy of Science, and in 1887 was appointed by the president as its representa-

tive to the international conference in Paris, but was obliged to decline, on account of ill health. He was for years a trustee of Columbia College, resigning in 1874, and donated his instruments to that institution, where they are now mounted. He died May 30, 1892.

**RUTLAND, DUKE OF, CHARLES CECIL JOHN MANNERS, K.G.**, was born May 16, 1815, and educated at Eton and Trinity College, Cambridge. As marquis of Granby he was one of the members in the Conservative interest for Stamford from August, 1837, till July, 1852, when he was returned for North Leicestershire, which he continued to represent till he succeeded his father in the dukedom, January 20, 1857. He died in 1887, and was succeeded by Lord John MANNERS, (q.v.)

**RUTLEDGE, EDWARD**, signer of the Declaration of Independence, born in Charleston, S. C., November 23, 1749; died there, January 23, 1800. Edward read law in the office of his brother John, and at the Temple in London in 1769-73, remaining four years in England. On his return to Charleston he was married, and in 1774 sent to the Continental congress, remaining until 1777. In company with Benjamin Franklin and John Adams, Rutledge was delegated to confer with Lord Howe, British commissioner, concerning proposals for a reconciliation with the mother country. The three met the British admiral on Staten Island, N. Y., September 11, 1776, but the conference was futile. On May 1, 1780, while Charleston was invested by the enemy, he was dispatched by General Lincoln to hasten the accession of reinforcements, when he was captured, sent to St. Augustine, Fla., and kept imprisoned a year. After being exchanged, he lived in Philadelphia until the British retired from his native State. After the return of peace he settled again in Charleston, and for seventeen years practiced his profession. In 1798 Rutledge was chosen governor of South Carolina.

**RUTLEDGE, JOHN**, statesman, born in Charleston, S. C., in 1739; died there July 23, 1800. He was a son of Dr. John Rutledge, a north of Ireland emigrant, and was a brother to EDWARD, (q.v.) He was sent to England to study law at the Temple in London, and in 1761 began practice in Charleston, S. C. In 1765 he was a leading member of the stamp-act congress in New York city, and in 1774 of the first Continental congress in Philadelphia, Penn. In 1776 he became chairman of the committee which prepared the State constitution for South Carolina, and was chosen governor of that State. After the fall of Charleston Rutledge retired to North Carolina, and until the close of the war accompanied the army of General Greene. In 1782 he relinquished the governorship, after being elected to the Continental congress, and in March, 1784, became chancellor of South Carolina. On July 1, 1795, he was appointed chief justice of the United States Supreme Court.

**RYAN, ABRAHAM JOSEPH**, born in Norfolk, Va., August 15, 1839; died in Louisville, Ky., April 22, 1886. Early in life he became impressed with the Roman Catholic religion and resolved to enter the priesthood. He studied the usual classic and theological works, and was ordained. During the war he became a chaplain in the Confederate army, serving until peace was declared. Father Ryan was rather given to poetry, and after General Lee's surrender, wrote *The Conquered Banner*. Going to New Orleans, he became the editor of a weekly Roman Catholic paper called the *Star*. Later on he founded the *Banner of the South* at Knoxville, but only retained his connection with it for a short time. He became pastor of St. Mary's church, Mobile, Ala., but in 1880 went North, where, in Baltimore, he published a volume of poems. At the time of his death Father Ryan was engaged on a *Life of Christ*,



RYAN, GEORGE EDWARD, jurist, born in Newcastle House, county Meath, Ireland, November 13, 1810; died in Milwaukee, Wis., October 19, 1880. Mr. Ryan's parents intended making him a priest, but he preferred the law, and, coming to the United States, began study and was admitted to the bar in 1836. That same year he removed to Chicago and became the editor of a paper called the *Tribune*, which was discontinued in 1841. From Chicago Mr. Ryan went to Racine, and thence to Milwaukee, where he became a noted lawyer, trying some of the most important cases known in Wisconsin. He was city attorney of Milwaukee in 1870-72, and on June 17, 1874, was appointed chief justice of the State.

RYAN, JAMES, bishop, born in Thurles, county Tipperary, Ireland, in 1848. He was still a child when brought to the United States. He studied for the priesthood and became a professor in St. Joseph's Seminary. After his ordination he was stationed in Kentucky for seven years, when he went to Illinois and was appointed pastor at Wataga. In 1881 he was made rector of Ottawa, and in 1888 he was nominated bishop of Alton.

RYAN, PATRICK JOHN, born in Cloneyharp, near Thurles, Ireland, February 20, 1831. He studied in Dublin, and, intending a preparation for the American mission, went to Carlow College. He came to the United States, and in 1853 went to St. Louis, Mo., finishing his ecclesiastical studies in Carondelet Seminary, and in 1854 became a priest. In 1872 he was made vicar general, and was elected coadjutor archbishop of St. Louis. In 1884 he was nominated archbishop of Philadelphia. He was present at the third plenary council of Baltimore in 1884, and took a prominent part in the proceedings. In 1887 he went to Rome for the purpose of arranging for the establishment of a Catholic university in Washington.

RYAN, STEPHEN VINCENT, born near Almonte, Upper Canada, January 1, 1825. Moving with his parents to Pottsville, Penn., he entered St. Charles Seminary, Philadelphia, in 1840, and in 1844 became a member of the Lazarist order. He studied theology at St. Mary's of the Barrens, Missouri, and was raised to the priesthood in St. Louis, June 24, 1849. Bishop Ryan has frequently been sent abroad on important missions in connection with the church. He established the mother-house and novitiate of the community at Germantown and transferred his residence there from St. Louis. He died April 10, 1896.

RYAN, WILLIAM ALBERT CHARLES, born in Toronto, Canada, March 28, 1843; died in Santiago, Cuba, November 4, 1873. Ryan was educated in Buffalo, N. Y. He was one of the first to enlist when the rebellion broke out, and served in the Union army all through the war, reaching the rank of captain. His love of warfare unsatisfied, he joined the Cuban Junta in the insurrection in 1869, and became chief of staff to Thomas Jordan, commander of the revolutionary forces, with the title of general. General Ryan was sent to the United States several times for recruits, and in the last of these expeditions in the *Virginus* in 1873, he was captured by the Spanish man-of-war *Tornado* and taken to Santiago. Here the passengers, commander, and crew were tried by court-martial and General Ryan and fifty-one others were executed. The massacre was stopped by the interference of the captain of a British war vessel. The surviving prisoners were released on the demand of the United States Government. The affair created a great furore and Spain paid an indemnity in settlement.

RYDBURG, ABRAHAM VICTOR, a Swedish author, born at Jonkoepping, December 18, 1829; was educated at Vexio, and, in 1851, entered the University of Lund for a short time. He became a private tutor, and in 1855 joined the staff of the *Goteborgs Handels och Sjöfarts Tidning*. In 1876 he was instructed by the local government of Gottingberg to inaugurate the philosophical and historical conferences, which continue to be held annually. In 1877 he was elected to the Swedish Academy, and in the same year the University of Upsal conferred upon him the degree of doctor. He has written *Fribyttaren på Östersjön*, 1857; *Singralla*, 1864; *A Kristus i Sinforli*, 1868; *Faust*, 1878; *Dektar*, 1882; and contributed extensively to the literary journals of his country. Died Sept., 1895.

RYDER, ALBERT PINKHAM, an American artist, was born in New Bedford, Mass., March 19, 1847. Mr. Ryder was especially noted for his fine coloring. He studied under William E. Marshall, and for three years was abroad visiting the great art centers of the old world. He began exhibiting in the Academy of Design in 1873. Among his works are *Curfew Hour*, *Farm Yard*, and *Phantom Ship*.

RYDER, WILLIAM HENRY, a wealthy charitable clergyman, was born in Provincetown, Mass., July 13, 1822. He was entirely self-educated, and early began to preach the doctrine of universal salvation. When twenty-one years of age he became pastor of the First Universalist Church at Concord, N. H., and at Nashua he also occupied a pulpit for two years. Mr. Ryder traveled for a time, and finally, in 1860, he became pastor of St. Paul's church in Chicago. He gave away more than half a million dollars to different charities, and among other bequests is one that provides for free lectures annually under the control of the first churches in the Universalist, Presbyterian, and Congregational denominations and the mayor of Chicago, "in aid of the moral and social welfare of the citizens of Chicago, upon a strict anti-sectarian basis." He died March 8, 1888.

RYERSON, JOHN, Canadian clergyman, was born in Norfolk, Ontario, June 12, 1800, and died in Simcoe, Ontario, October 5, 1878. He began preaching at the early age of eighteen. The Canadian conference sent Mr. Ryerson to explore the mission field in the Northwest Territory, then under the direction of the London Wesleyan committee, being desirous to control it in the colonial dominion. He covered the entire Hudson Bay Territory in a yacht and in canoes, and then went to England and succeeded in effecting the transfer. Mr. Ryerson's journey is described in a work entitled *Hudson's Bay, or a Missionary Tour in the Territory of the Hudson Bay Company*.

RYLE, JOHN CHARLES, D.D., bishop of Liverpool, born near Macclesfield, in 1816; educated at Eton and Christ Church, Oxford, where he graduated B.A. in 1836, was Craven University scholar, and took a first class in classical honors. Having been admitted into orders in 1841, he was curate at Exbury, in the New Forest; was appointed rector of St. Thomas', Winchester, in 1843; rector of Helmingham, Suffolk, in 1844; vicar of Stradbroke, Suffolk, in 1861; rural dean of Hoxne, in 1869; and an honorary canon of Norwich in 1871. He was nominated to the deanery of Salisbury in March, 1880, and soon afterward appointed bishop of Liverpool. He was consecrated in York Minster (June 11, 1880). He is the author of numerous theological and polemic works. Doctor Ryle is one of the leaders of the Evangelical School, and has had difficulties with High Church clergy. Died June, 1900.



## S.

**SABINE, SIR EDWARD**, a British soldier, was born in Dublin, Ireland, October 14, 1788, and died in Richmond, England, June 26, 1883. He received a military education, became a captain in the army, and served during the Revolutionary war. He was appointed astronomer in Sir John Ross' first Arctic expedition in 1818, and again with William Edward Parry in 1819-20, when he made some very important researches in terrestrial magnetism. Sir Edward has made a series of Arctic voyages, and his discoveries led to the establishment of magnetic observatories in Great Britain and the colonies. He continued his scientific work until his death. He was aided greatly by his wife in preparing reduction tables and charts of all the observations that have been made in terrestrial magnetism, and in the various works he has written upon this subject.

**SACHER-MASOCH, LEOPOLD VON**, novelist, born at Lemberg, the capital of Austrian Poland, January 27, 1836; passed through the normal school and the gymnasium of his native city, studied philosophy at Graz and Prague, obtained his doctor's degree at the age of nineteen, and two years later became a private teacher of history in the University of Graz. In 1857 he published his historical account of *The Insurrection in Ghent Under Charles V.* (Der Aufstand in Gent unter Karl V.); and in 1866 his first novel, *Eine galizische Geschichte*. His literary success led him to abandon, in 1869, the profession of a teacher, when he began to devote his time entirely to writing. He produced a great many works, most of which obtained considerable popularity. He died March 9, 1895.

**SAFFORD, TRUMAN HENRY**, astronomer and mathematician, born in Royalton, Vt., January 6, 1836. He early attracted attention by his remarkable feats of calculation. Even as a child there was hardly a problem in figures given him that he could not mentally solve. He prepared an almanac when only nine years of age, and from that time, or at least after he had graduated, as he did, from Harvard in 1854, he put his wonderful powers to practical use. He spent several years in the observatory at Hartford, and in 1865 was appointed professor of astronomy in the University of Chicago and at Williams College in 1876. Professor Safford, has made several catalogues of the stars, and also some maps of great value. Died June 13, 1901.

**SAGASTA, PRAXEDES MATEO**, a Spanish statesman, was born at Torrecilla de Cameros, July 21, 1827. He studied in the School of Engineers at Madrid, practiced his profession at Valladolid and Zamora, and was elected by the latter town to the Constituent Cortes of 1854. He took part in the insurrection of 1856, and was obliged to seek refuge in France. On the amnesty being proclaimed, he returned to Spain, and became a professor in the School of Engineers at Madrid. He was also the editor of *La Iberia*, the principal organ of the Progressist party. After the unsuccessful insurrection of June, 1866, he was again placed under the necessity of seeking an asylum in France, and he did not return to Spain until after the fall of Queen Isabella II. Appointed minister of the interior in the first cabinet formed by General Prim, he gradually adopted more and more the views of that statesman and of the Conservative party, and completely broke off his relations with his old friend Zorilla. He continued to be minister of state and minister of the interior in the first cabinet of King Amadeus, and during that monarch's brief reign he took part in several ministerial combinations, either

as a member, or as president of the council. In June 1875, he gave in his adherence to the cause of Alfonso XII., and endeavored to form a Liberal Constitutional party. Subsequently he joined the opposition, and attacked the administrations formed by Martinez Campos and Cánovas (1877-79). When a new Liberal party was formed in 1880 Señor Sagasta gave in his adhesion to it. The Conservative cabinet of Señor Cánovas del Castillo was overthrown early in the year 1881, and a coalition between Señor Sagasta and General Martinez Campos came into power. Sagasta's ministry remained in office till October, 1883, when it was superseded by a cabinet formed from the Dynastic Left. This, however, was shortlived, and was followed by a return of the Conservatives to power. On the death of Alfonso XII. Señor Sagasta came back, and was again prime minister, 1885-90 and from 1893 to March, 1895, when Cánovas, in turn superseded him.

**SAINTE-CLAIRE DEVILLE, HENRI ETIENNE**, was born March 11, 1818, in the island of St. Thomas, in the Antilles, and studied in France. On leaving college, he constructed, at his own expense, a chemical laboratory, and pursued his researches, without either master or pupils, for nearly nine years. In 1844 he was intrusted with the organization of the faculty of sciences at Besançon, of which he was, in 1845, named dean and professor. In 1849 he discovered and made known the preparation and properties of anhydrous nitric acid; in 1852 he published an important paper upon the metallic carbonates and their combinations; and in 1853 he discovered a new method of mineral analysis. About that time M. Sainte-Claire Deville studied the new metal, aluminum, discovered by Wöhler, of Göttingen, then but imperfectly understood. Required by the emperor to inquire into the best means of producing aluminum at a cheap rate, he tried, in conjunction with M. Debray, numerous experiments in the manufactory of Javel, and succeeded in obtaining, in the course of a few months, several ingots of the metal, which were exhibited at the Exposition Universelle of 1855. He died in 1881.

**ST. CLAIR, ARTHUR**, soldier, was born in Scotland in 1734, and died in Greensburg, Penn., August 31, 1818. Graduating at the University of Edinburgh, he studied medicine, but instead of practicing, he bought a commission in the army, and came to America, serving under General Wolfe at the capture of Quebec. He resigned in 1762 and established a Scottish colony in the Ligonier valley, Pennsylvania. During the Revolutionary war he fought with the colonists against England, and was promoted to the rank of brigadier-general.

**SAINT-GAUDENS, AUGUSTUS**, sculptor, born in Dublin, Ireland, March 1, 1848. He came with his parents to New York when he was an infant, and in later years he became a cameo cutter. He began modeling in 1865-66, and studied at the National Academy. Ambitious to become a sculptor, he went to Paris in 1867 and studied under the direction of François Jouffroy. In Rome he produced his first figure, *Hiawatha*, in 1871. A year later he returned to New York, where he has since resided, and made himself well known in his profession.

**ST. JOHN, PERCY BOLINGBROKE**, born at Plymouth, March 4, 1821; was the eldest son of the late Mr. James Augustus St. John, whom he accompanied in his continental wanderings, and chose at an early age the profession of literature. After writing one book and



various magazine articles, he started for America, and after some travels by sea and land he entered upon his career as a writer, chiefly of Indian tales, for *Chambers' Journal*, and as a lecturer on Texas and Mexico. In 1847 he became correspondent in Paris of the *North British Daily Mail*. He died in March, 1889.

ST. MÉMIN, CHARLES BALTHAZAR JULIEN FÉVRE DE, artist, born in Dijon, France, March 12, 1770; died there June 23, 1852. In 1793 he went to Canada and New York city. As an amateur he had practiced drawing, painting, carving, and gilding on wood. By means of a machine which he invented he copied in this country the likenesses of more than 800 noted individuals. St. Mémin divided his residence in the United States between the cities of Philadelphia and New York, with numerous temporary visits to other places.

SAINTSBURY, GEORGE EDWARD BATEMAN, was born at Southampton, England, on October 23, 1845, and educated at King's College School, London. In 1863 he was elected to a post-mastership at Merton College, Oxford, where he took the degree of B.A. in 1868 and that of M.A. in 1873. After holding for a few months a mastership in the Manchester Grammar School, he became senior classical master in Elizabeth College, Guernsey, and held that post from 1868 to 1874. In the latter year he was appointed to the head mastership of the Elgin Educational Institute, which he resigned in 1876.

SAINT-SAËNS, CHARLES CAMILLE, musical composer, was born in Paris, October 9, 1835. At seven, he began to study the piano with Stamaty, and afterward had lessons in harmony from Maleden. In 1847 he entered Benoit's class at the Conservatoire, obtained the second organ prize in 1849, and the first in 1851. At the age of sixteen he composed his first symphony, which was performed with success by the Société de Sainte Cécile. He visited England in 1871, and played at the Musical Union. In 1874 and 1879 he took part in the Philharmonic concerts, and on December 6, 1879, he conducted his *Rouet d'Omphale*, at the Crystal Palace. In addition to his other claims to distinction, M. Saint-Saëns is an able musical critic, and has contributed articles to *La Renaissance*, *L'Estafette*, and *Le Voltaire*. He was elected a member of the Institute, February, 19, 1881.

SAINT-VALLIER, CHARLES RAYMOND DE LA CROIX DE CHEVRIÈRES, COMTE DE, a French senator and diplomatist, descended from an ancient Legitimist family, was born at the château of Coucuy-les-Eppes (Aisne), Sept. 12, 1838, and died Feb. 4, 1886. Entering the diplomatic service he was attached to the legation at Lisbon, next to that at Munich, and afterward to the embassy at Vienna. On the death of Comte de Moustier, who died when minister of foreign affairs, M. de Saint-Vallier gave up his under-secretaryship and repaired to Stuttgart as envoy (February, 1869). Having in vain cautioned Napoleon touching Würtemberg's policy in the war, M. de Saint-Vallier, when his government would not be warned, had to leave Germany, and was forthwith dispatched to the then important post at Copenhagen. M. de Saint-Vallier was appointed by Marshal MacMahon as ambassador to Berlin in 1877, on the recommendation of M. Waddington, who had become minister of foreign affairs. As second plenipotentiary of France he rendered valuable assistance to M. Waddington at the congress of Berlin (1878). He was succeeded at the court of Berlin by M. de Courcel.

SALA, GEORGE AUGUSTUS HENRY, journalist and author, son of an Italian gentleman who married a favorite English singer of West Indian extraction, born in London in 1828, was brought up with a view to follow-

ing art as a profession, but quitted it for literature, and became a constant contributor to *Household Words*. He was an extensive and regular contributor to the *Welcome Guest*, the founder and first editor of the *Temple Bar Magazine*, for which he wrote the stories of *The Seven Sons of Mammon*, and *Captain Dangerous*, afterward republished as separate works; wrote for several years in the *Illustrated London News*, the Hogarth papers in the *Cornhill Magazine*, and a story entitled *Quite Alone*, for *All the Year Round*, which appeared in a separate form in November, 1864. He also wrote *Echoes of the Week* in the *Illustrated London News*. He came as a special correspondent for the *Daily Telegraph* to the United States, in 1863, and on his return, at the close of 1864, published the result of his observations under the title of *America in the Midst of War*. He wrote in 1864 a series of graphic letters for the *Daily Telegraph*, from Algeria, during the Emperor's visit to that colony, and revisited Algeria and Morocco in 1875. In 1870 Mr. Sala was at Metz and in Eastern France as war correspondent for the *Daily Telegraph*. After witnessing the fall of the empire in Paris on September 4th, he went to Rome to record the entry of the Italian army into the Eternal City. In January, 1875, he again visited Spain on the occasion of the entry of Alfonso XII.; on his return in April he was dispatched to Venice to describe the fêtes consequent on the interview of the Emperor Francis Joseph and King Victor Emmanuel, and he afterward published his impressions under the title of *Two Kings and a Kaiser*. In December, 1876, he again visited Russia. He died December 8, 1895.

SALAMAN, CHARLES KENSINGTON, composer and professor of music, born in London, March 3, 1814, was educated by private tuition. He began the study of music at a very early age under Charles Neate and Doctor Crotch, made his first appearance as a composer and pianist in 1828, and entered the musical profession in 1831. Mr. Salaman has acquired considerable reputation as a pianist in England, Germany, and Italy, and was elected an honorary member of the Academy of St. Cecilia at Rome in 1846.

SALDANHA, OLIVEIRA E. DAUN, DUKE OF, a Portuguese statesman, was born at Arinhaga, about 1791. The family name was Joao Carlos. The duke began his political career early in life, and in 1825 was appointed minister of foreign affairs, and later he became minister of war under Dom Pedro. He held joint command of the constitutional army with Palmella, and was very successful as a general. He became prime minister in 1851, and remained in power for five years. He died in London on November 21, 1876.

SALISBURY, EDWARD ELBRIDGE, philologist, was born in Boston, Mass., April 6, 1814. Graduating at Yale, he first took up the study of theology, but from 1836 to 1839 he devoted himself to the study of the Oriental languages. He secured a part of Silvestre de Sacy's library, with whom he studied abroad, as he did also with Franz Bopp, in Berlin. A professorship of Arabic and Sanskrit was created for him at Yale in 1841, and he subsequently gave the college his valuable library. Professor Salisbury has written much on the Oriental languages, and has been made member of a great number of societies, both at home and abroad. In 1885 he published a large volume of *Genealogical and Biographical Monographs*, to which additional volumes are being added.

SALISBURY, MARQUIS OF (THE RIGHT HON. ROBERT ARTHUR TALBOT GASCOIGNE CECIL, K.G.), eldest surviving son of the second Marquis of Salisbury, born at Hatfield in 1830, was educated at Eton and at Christ Church, Oxford, where he graduated, and was



elected a fellow of All Souls' College (1853). In 1853 he was elected M.P. for Stamford, and he represented that borough in the Conservative interest until his succession to the marquise on the death of his father, April 12, 1868. While in the Lower House he was known as Lord Robert Cecil, until the decease of his elder brother, on June 14, 1865, when he assumed the courtesy title of Viscount Cranborne. In Earl Derby's third administration he was, in July, 1866, appointed secretary of state for India, which post he resigned on account of a difference in opinion respecting the reform bill, March 2, 1867. On November 12, 1869, he was elected chancellor of the University of Oxford, in succession to the late Earl Derby. He was again appointed secretary of state for India when Mr. Disraeli returned to office in February, 1874. When at the close of the war between Turkey and Serbia, differences arose between the former power and Russia, the marquis of Salisbury was sent as special ambassador to the Sublime Porte, and he and Sir Henry Elliot acted as joint plenipotentiaries of Great Britain at the conference of Constantinople. On April 2, 1878, he was appointed secretary of state for foreign affairs, and clearly enunciated the policy of the English Government with regard to the Eastern question. He and the earl of Beaconsfield soon afterward were the representatives of Great Britain at the congress of Berlin. The queen invested the marquis of Salisbury with the order of the Garter, July 30th. On August 3d he and the earl of Beaconsfield received the freedom of the city of London, and were afterward entertained at a grand banquet at the Mansion House. He went out of office with his party after the defeat they sustained at the general election of April, 1880. At a meeting of Conservative peers held on May 9, 1881, after the death of Lord Beaconsfield, the marquis of Salisbury was elected to lead the party in the House of Lords. Since then his career has been identified with that of the Conservative party. He opposed, but finally accepted, the Irish Land Act of 1881; he vigorously criticised Mr. Gladstone's Egyptian policy; he carried the rejection of the county franchise bill in 1884; he represented the Conservatives at the conference between the opposing leaders, which led to the framing of the redistribution bill of 1885. On June 9th of that year Mr. Gladstone was beaten on a budget vote, and resigned, and Lord Salisbury took office as premier. The principal events of his short tenure of power were, the annexation of Burmah, and the reopening of the Eastern question by the revolution in Eastern Roumelia and the Servo-Bulgarian war; England supporting Prince Alexander by her "friendly" neutrality. After the general election of November, 1885, Lord Salisbury resigned without meeting parliament. He vigorously opposed Mr. Gladstone's home rule policy, and after the second general election, in 1886, he became once more prime minister. He introduced a bill in the House of Lords in 1888 for the reform of that assembly and the creation of life peers. He resigned in 1892 after Conservative defeat in the general election and in the commons. He came into power again June 26, 1895, being called by Queen Victoria to form a Conservative Cabinet on the defeat of Lord Rosebery's government in the House of Commons. He retired in 1902.

SALM-SALM, PRINCE FELIX, born in Anhalt, Prussia, December 25, 1828, fought bravely in a Prussian cavalry regiment in the Schleswig-Holstein war, entered the Austrian army, lost his fortune, offered his services to the United States in 1861, serving all through the war, and retiring in 1865 with the rank of brigadier-general; went to Mexico; and on July 1, 1866, was appointed on the general staff with

the rank of colonel. He became the Emperor Maximilian's aide-de-camp and chief of his household, but was captured at Queretaro with the emperor. After Maximilian's execution Salm-Salm returned to Europe, and, entering the Prussian army, was killed at the battle of Gravelotte, near Metz, Alsace, August 18, 1870. Prince Felix had a romantic marriage. His wife was born in Baltimore in 1842, and died in Coblenz, Germany, in 1881. She was a circus rider and rope dancer, earning quite a reputation under the name of Leclercq. She was married to the prince August 30, 1862. She was with him all through his Southern and Mexican career, and made strenuous efforts to secure the release of the emperor, with her husband. She performed useful service during the campaigns with Salm-Salm, and after his death she organized a hospital brigade, which accomplished much good during the Franco-Prussian war.

SALMON, GEORGE, D.D., born in Dublin in 1819, was educated at Cork, and at Trinity College, Dublin, where he graduated as senior moderator in mathematics in 1839. He was successively scholar and fellow of his college, and was elected regius professor of divinity in the University of Dublin in 1866. Besides various contributions to theological and mathematical periodicals, he is the author of treatises on *Conic Sections*, on *The Higher Plane Curves*, on *The Geometry of Three Dimensions*, and on *The Modern Higher Algebra*.

SALNAVE, SYLVAIN, president of Hayti, was born in Cape Haytien in 1832, and died in Port-au-Prince on January 15, 1870, by the hand of the executioner. He enlisted when but eighteen years of age, and was a captain of cavalry during the Soulouque insurrection, which terminated in the overthrow of the self-styled emperor in 1859. He quarreled with Geffard, who was in command of the army, concerning the attitude of the latter in being too subservient to Spain regarding the occupancy by that nation of the Dominican territory. The commander had lost his influence in the republic and was powerless to punish Salnave, who, taking advantage of the state of affairs, incited insurrections, being finally elected president, June 14, 1867. In 1869, however, another insurrection was inaugurated by Nissage-Saget on account of his despotic rule, which culminated in his defeat at the bombardment of Port-au-Prince January 10, 1870. Salnave was taken prisoner and surrendered to Nissage-Saget, tried and condemned to death by court-martial on charges of treason and bloodshed, and was at once executed on the steps of the ruined palace.

SALOMON, LOUIS E. F., ex-president of Hayti, born in 1815; died in Paris on October 19, 1888. Salomon was an active and shrewd politician, and exercised a great influence on the politics of Hayti. He was a full-blooded negro. The revolution of 1879 was the event which brought him into prominence, and he became president of the republic, holding the office for seven years. The revolution of August, 1888, drove him from the island, and he died in exile.

SALTONSTALL, GURDON, governor of Connecticut, born in Haverhill, Mass., March 27, 1666; died in New London, Conn., September 20, 1724. He was graduated at Harvard in 1684, studied theology, and on November 19, 1691, was ordained clergyman of New London, Conn. In 1709 he introduced the first printing press in Connecticut, influenced the building of Yale College at New Haven instead of Hartford, and later took the principal direction of its affairs. He was annually chosen governor from 1708 until his death.

SALTUS, EDGAR, an American author, native of New York city, born June 8, 1858. He pursued his



studies at various universities in France and Germany, finally graduating at the law school of Columbia College in 1880. He abandoned the profession of the law for that of literature, and has published a number of works of fiction, designed to illustrate the "pessimistic school of philosophy." He has also been the author of poetical contributions to the daily press and current periodicals.

**SALVINI, TOMMASO**, tragedian, was born at Milan, January 1, 1830, and died December 15, 1896. His father was an actor, and his mother an actress named Guglielmina Zocchi. Before he was thirteen Salvini had already won a kind of renown in juvenile characters. He joined the Ristori troupe, and shared with that great actress many a triumph. In 1849 Salvini entered the army of Italian independence, receiving in recognition of his services several medals of honor. Peace being proclaimed, he again appeared upon the stage in a company directed by Signor Cesare Dondini. He played in the *Edipo di Nicolini*—a tragedy written expressly for him—and achieved a great success. Next he appeared in Alfieri's *Saul*. He visited Paris, where he played "Orasmane," "Orestes," "Saul," and "Othello." In 1865 occurred the sixth centenary of Dante's birthday, and the four greatest Italian actors were invited to perform in Silvio Pellico's tragedy of *Francesca di Rimini*, which is founded on an episode in the *Divina Commedia*. The cast originally stood on the play-bills thus: "Francesca," Signora Ristori; "Lancelotto," Signor Rossi; "Paulo," Signor Salvini; and "Guido," Signor Majeroni. In 1868 Signor Salvini visited Madrid, where Isabella II. conferred upon him many marks of favor, and so shortly afterward did King Luis of Portugal, who frequently entertained him at the royal palace of Lisbon. Signor Salvini visited America in 1874 and England in 1875, having immense success, especially in the character of "Othello." He made his first appearance in Brussels, as "Othello," December 25, 1877. Signor Salvini has become in late years one of the most popular foreign actors coming to America. He has made a number of professional visits, and at one and all has been received most enthusiastically, the only fault found with him being that he would not learn to speak the English language. His son **ALEXANDER** has also created a good impression in the United States in romantic drama and tragedy.

**SAMBOURNE, EDWARD LINLEY**, one of the most original and inventive caricaturists and humorous artists of the day, was born January 4, 1845, and was educated at the City of London College, and the College, Chester. He was intended for the engineering profession, and was placed at John Penn & Son's works, Greenwich, 1861-67, but in 1867 he was introduced to Mark Lemon, and published his first drawing in *Punch*, April 27, 1867. Since then he has devoted himself to the art of illustration.

**SANDAY, WILLIAM, D.D.**, was born at Nottingham, England, August 1, 1843, and educated at Repton School, and at Balliol and Corpus Christi Colleges, Oxford, being elected scholar of the latter in 1863. In 1882 he was appointed professor of exegesis at Oxford, in succession to Canon Liddon, who resigned the post. Doctor Sanday has published *Authorship and Historical Character of the Fourth Gospel*, 1873; *The Gospel in the Second Century*, 1876; *Commentaries on Romans and Galatians*, 1878; and is joint editor with the bishop of Salisbury of *Variorum Bible*, and *Old Latin Texts*.

**SANDERSON, JOHN SCOTT BURDON**, was born at Newcastle-on-Tyne, in December, 1828, and educated at the University of Edinburgh. Doctor Sanderson was employed by the royal commissioners to make investi-

gations respecting the cattle plague, 1865-66; was sent by the British Government to North Germany in 1865 to inquire into an epidemic of cerebro-spinal meningitis; and was occupied in an inquiry for a royal commission as to the influence of extreme heat on the health of workers in the Cornwall mines, in 1869. For his researches on animal and plant electricity, and on the nature of contagion, he received a royal medal in 1883.

**SANDFORD, CHARLES WALDEGRAVE, D.D.**, bishop of Gibraltar, son of the late Archdeacon Sandford, born in 1828, received his academical education at Oxford, was for several years senior censor of Christ Church; became commissary of the archbishop of Canterbury in 1869, and rector of Bishopsbourne, Kent, in 1870. On the resignation of Bishop Harris he was nominated by the secretary of state for the colonies to the see of Gibraltar, and was consecrated at Oxford, February 1, 1874.

**SANDFORD, DANIEL FOX, D.D.**, late bishop of Tasmania, born in 1831, in Scotland. After taking orders he became incumbent of St. John's, Edinburgh; and, having been elected to the bishopric of Tasmania, he was consecrated April 25, 1883. He resigned in 1889.

**SANDS, ROBERT CHARLES**, born in Flatbush, L. I., May 11, 1799; died in Hoboken, N. J., December 17, 1832. He was graduated at Columbia in 1815. While at college he became co-editor of a literary paper, *Academic Recreations*, which was published for about a year. In 1824 he issued the *Atlantic Magazine*, which later became the *New York Review*, and in connection with W. C. Bryant, conducted it from 1825 until 1827.

**SANDYS, JOHN EDWIN, M.A.**, son of the late Rev. T. Sandys (who was a missionary of the C. M. S. for nearly forty years in Bengal), was born May 19, 1844. He was educated at Repton school, and entered St. John's College, Cambridge, as a minor scholar in 1863. Sandys was the author of many learned works.

**SANKEY, IRA DAVID**, evangelist, born in Edinburgh, Lawrence county, Penn., August 28, 1840. His father was a banker, and also mixed slightly in politics, being elected to the State legislature. Ira very early in life evinced great fondness for music, and became the leader of the church choir in Newcastle, Penn., to which town the family had removed. Mr. Sankey's habits and inclinations were entirely religious. He became superintendent of the local Sunday school, and was prominent in the Y. M. C. A. in the town. He went to Indianapolis in 1870 as a delegate to some convention, and it was there he first met Mr. Dwight L. Moody. From that time they worked together for years, Sankey's singing being a great auxiliary to Mr. Moody's evangelical work. Mr. Sankey has given the Y. M. C. A. of Newcastle a fully equipped building, reading-rooms, gymnasium, etc., and also a building lot to the Methodist Church Society, with which he united when only fifteen years of age. Mr. Sankey has a fine baritone voice, and his songs are very catchy with an audience. His published volume of *Sacred Songs and Solos* has had a wider circulation than any other recent book of hymns.

**SANT, JAMES, R.A.**, was born at Croydon, April 23, 1820, and received his first instructions in art from John Varley, one of the fathers of the British school of painting in water colors. It was not, however, till 1842 that he devoted himself to painting as a profession by becoming a student of the Royal Academy, where he studied for four years. Shortly after leaving he began to exhibit those "subject pictures," or "fancy subjects," of single figures generally, and these frequently children, by which he is probably most widely known, many



of them having been engraved. He was elected A.R.A. in 1861; R.A. in 1870; and in January, 1871, was appointed principal painter in ordinary to the queen in succession to the late Sir George Hayter. In June, 1877, Mr. Sant was elected a corresponding member of the Royal Accademia Raffaello in Urbino.

SANTLEY, CHARLES, baritone singer, born at Liverpool; after receiving a good musical and general education in his own country he proceeded to Italy to complete his professional training. He made his first appearance as an operatic singer in England, at Covent Garden Opera, during the Pyne-Harrison management, and achieved his first great success in the part of "Rhineberg" in Vincent Wallace's opera of *Lurline*, in March, 1860. His voice is as remarkable for its quality as for the extent of its register, in the upper part of which it partakes of a pure *tenore robusto*, while in the lower portion it displays the rich qualities of the *basso profundo*.

SARASATE, MARTIN MELITON, Spanish violinist, was born at Pampeluna, March 10, 1844. He entered the Paris Conservatoire in January, 1856, and gained the first prizes for solfeggio and violin. He then entered Reber's harmony-class and secured a *premier accessit* in 1859, but shortly after relinquished the study of composition for the career of a concert player. His performances were highly successful. He has played in nearly all the great towns between Portugal and Norway, and London and Moscow, and visited America, North and South; the last time in the spring of 1894. His first appearance in London was at the Philharmonic concert on May 18, 1874. Musicians dispute whether Señor Sarasate or Herr Joachim is the first violinist of the day.

SARCEY, FRANCISQUE, French writer, was born at Dourdan, October 8, 1828, and educated at the Normal School; turned to literature in Paris, first writing for the *Figaro* and the *Revue Européenne*. In 1859 he accepted the post of dramatic critic to the newly-founded *Opinion Nationale*, and in 1867 accepted a similar post on the *Temps*, which he has since occupied. He has published several books, but the only one that made a great impression was his *History of the Siege of Paris*, 1870; written from a diary kept throughout the siege. Among his other works are *Le Nouveau Seigneur du Village*, 1862; *Le Mot et la Chose*, 1862; *Le Piano de Jeanne*, 1876; and *Comédiens et Comédiennes*, 1878. He died May 16, 1899.

SARDOU, VICTORIEN, the celebrated French dramatist, son of M. Léandre Sardou, was born in Paris, September 7, 1831. His first comedy, *La Taverne des Étudiants*, was brought out at the Odéon theater in Paris, April 1, 1854, and proved a complete failure. M. Sardou turned his attention again to dramatic composition, and quickly built up for himself a brilliant reputation. M. Sardou's earlier pieces were performed at the Théâtre Déjazet, viz.:—*Les premières Armes de Figaro*, September 27, 1859; *Monsieur Garat*, April 30, 1860; and *Les Prés-Saint-Gervais*, April 24, 1862. M. Sardou has since produced a large number of dramatic pieces in rapid succession. Several of his contemporaries have not hesitated to accuse him of plagiarism, and to assert that he composes rapidly because he is not at all scrupulous as to the sources from which he borrows his ideas. Subjoined is a list of his other works, with the dates of their first representation:—*Les Gens nerveux* (Palais Royal, November 4, 1859); *Les Pattes de Mouche* (Gymnase, May 15, 1860); *Nos Intimes*, one of his most brilliant successes (Vaudeville, November 16, 1861); *La Perle noire* (Gymnase, April 12, 1862); *Les Diables noirs* (Vaudeville, 1863); *Don Quichotte* (1864); *Les Vieux Garçons* (Gymnase, January 21, 1865); *Maison neuve* (Vaudeville, December 4, 1866);

*Seraphine*, originally entitled *La Dévoté* (Gymnase, December 21, 1868); *Patrie* (Porte-Saint-Martin, March 18, 1869); *Fernande* (Gymnase, March 8, 1870); *Rabagas* (Vaudeville, January, 1872), a piece which was supposed to have reference to M. Gambetta; *Les Merveilles* (Théâtre des Variétés, 1873); *L'Oncle Sam*, a satire on American society (Vaudeville, November, 1873); *La Haine*, a tragedy which was not successful (Gaité, December, 1874); *Ferréol* (Gymnase, November, 1875); *Dora*, a comedy in five acts (Vaudeville, January, 1877); and *Les Bourgeois de Pontarsy* (Vaudeville, 1878); *Daniel Rochat*, a five-act comedy (Théâtre Français, February 16, 1880); and *Odette*, a play in four acts (Vaudeville, November, 1881); *Divorçons*, a comedy in three acts (1881); *Fédora*, *Théodora* and *La Tosca* (Part Sainte Martin Théâtre, 1887), the last three being written for Madame Sarah Bernhardt, and produced with great success in this country by Fanny Davenport. His *Thermidor*, based on the French revolution, was produced in January, 1891, but prohibited by the government. His *Gismonda* was produced by Bernhardt at the Théâtre Renaissance, Paris, October 31, 1894. He was decorated with the Legion of Honor in 1863, and elected a member of the French Academy in June, 1877.

SARGENT, AARON AUGUSTUS, born in Newburyport, Mass., September 28, 1827, died in San Francisco, Cal., August 14, 1887. He was successively a printer and a reporter, going to California in 1849, mining, running the Nevada Journal, studying law, and serving as district attorney of Nevada county, 1856. He was a Republican in politics, was sent to Congress in 1860, and to the Senate in 1863, drew up the first Pacific railroad act that passed Congress, and was appointed minister to Germany in 1882, but when the German authorities excluded American pork from the empire he resigned in disgust. He was offered the Russian mission by President Arthur, but declined it.

SARGENT, CHARLES SPRAGUE, an American botanist, was born in Boston, Mass., April 24, 1841. After graduating he served as a volunteer staff officer in the Union army, and afterward was appointed a director of the botanic garden, and later of the arboretum of Harvard University, and professor of arboriculture. For the tenth census of the United States Professor Sargent made a special report on the forests of North America, which was published in full.

SARGENT, EPES, was born at Gloucester, Mass., September 27, 1813, and died at Boston, December 31, 1880. He became a student at Harvard University, paying particular attention to the study of *belles-lettres*. Subsequently he was associated in editing and publishing the Boston *Daily Advertiser*, and Boston *Atlas*, but in 1839 removed to New York city, where he occupied an editorial position upon *The Mirror*, and for several years officiated in a similar capacity upon the Boston *Evening Transcript*. On retiring from the latter position, he edited a series of elementary school-books, and wrote a number of dramas, among which was the *Bride of Genoa*, produced in 1836, followed by the *Priestess*, and others.

SARMIENTO, DOMINGO FAUSTINO, president of the Argentine Republic, was born in San Juan, February 13, 1811. Sarmiento might properly be called the educator of South America. He received but a limited education, and in 1829 he participated in the rising against Rossa and Quiroga, but seeing the inevitable defeat of the insurrectionists he took refuge in Chili. Here he developed his educational propensities, and served as clerk part of the time, but taught school the greater part, filling in the interim as overseer in a mine. Under the protection of Manuel Montt he



founded the first normal school in South America. He traveled through Europe and the United States to study the primary school system, for the Chilian government, which published his work on popular education. In 1851, when General Urquiza, aided by Brazil and Uruguay, revolted against Rosas, Sarmiento left Chili, and took part in the campaign that ended successfully February 3, 1852, with the battle of Monte Caseros. In Buenos Ayres he founded a paper devoted to the promotion of public instruction. In 1859 he was elected senator, and in 1860 minister of public instruction. He became minister of the interior in 1861, and minister to Chili in 1864, and to the United States in 1865, and while at Washington was elected president of the Argentine Republic in 1868. During his administration, railways and telegraphs were constructed, and the educational interests of the State advanced. He died September 11, 1888.

SARTAIN, JOHN, born in London, October 24, 1808, was a line-engraver there and in 1830 came to the United States, where he was one of the first to introduce mezzotint engraving. For some years he was occupied as a painter of portraits in oil, and of miniatures in water colors on ivory, and he produced many engravings for books. Died Oct. 25, 1897.

SATOLLI, FRANCIS, prelate and diplomat of the Holy See, born in Perugia, Italy, in 1841, and educated in the diocesan seminary of his native city, over which Archbishop Joachim Pecci, afterwards Pope Leo XIII., presided, early distinguished himself as an orator and linguist, and on the accession of Leo XIII. was chosen his chief assistant in the work of promoting theological studies. He became successively professor in the Propaganda and Roman Seminary, president of the Academy of Noble Ecclesiastics, and Archbishop of Lepanto. In 1889 he was deputed by the pope to represent him at Baltimore, Md., on the occasion of the centenary of the Catholic hierarchy in this country, also at the inauguration of the Catholic University, Washington, D. C. In 1892 he was appointed legate to the Roman Catholic Church in the United States. He has written a *Course of Philosophy* on the Summa of St. Thomas, and essays on various philosophical themes.

SAXE, JOHN GODFREY, a well known and popular American poet, was born at Highgate, Vt., June 2, 1816, and died at Albany, N. Y., March 31, 1887. He entered the St. Albans (Vt.) grammar school, thence matriculating at the Wesleyan University of Middletown, Conn., and graduated in 1839 at the Middlebury (Vt.) College. Three years later he was admitted to the bar and began the practice of law at St. Albans, where he was thus engaged until 1850. During this period he was a frequent contributor of verses to the *Knickerbocker Magazine*, besides publishing a number of poems, including *Progress: a Satire*, in 1846, followed in 1847 by *The Rape of the Lock*, *The Proud Miss McBride* in 1848, and *The Times* in 1849. In 1850 he entered the field of journalism as managing editor of the *Burlington Sentinel*, and in 1856 became attorney general of Vermont. Later he was the nominee of the Democratic party for governor, but was defeated, and abandoned politics for literature and the lecture platform. In 1859 a volume of poems from his pen was published under the title, *The Money King and Other Poems*; in 1864 *Clever Stories of Many Nations Rendered in Rhyme*; *The Masquerade and Other Poems*, in 1866; *Leisure Day Rhymes*, in 1874, and other productions. He became one of the editors of the *Evening Journal*, of Albany, N. Y., in 1872, having taken up his residence in that city meanwhile, and while thus occupied his wife, three daughters, and a son died, pro-

ducing a shock from the effects of which he never recovered. He died universally lamented.

SAXE—WEIMAR, CARL BERNHARD, DUKE OF, was born at Weimar in 1792. The duke was a gallant soldier, and served in the campaigns against the French from 1806 to 1815. He published *Travels in North America*, and *Summary of the Campaign in Java* in 1828. He died July 31, 1862.

SAY, JEAN BAPTISTE LÉON, a French statesman, born at Paris, June 6, 1826, and died April 21, 1896. He studied political economy, and for many years was editor of the *Journal des Débats*, of which he continues to be the principal proprietor. He was an unsuccessful candidate for the Corps Législatif in 1869, but in February, 1871, he was returned to the National Assembly as one of the representatives of the department of the Seine. In June the same year he became prefect of the department. On December 7, 1872, he was made minister of finance by M. Thiers. He again accepted the portfolio of finance in M. Buffet's administration, in March, 1875. Soon afterward he was elected a senator for the department of Seine-et-Oise; his term of office expired in 1882. He retained his portfolio in the Dufaure cabinet of May 10, 1876, and in the Jules Simon cabinet of December 13th following, but he retired with the latter May 17, 1877. When a new ministry was formed under the presidency of M. Dufaure in December, 1877, M. Léon Say again became minister of finance, and retained the position in the first cabinet formed by President Grévy. He retired from the administration, December 17, 1879, with the head of the cabinet, M. Waddington, and resumed his place among the members of the Left Centre. In April, 1880, he was appointed ambassador in London, but returned to Paris in the course of a few weeks, in consequence of his having been elected president of the Senate, May 25, 1880, in place of M. Martel, who had resigned on account of ill-health. A short time previously to this the Academy of Moral and Political Sciences had elected M. Léon Say as successor to M. Michael Chevalier (April 24). He was reelected president of the senate, January 20, 1881, and he became minister of finance in the De Freycinet cabinet, formed January 30, 1882. M. Léon Say has written *Théorie des Changes Etrangers*, translated from the English, and preceded by an introduction; *Histoire de la Caisse d'Escompte*, 1848; *La Ville de Paris et le Crédit Foncier*, etc. In December, 1874, the French Academy of Moral and Political Sciences elected M. Léon Say to the seat left vacant by the death of M. Dubois.

SAY, THOMAS, born in Philadelphia, Penn., July 27, 1787. In 1812 he was one of the incorporators of the Philadelphia Academy of Natural Sciences, as also its curator and a conspicuous contributor to its *Journal*. In 1818, in conjunction with a number of scientists, he undertook an exploring expedition along the coast of Georgia and Florida, but was prevented by Indian hostilities from pursuing his investigations to a satisfactory result, and in 1819 accompanied Maj. S. W. Long's expedition to the Rocky Mountains in the capacity of geologist. In 1823 he was one of a party seeking the source of the St. Peter (Minn.) river, and two years later became associated with Robert Owen in the latter's socialistic scheme at New Harmony, Ind. Their venture resulted in failure. Say remained in charge for the purpose of closing up the affairs of the society, and died there October 10, 1834. During his lifetime he published a number of works on entomology and conchology.

SAYCE, ARCHIBALD HENRY, born near Bristol, England, September 25, 1846. He became scholar of Queen's College, Oxford, in 1865, first class in modera-



tions in 1866, was first class in the final classical schools in 1868, was elected a fellow of his college in 1869, tutor in 1870, and since then senior tutor. He was ordained deacon in 1870, and priest in 1871. He became deputy-professor of comparative philology in 1876; an elector to the chair of Celtic in the same year, and public examiner in the school of theology in 1877. He has been a member of the Old Testament Revision Committee since 1874, and received an honorary LL.D. degree at Dublin in 1881.

SCANNELL, RICHARD, a Roman Catholic bishop, was born in county Cork, Ireland, May 12, 1844. He studied at Middleton, Cork, and entered the Foreign Mission College of All Hallows, Dublin. He came to the United States in 1871, shortly after being ordained a priest. He organized the congregation of St. Joseph's, West Nashville, and on the creation of the diocese of Concordia, Kan., he was elected bishop and consecrated November 30, 1887.

SCARBOROUGH, JOHN, was born in Castlewellan, in the north of Ireland, April 25, 1831. He came to the United States in 1840, and received his early education in Lansingburg, N. Y., graduating from Trinity in 1854. He studied theology, was ordained deacon in the Protestant Episcopal church in 1857, and was elected bishop of New Jersey, being consecrated in St. Mary's church, Burlington, N. J., February 2, 1875.

SCHAFF, PHILIP, D.D., LL.D., was born at Chur, Switzerland, January 1, 1819. He was educated at Chur, Stuttgart, Tübingen, Halle and Berlin. From 1842 to 1844 he lectured in the University of Berlin on exegesis and church history. In 1844 he came to America, where he became professor of theology in the Lutheran Seminary of Mercersburg, Penn. (1844-63). He removed to New York in 1863; was secretary of the New York Sabbath Committee, 1864-69; and lecturer at the theological seminaries in Andover, Hartford, and New York. In 1871 he became professor of church history in the Union Theological Seminary, New York. He was one of the founders of the American branch of the Evangelical Alliance, and was sent three times (1869, 1872, 1873) to Europe to arrange for the general conference which was held in New York in October, 1873. He was a member of many historical and literary societies, and president of the American Bible Revision Committee. He died October 20, 1893.

SCHARF, SIR GEORGE, F.S.A., born December 16, 1820; was educated at London University school, and, having gained medals at the Society of Arts, was admitted a student of the Royal Academy in 1838. His first published work was a series of etchings, entitled *Scenic Effects*, illustrating the Shakspearean and classical revivals by Macready, when manager of Covent Garden theater in 1838-39. He was elected F.S.A. in 1852, and corresponding member of the Archaeological Institute of Rome in 1858. He delivered a course of lectures on Italian art at the Royal Institution, and was appointed art secretary at the Manchester exhibition of 1857, and in the same year secretary and keeper of the National Portrait Gallery. Died April 19, 1895.

SCHENCK, ROBERT CUMMING, diplomatist, was born in Franklin, Ohio, October 4, 1809. He was graduated at Miami University in 1827. He studied law with Thomas Corwin and practiced in Dayton, Ohio. He served three terms in Congress and was invariably on some important committee. His first diplomatic mission was to Brazil, where he was sent in 1857. He, in connection with John S. Pendleton, made some important treaties of friendship and commerce with the Argentine Republic. Returning home, Mr. Schenck devoted his time to the railroad business until the war broke out, when he received the first

appointment of brigadier-general from President Lincoln, his commission being dated May 17, 1861. He was wounded at the second battle of Bull Run, and in 1862 was promoted to the rank of major-general. He was again sent to Congress in 1866, and in 1870 he was appointed minister to Great Britain. General Schenck's name is well known in connection with the Emma silver mine, in which he was a director, and the failure of which caused him to resign his post and return to the United States, resuming law practice in Washington, D. C., which he continued until his death, March 23, 1890.

SCHERER, EDMOND HENRI ADOLPHE, French critic and senator, was born in Paris, April 8, 1815, and partly educated at the Collège Bourbon; he then spent two years in England, and afterward went to Strasburg, where he studied theology. In 1843 he was appointed professor of exegesis at the École Évangélique at Geneva, at the same time editing a journal, *The Reformation in the XIXth Century*. In 1850 he gave up the professorship, and from that time became one of the chief leaders of the liberal movement in Protestant theology. In 1870 began his political career. At Versailles he was elected a member of the municipal council, and rendered signal service throughout the difficulties of the war. In 1871 he was elected to the national assembly for the department of Seine-et-Oise, and became a steady supporter of the republican government. In 1875 he was elected senator. For many years M. Scherer was one of the principal writers on the *Temps*, only giving up his connection with the paper for a short time in 1879. He was a frequent contributor to the *Revue de Théologie et de Philosophie Chrétienne*, and one of the editors of the *Bibliothèque Universelle* of Geneva. In 1860 he published a collection of the articles that had appeared, under the title of *Mélanges de Critique Religieuse*—a book that made a considerable impression. Scherer died at Paris, March 16, 1889.

SCHERZER, KARL VON, a German explorer, was born in Vienna, Austria, May 1, 1821. Inheriting an independent fortune and fond of travel, he gratified his taste in this direction to an unlimited degree. Being an active participant in the social and economical reforms under discussion in the empire in 1848, he was exiled, and made his home in Italy. There he made the acquaintance of Dr. Moritz Wagner, and the latter developed the scheme of exploring North America. They spent the year 1852 visiting the principal States, Central America, and the West Indies. In 1855, through the influence of Archduke Maximilian, afterward emperor of Mexico, an expedition was fitted out by the Austrian government for a voyage around the world, and Scherzer was placed in charge. The voyage was made in the interest of science and was fruitful in results. He became, on his return in 1859, a councilor of the board of trade, and held an office in the bureau of foreign relations, and was intrusted with the work of compiling the commercial statistics of the empire. For this service he was given letters of nobility, and in 1860 took command of an expedition to explore Eastern Asia. He was afterward made consul general in several places for the Austrian government. He has written many works descriptive of his travels.

SCHILLING, JOHANN, a German sculptor, was born at Mittweida, in Saxony, June 23, 1828. After studying with Rietschel and Hänel he made his début as a sculptor, in 1851, with a beautiful group—*Amor and Psyche*. Working then at Berlin with Drake he produced a pair of relief medallions—*Jupiter and Venus*—which procured him a traveling scholarship; and the result of the two years' residence in Italy which he was thus enabled to spend, were his *Wounded Achilles* and



his *Centaur and Venus*. Returning to Dresden, he turned out in rapid succession a variety of high productions; and undertook the execution of the city of Spiers figure for the Luther monument at Worms. Equal admiration was bestowed on his *Four Seasons* on the Brühl Terrace at Dresden, his Schiller statue at Vienna, his Maximilian statue at Trieste, and his *War Memorial* at Hamburg, which were all surpassed and crowned by the *Grand National Monument*, on the edge of the Niederwald, overlooking the Rhine. This was unveiled by the Emperor William, September 28, 1883.

SCHLEY, WINFIELD SCOTT, a naval officer, was born in Frederick county, Md., October 9, 1839. He was graduated at the Naval Academy and served on the frigate *Niagara*. On July 16, 1862, he was made a lieutenant, and from that time on he alternated between active service in different parts of the world and as instructor at the Naval Academy. In 1874 he was promoted to commander, and in 1888 to captain.

SCHLIEMANN, HEINRICH, F.S.A., was born at Ankershagen in Mecklenburg, in 1822. He engaged in trade, and, having amassed a fortune, he began his archaeological investigations and excavations in the East. In 1874 he published *Troy and its Remains*, which contains a full account of the researches and discoveries made by him at Hissarlik, the site of ancient Troy, and in the Trojan plain. In February, 1874, he obtained permission from the Greek Government to excavate Mycenæ, where, in 1877, he discovered the five royal tombs which local tradition pointed out to Pausanias as those of Agamemnon and his companions, who were murdered by Ægisthus. In England Doctor Schliemann met with a most flattering reception. He was elected an honorary member of the Grocers' Company, a fellow of the Society of Antiquaries, a member of the Royal Institute of British Architects, and of the Archæological Institute. Many of the antiquities discovered by Doctor Schliemann at Hissarlik were exhibited at the South Kensington Museum at the close of 1877, and about the same time there appeared in English, *Mycenæ; a Narrative of Researches and Discoveries at Mycenæ and Tiryns*, by Dr. Henry Schliemann, the Preface by the Right Hon. W. E. Gladstone, M.P. Doctor Schliemann built a house in Athens and continued his excavations and researches for many years. He died December 27, 1890, leaving several unfinished works.

SCHMIDT, ERNST, M.D., was born in 1830 at Ebern, near Bamberg in Bavaria. He graduated at the Wurzburg School of Medicine during 1850, and completed his medical education in Prague, Vienna, and Paris. Until 1857 Doctor Schmidt was the assistant of Bamberger, Marcus, and Seauzoni, eminent German surgeons, but in this year he came to America, and located in Chicago. At the breaking out of the war he entered the service as surgeon of the 2d Missouri regiment, afterward being assigned to the medical superintendency of the St. Louis military hospital. He resigned the position, however, and returned to Chicago, where he was elected coroner of Cook county. In 1879 Doctor Schmidt was the Socialist candidate for mayor of Chicago, but was defeated.

SCHMIDT, HEINRICH JULIAN, a German critic, was born at Marienwerder, March 7, 1818. He was educated at Königsberg, and, after giving a short time to journalism and teaching, he began to devote himself to literature. He wrote the *History of Romance*, *History of Intellectual Life in Germany*, and many other works. He died March 27, 1886.

SCHMITZ, LEONHARD, Ph.D., LL.D., F.R.S.E., was born at Eupen, near Aix-la-Chapelle, March 6, 1807; studied history and philology at the University of

Bonn under Niebuhr, Welcker, and others, from 1828 till 1832, and afterward taught with success at the gymnasium of Bonn. In 1836 he removed to England, and occupied himself chiefly with writing on classical, historical, and educational subjects. He died in 1890.

SCHNEIDER, HORTENSE CATHERINE, a French actress, born at Bordeaux about 1835; displayed while very young an aptitude for the stage, and at the age of fifteen played with applause in *Michel et Christine* at the Athénée of her native city. She met with considerable success, which was increased by her performances at the Théâtre du Palais Royal, where she made her first appearance, August 5, 1858. Mlle. Schneider continued her professional career until in 1869, when she retired. She died in 1889.

SCHNITZLER, EDUARD (EMIN PASHA), was an Austrian, and was born at Oppeln in 1840. He studied medicine at Breslau, Berlin, and Königsberg, and in 1868 was appointed a surgeon in the Turkish army. He was sent to Egypt, and became surgeon-general in the army of General Gordon, then in command of the British forces in Africa. In 1878 he was appointed bey of the equatorial provinces and was afterward given the title of pasha. Within three years he drove the slave traders out of his dominions, and the provinces which up to that time had cost the government \$200,000, were made not only self-supporting, but were able to send to the Cairo government a surplus of \$40,000 a year after paying all expenses and completing extensive public works. His system of government was kind but firm, and he soon obtained the full confidence of his people. He established training stations at all convenient points in the provinces; agriculture was developed, and civilization and its beneficial results were to be seen on all sides. The natives were taught how to make boots and wagons, while cotton, rice, coffee, indigo, and tobacco were raised with success. The Mahdi could but look with discontent upon the loss of so vast a territory and so many people; and the slave traders could not rest easy while being robbed of their prey. The slave traders had been General Gordon's worst enemies, and they now became the supporters of the Mahdi in his attempts to drive Emin Pasha from the provinces. His headquarters had been fixed at Wadelai on Lake Albert Nyanza. He formed friendly relations with the kings of Uganda and Unjoro, and the latter remained faithful, but the throne of the former obtained a new king who was opposed to the missionary work being done in the provinces, and who was under the influence of the Arab slave-traders, and was able to make the situation of the pasha very uncomfortable. Emin became actually imprisoned in his own country, and in 1882 was entirely cut off from the outside world. So closely was he blockaded that it was 1886 before he succeeded in sending out word of his situation, which he did finally by the aid of negro runners. At this time he had ten fortified stations along the Nile, while his command included 1,500 soldiers, ten Egyptian and fifteen negro officers, and twenty Coptic officials. He knew he could make his escape by cutting his way through his besiegers, but he at no time thought of doing such a thing, as it would leave the women and children to become the victims of the slavers. Emin Pasha, notwithstanding the peril of his position, seems to have taken things very coolly; he kept the people busy with their manufactures and agricultural duties, keeping his forces mainly toward the Upper Nile, his natural line of retreat. The first absolutely reliable information regarding Emin's situation was received in England, through Doctor Junker, a Russian explorer, who made his way out of the pasha's dominions, encountering many dangers,



but finally reaching England. It was then learned that the pasha was losing one after another of his outlying stations, and at the time Doctor Junker left him he was at Wadelai. Doctor Junker's report created intense excitement in England and Germany, and in Egypt. No steps were taken, however, toward a relief expedition until a Mr. Mackinnon, of Glasgow, and some other Scotchmen, raised a fund of \$100,000 and sent for Henry M. Stanley to lead an expedition. Stanley was at the time on a lecture tour in the United States, but he at once canceled all engagements and started for England, and on February 3, 1887, sailed for Zanzibar by way of the Suez canal. The particulars of this expedition will be found under STANLEY's name in this volume. That after untold hardships and suffering he finally reached Emin Pasha, is well known, and also that he guarded him safe from Wadelai to Zanzibar, which point they reached on December 4, 1889. Emin Pasha entered the service of the German East Africa company and in April, 1890, departed for the interior at the head of a large force, under German officers, with military stores and goods for trading to establish stations and reopen the caravan routes that had been closed during the rebellion of the coast tribes. He established stations at Bukoba and Karangwe. It was ascertained in 1893 that he was killed in an engagement with the Arabs, near Nyangwe, in the fall of 1892, and eaten by cannibals.

SCHOFIELD, JOHN McALLISTER, was born in Chautauqua county, N. Y., September 29, 1831. He graduated at the Military Academy at West Point in 1853; remained there for five years as instructor in natural philosophy; and from 1858 to 1861 was professor of natural philosophy at Washington University, St. Louis, Mo. Soon after the outbreak of the Civil war he was appointed brigadier-general of volunteers, and served with credit in Missouri and Kansas. In 1864 he joined the army of General Sherman, and bore a prominent part in all its operations until the close of the war. In 1864 he was made brigadier-general and in 1869 major-general in the regular army. In 1867 he was placed in command of the military district of Virginia. In May, 1868, he was appointed secretary of war; but he resigned in March, 1869, and was assigned to the command of the department of Missouri, and in 1870 to that of the Pacific. From 1876 to 1881 he was superintendent of the Military Academy at West Point, commanded the department of the Pacific, 1882-86, and the division of the Atlantic, 1886 to April 5, 1888, when, on General Sheridan's death he succeeded him in the command of the United States army. Early in 1895 Congress revived the grade of lieutenant-general and he was nominated to that rank by President Cleveland, February 6.

SCHOLTEN, JOHANNES HENDRIK, born in Vlieten, August 17, 1811, was professor of theology at Leyden, 1843, and regarded as the father of the Leyden school of theology. He died April 10, 1885.

SCHOTT, WILHELM, orientalist, born at Mainz, Germany, September 3, 1802, published his first work, *An Essay on the Tartar Languages*, in 1836 and many works on the Siamese, Japanese, Chinese and other eastern languages and literatures. He was professor-extraordinary in the University of Berlin for many years. He died January 21, 1889.

SCHREINER, OLIVE, born about 1863, in Cape Town, the daughter of a German Lutheran clergyman, became widely known in 1883 by her *Story of an African Farm*, a powerful, spiritual autobiography, in the form of a novel. She also published *Dreams* (1891) and *Dream Life and Real Life* (1893), and married Mr. Crinwright, a colonist, February 25, 1894.

SCHUMANN, MADAME CLARA (*née* WIECK), was born September 13, 1819, at Leipsic, and very early displayed remarkable musical gifts. At twelve she appeared at one of the "Gewandhaus" concerts at Leipsic, and from that time traveled over Europe, creating a great sensation in Vienna, Berlin, and Paris. In 1837 she became engaged to the composer, Robert Schumann, and married him in 1840. On the death of her husband, in 1856, she removed with her children to Berlin, and has since resided at Wiesbaden and Frankfort-on-the-Main. Madame Schumann, besides teaching at the Conservatoire of Frankfort, has frequently played in most of the chief cities of Europe, the works of her husband being generally the favorites in her repertoire. In 1886 she visited London and played to crowded audiences in St. James' Hall. Died May 20, 1886.

SCHURZ, CARL, was born at Liblar, near Cologne, Germany, March 2, 1829. In 1848 he became associated with Gottfried Kinkel in editing a revolutionary journal, and subsequently he participated in the insurrectionary movement in South Germany. At the surrender of the fortress of Rastadt, he escaped into Switzerland, whence in May, 1850, he returned secretly to Germany and rescued Kinkel. The two escaped to Leith, Scotland. In 1852 Schurz came to the United States, remained in Philadelphia for two years, and then settled in Wisconsin. The following year he was nominated by the Republicans for lieutenant-governor of the State, but was defeated. In 1861 he was appointed minister to Spain, where he remained till December, 1861; returning to the United States, he entered the army, and in the May following was appointed brigadier-general of volunteers. He took part in the second battle of Bull Run, was promoted to the rank of major-general, and commanded a division in the battles of Chancellorsville and Gettysburg. In the autumn of 1863 he went to Tennessee, and took part in several battles, but resigned in 1865. In 1866 he removed to Detroit, Mich., where he founded and edited for some time the *Detroit Post*. In 1868 he removed to St. Louis, and in 1869 was elected United States senator from Missouri. In the presidential canvass of 1872 he united with the "Liberals," who nominated Mr. Greeley for president, in opposition to General Grant; but on the defeat of Mr. Greeley he returned to the regular Republican party; and in 1876 took an active part in the canvass of Mr. Hayes, by whom he was, in 1877, appointed secretary of the interior. At the expiration of his term, 1881, he removed to New York, and was the editor of the *Evening Post* until August, 1883. Since then he has been engaged in literary pursuits. In 1884 he took a leading part in opposing the election of James G. Blaine and advocating that of Grover Cleveland.

SCHUVALOFF, COUNT PETER, was born in Russia in 1828. He entered the military service, and was advanced subsequently to the post of chief of the secret police. His appointment as ambassador to England was looked upon by some in Russia as a kind of exile. Some believed that he was sent to England owing to Prince Gortschakoff's jealousy, the prince looking upon him as his rival and aspirant for the post of chancellor. Other reasons of a more private nature were likewise assigned for his expatriation; but on the other hand it was said that the czar had chosen him for his representative in England on account of the confidence he reposed in the count's ability, and his devotion to the empire. On the occasion of his retiring from his post in London (November, 1879), the czar appointed him a knight of the St. Vladimir Order, first class. Count Schuvaloff died March 22, 1889.

SCHUYLER, EUGENE, a diplomatist, was born in Ithaca, N. Y., February 26, 1840, and graduated at



Yale in 1859, and later at the Columbian Law School. He was given a consulship at Moscow, and subsequently was made secretary of legation at St. Petersburg. Schuyler held the same position at Constantinople in 1876, and was ordered to investigate the Turkish massacres in Bulgaria. He served in various places, and in 1884 was appointed minister resident and consul-general to Greece, Serbia, and Roumania. After leaving the last post Mr. Schuyler returned home and engaged in literary work. Williams College conferred on him the degree of LL.D. in 1882, and Yale did the same in 1885. He was a contributor to various magazines and reviews, both at home and abroad. Mr. Schuyler died July 18, 1890.

SCHUYLER, PETER, was the first mayor of Albany, N. Y. He was born in Albany, September 17, 1657, and died there February 19, 1724. In 1667 he was captain of a militia company, and afterward was made a colonel. Colonel Schuyler was conspicuous for his influence with the Indians. In all the negotiations with them he was most successful, and gained many advantages for the whites. Albany was incorporated as a city July 22, 1688, and Peter Schuyler became mayor.

SCHUYLER, PHILIP JOHN, American general, was born at Albany, N. Y., November 20, 1733. He was of an old and wealthy Dutch family, and in early manhood became a leader in the affairs of the colony of New York. He reached the rank of major in the French and Indian war, and at the beginning of the revolutionary struggle was made one of the American major-generals. He took part in the expedition against Canada in 1775, but ill-health compelled him to retire. He took the leading part in preparing to meet Burgoyne's expedition in 1778; but troops had to be called in from other States, and he was subjected to jealousies which thwarted him at every step. Nevertheless, his arrangements were so complete that he had really checked Burgoyne before congress superseded him in the command by the appointment of Gates, who reaped all the glory which should have accrued to Schuyler. Retiring from the army, he served for three years in the Continental congress, and in the United States senate, 1789-91, and 1797-98. He died at Albany, November 18, 1804.

SCHWANN, THEODORE, M. D., a German physiologist, was born at Neuss, in the Rhine Provinces, December 7, 1810. He was credited with being a brilliant scholar at Bonn, Berlin, and Würzburg, taking the degree of M.D., and passing the State examination in 1824. Doctor Schwann spent forty years in important work in connection with anatomy, and made some very valuable discoveries, one of them being that of the presence of pepsin in the gastric juice. Doctor Schwann died at Cologne, January 11, 1882.

SCHWARTZ, WILHELM, a German author, was born in Berlin, September 4, 1821. He was educated at Leipsic, and has published some works on mythology and popular superstitions.

SCHWARZENBERG, CARDINAL FREDERICK VON, prince bishop of Prague, a member of the princely house bearing his name, was born April 6, 1809. Having completed his education and taken holy orders, the prince became, in 1836, bishop of Salzburg. In 1842 he was made a cardinal, and in 1849 was translated as prince bishop of Prague. At the oecumenical council of the Vatican (1869-70) the cardinal belonged to the "Inopportunist" party, but afterward unreservedly accepted the dogma of the infallibility of the sovereign pontiff. He died March 27, 1885.

SCHWATKA, FREDERICK, explorer, was born at Galena, Ill., September 29, 1849. He graduated from the United States military academy at West Point in

1871, subsequently studied law, and was admitted to the bar in 1875. He then began the study of medicine, and received his degree at New York in 1876. In June, 1878, he sailed to the Arctic regions, in command of the Franklin search party, which returned in September, 1880, having discovered and buried many of the skeletons of Sir John Franklin's lost party, and cleared up much of the mystery that had shrouded their fate. He explored the course of the Yukon river, Alaska, 1884, resigned from the army, 1885, conducted an exploring expedition to Mexico, 1889, and brought back with him a dozen cave dwellers for exhibition purposes, the result not being financially successful. He published *Along Alaska's Great River, Nimrod of the North, The Franklin Search* and other works. He died November 2, 1892.

SCHWEINFURTH, GEORGE AUGUST, was born at Riga, Russia, September 29, 1836. Receiving a thorough education, he engaged in botanical expeditions in the Upper Nile regions of Africa. He has written several works containing the result of his researches.

SCHWEINITZ, EDMUND ALEXANDER DE, was born in Bethlehem, Penn., March 20, 1825. He began his education at Nazareth, and later went to Berlin, where he attended the university. In 1867 he became president of the Moravian theological school at Bethlehem, and was consecrated bishop of the Moravian church in 1870. He originated and for ten years edited *The Moravian*, the weekly journal of his church, until 1884, when he became president of the theological seminary. He wrote a number of works, the chief being *The Moravian Manual*. He died December 18, 1887.

SCLATER, PHILIP LUTLEY, M.A., born at Hoddington House, Hants, England, in 1829, was educated at Winchester school, and at the age of sixteen was elected scholar of Corpus Christi College, Oxford, where he graduated in 1849, taking a first class in mathematics. He was called to the bar at Lincoln's Inn in 1855, and went the western circuit for several years; became secretary to the Zoological Society of London in 1859, was elected F.R.S. in 1861, and was made doctor philosophiæ by the University of Bonn (*honoris causa*) in 1860. In 1875 Mr. Sclater was appointed private secretary to his brother, the Right Hon. G. Sclater-Booth, president of the local government board, but resigned that office in 1877. In the same year he became one of the general secretaries to the British Association for the Advancement of Science, and continued to act in that capacity until 1882.

SCLATER-BOOTH, GEORGE, M.P., F.R.S., was born in London in 1826. From Winchester school, where he obtained the gold medal for Latin verse, he proceeded to Balliol College, Oxford (B.A., 1847). He was called to the bar of the Inner Temple in 1851. In 1857 he was elected M.P. for North Hampshire, which constituency he continued to represent in the Conservative interest until 1887. As secretary of the poor law board in 1867, he represented that department in the lower house. On the resignation of Lord Derby in February, 1868, Mr. Sclater-Booth was appointed to the secretaryship of the treasury, in the room of Mr. Hunt, who became chancellor of the exchequer. During Mr. Gladstone's administration he served as chairman of the committee on public accounts. On the formation of Mr. Disraeli's government, in 1874, he was sworn in as a privy counselor, and appointed to the office of president of the local government board, which he held till the Conservatives resigned in April, 1880. During the period of Mr. Gladstone's administration, 1880-85, Mr. Sclater-Booth acted as chairman of the grand committees. In 1887 he was created a peer with the title of Baron Basing. He died October 23, 1894.



SCOTT, BENJAMIN, F.R.A.S., chamberlain of London, was born in 1814, and, having entered the chamberlain's office, attained the post of chief clerk in 1842, but resigned that and other offices in 1853. He founded the Bank of London, to which he was secretary until the death of Sir John Key, in 1858, when he was unanimously elected chamberlain. He died Jan. 17, 1892.

SCOTT, CHARLES BRODERICK, D.D., born at Dublin, Ireland, January 18, 1825, was educated at Eton, and at Trinity College, Cambridge, where he graduated B.A. in 1848 as senior classic and 22d wrangler. He became head master of Westminster School in 1855; a prebendary of St. Paul's in 1874; and an honorary student of Christ Church, Oxford, in 1875. Doctor Scott resigned the head-mastership of Westminster School in May, 1883, and was succeeded by Mr. W. G. Rutherford.

SCOTT, CLEMENT, a well-known literary man, journalist on the permanent staff of the *Morning Chronicle* and *Saturday Review*, which he helped to start, was born October 6, 1841, at Christ Church parsonage, Hoxton, London, and educated at Marlborough College, Wiltshire. He was appointed to a clerkship in the war office by Lord Herbert of Lea in May, 1860, and retired on a pension in May, 1879. He then joined the editorial staff of the *Daily Telegraph*, to which paper he had contributed dramatic criticisms and special articles since 1873.

SCOTT, DRED, born a slave in Missouri in 1810; died about 1857. In 1854 his master, Doctor Emerson, an army surgeon, took him North and for some years he was a resident of free States—Illinois first and then Wisconsin. While North he married and had two children. On being taken back South he sued for his freedom on the ground that he had lived in a free State. Scott won his case in St. Louis, where the suit was brought, and his master appealed it to the Supreme Court, where the decision was reversed. His family was then sold away from him, and this gave excuse for another suit in the federal courts. Scott lost his case, but made an appeal, and as the affair had by this time created much excitement, many of the prominent lawyers of the country volunteered to take part in the argument. On Scott's side were George T. Curtis and Montgomery Blair, while for the master there appeared Reverdy Johnson and Henry S. Geyer. The case was tried in 1856, and the opinion of the lower court was confirmed, but, as Justice Nelson's opinion was exceedingly brief, Chief Justice Taney was asked to give a more elaborate one. This he did on March 6, 1857, and it created intense interest. Scott and his family passed by inheritance to Calvin C. Chaffee, and on May 26, 1857, they were given their freedom in St. Louis by Taylor Blow, to whom Mr. Chaffee conveyed them for that purpose.

SCOTT, JULIAN, an artist, was born in Johnson, Lamoille county, Vt., February 14, 1846. He entered the Union army in 1861, and during his term of service made some sketches of life in military hospitals which attracted considerable attention. In 1863 he began studying under Emanuel Lentze, and continued until 1868. His pictures were first exhibited at the Academy of Design in 1870.

SCOTT, ROBERT, D.D., derives his descent from the Scotts of Harden, Scotland, and was born in 1811, in Devonshire, where his father held a living. From Shrewsbury school he proceeded to Christ Church, Oxford, where he obtained the Craven University scholarship in 1830, a studentship of Christ Church the same year, and the Ireland University scholarship three years subsequently. He graduated B. A. in 1833, being in the first class in classics. He was for some

years prebendary of Exeter cathedral. In 1854 he was elected, on the death of Doctor Jenkyns, to the mastership of Balliol College. In 1861 he succeeded Doctor Hawk as professor of the exegesis of Holy Scriptures at Oxford; and in 1870 he was appointed dean of Rochester. He died December 2, 1887.

SCOTT, ROBERT HENRY, M.A., F.R.S., F.G.S., born at Dublin, January 28, 1833; was educated at Rugby, and Trinity College, Dublin, where he graduated as first senior moderator in experimental physics in 1855. He was appointed lecturer in mineralogy to the Royal Dublin Society in 1862, and director of the meteorological office in 1867, a title changed to "secretary of the meteorological council" in 1877.

SCOTT-SIDDONS, MARY FRANCES, an English actress, born in 1848. She made her first appearance on the stage at an early age, and at once established a reputation for beauty, grace, and dramatic abilities. She afterward made a professional tour through Europe, Australia, and the United States, where she attracted favorable comment. She married an officer in the English navy named Scott, and of late years has won an enviable reputation as a public reader.

SCOTT, THOMAS ALEXANDER, was born in Loudon, Franklin county, Penn., December 28, 1824, and died in Darby, Penn., May 21, 1881. Left an orphan at the age of ten, he worked on a farm and served in stores, attending a village school during all spare time. In 1850 he became connected with the Pennsylvania railroad, and in 1858 its superintendent, being elected vice-president in 1859. He entered the army at the breaking out of the rebellion and was appointed on Governor Curtin's staff, aiding greatly in equipping volunteers and sending them to the front. At the request of the secretary of war he opened a new line from Washington to Philadelphia, and in May, 1861, he was commissioned colonel of volunteers, and on May 23d was put in charge of all government railway and telegraph lines. Colonel Scott was the first assistant secretary of war, and was sent in January, 1862, to organize transportation in the Northwest, and in March to do the same on the Western rivers. He resigned for a time, but feeling his services were needed he again entered the government employment, and aided greatly in the transportation of men and supplies all through the war. Colonel Scott was mainly instrumental in making the Pennsylvania system what it is to-day, by securing control of Western lines. He became president of the Union Pacific, and finally succeeded to the presidency of the Pennsylvania railroad.

SCRIVENER, FREDERICK HENRY AMBROSE, a well-known English biblical scholar, born September 29, 1813, at Bermondsey, and educated at Trinity College, Cambridge, aided in revising the New Testament and wrote much New Testament criticism. He died November 2, 1891.

SCUDDER, HORACE E., a popular American author, born at Boston, Oct. 16, 1838 and educated at Williams College, wrote *The Bodley Books*, *George Washington*, and other works, edited the *American Commonwealth* series and in 1890 became editor of the *Atlantic Monthly*.

SCUDDER, SAMUEL HUBBARD, born at Boston, Mass., April 13, 1837; graduated at Williams College, 1857, studied science at Cambridge, Mass., and was appointed assistant to Professor Agassiz. He was afterward secretary and president of the Society of Natural History in Boston, librarian at Harvard College, and in 1886 was employed by the United States as paleontologist of the geological survey. He is a member of many learned societies, the author of entomological works, and has been a frequent con-



tributor of articles and reports on the results of his investigations to societies and magazines.

SEABURY, SAMUEL, Episcopal bishop, born in Groton, Conn., November 30, 1729; died in New London, Conn., February 25, 1796. He was graduated at Yale in 1748, and thereafter studied theology. As was the case with most of the Episcopal clergy, he was a Royalist, and became obnoxious to the Whigs by his *Farmer's Letters*, reflecting on the Continental congress of November and December, 1774. At one time he was imprisoned at New Haven for six weeks. On March 25, 1783, the Episcopal ministers of Connecticut elected him bishop. Difficulty stood in the way of his being consecrated by the English bishops, and he was privately consecrated by three Scottish bishops at Aberdeen, on November 14, 1784. Thereafter he resided in New London until his death. He was rector of St. James' church and bishop of Connecticut.

SEARING, LAURA REDDEN, an American author, well known to the literary world as "Howard Glyndon," was born February 9, 1840, at Somerset, Md. In 1850 she was attacked with spinal meningitis, which left her deaf and unable to articulate. Her parents subsequently removed to St. Louis, that their daughter might be treated for her infirmities, and while there she became a contributor to the daily press. She entered the employ of the St. Louis *Republican* in 1860, and later became the Washington correspondent of that paper. She visited Europe in 1865, and remained abroad three years, a portion of her time corresponding for the New York *Times*. Upon her return in 1868, she was employed by the New York *Mail*, and remained with that paper until her marriage, in 1876, to E. W. Searing, since when she has resided in California.

SEARLE, ARTHUR, born at London, England, October 21, 1837; came to the United States at an early age, and in 1856 was graduated at Harvard University. He made a specialty of astronomical studies, and, after serving for sixteen years as assistant professor of that science, was, in 1887, called to the chair of astronomy at Harvard. He is a member of the American Academy of Sciences, and has furnished the results of his investigations to periodicals and magazines published in the United States and Europe.

SEARLE, GEORGE MARY, was born in England, June 27, 1839, and became a graduate of Harvard in the class of 1857. From that year until 1866 he was engaged at the Dudley Observatory, Harvard University, and in the employ of the United States Government as professor of astronomy. During the latter year he studied theology, and in 1871 was ordained a priest of the Roman Catholic Church, since which time he has been connected with the Paulist Seminary, New York.

SECCHI, PIETRO ANGEL, an Italian scientist, born at Reggionell Emilia, July 29, 1818. He was educated for the church, and after removing to the United States taught at Georgetown, D. C. He was called to take charge of the observatory at Rome in 1850, and his discoveries and observations, subsequently made, have been considered of the greatest importance. He died February 26, 1878.

SEDDON, JAMES A., an American lawyer, is a native of Stafford county, Va. He was born July 15, 1815, and, upon graduating from the law department of the University of Virginia, began the practice of his profession at Richmond. He was elected to congress in 1845, and reelected in 1849. He was a delegate from Virginia to the Peace Congress which convened at Washington in 1861, and upon the secession of his State was chosen a member of the Confederate congress. He

was afterward appointed Confederate secretary of war, and served from 1862 until January, 1865. He died in Goodrich county, Va., August 19, 1880.

SEDDON, JOHN POLLARD, was born September 19, 1827, at London; and educated at Bedford Grammar School. He was articled 1848-51 to Professor Donaldson, architect, and from 1852 to 1862 was in partnership with John Prichard, diocesan architect, at Llandaff. In 1862 he settled in London, where he actively engaged in his profession.

SEDGWICK, AMY, a popular actress, was born at Bristol, England, October 27, 1835. After having passed through a training for the stage at an amateur theater near London, where Elton, Reeve, Robson, and other dramatic "stars" first trod the boards, she made her first public appearance in the summer of 1853, as "Julia," in *The Hunchback*, at the Richmond theater. Her performance, though not unsuccessful, did not give promise of the celebrity she afterward attained. In the summer of 1857 Mr. Buckstone engaged her for the Haymarket theater, where she made her appearance as Pauline, in *The Lady of Lyons*, and on the first night created a great sensation, and afterward appeared in an original part in *The Unequal Match*. In 1858 she was married to Dr. W. B. Parkes, but was left a widow in 1863.

SEDGWICK, CATHERINE MARIA, author, was born in Stockbridge, Mass., December 28, 1789; died near Roxbury, Mass., July 31, 1867. She was well educated, and in 1813 assumed the management of a private school, which she continued for fifty years, and became a popular novelist. She also wrote for periodicals and annuals.

SEDGWICK, JOHN, soldier, born in Cornwall, Conn., September 13, 1813; died near Spottsylvania Court House, Va., May 9, 1864. He was graduated at the United States Military Academy in 1837, appointed second lieutenant of artillery, served against the Seminoles in Florida, and later on the frontier during the Canada border troubles. He took part in the Mexican war, and at the beginning of the Civil war was lieutenant-colonel of the second cavalry. In August, 1861, Sedgwick was commissioned brigadier-general of volunteers, and assigned to the army of the Potomac. At Antietam Sedgwick was wounded, but would not allow himself to be taken from the field. While directing the gunners in placing some pieces of artillery in position in front of Spottsylvania Court House, he was shot in the head and instantly expired.

SEDGWICK, THEODORE, was born near Hartford, Conn., in 1746. In 1766 he was admitted to the bar. He accompanied the expedition against Canada in 1776, and became a member of the Continental congress in 1785. He was also a member of the Massachusetts Assembly of 1788, by which the Federal constitution was accepted, and the year following was elected to the United States congress, remaining there until 1796, when he was elected United States senator. He was subsequently a member of the lower house of congress, of which he was speaker in the session of 1799, becoming justice of the Supreme Court of Massachusetts in 1802, and so continuing until his death, at Boston, January 24, 1813.

SEELEY, SIR JOHN ROBERT, was born in London, in 1834. He was educated at the City of London School, of which he became the captain, and thence proceeded to Christ's College, Cambridge. He took his B.A. degree in 1857, when he was bracketed with three others at the head of the first class in the classical tripos, and he was also senior chancellor's medalist. He was appointed professor of modern history at Cambridge, October 9, 1860. Professor Seeley's chief work, published



anonymously in 1865 (though 1866 is the date on the title page), is entitled *Ecce Homo: a Survey of the Life and Work of Jesus Christ*. It passed rapidly through several editions, created great excitement among the members of the various Protestant communities, and elicited numerous replies. Died Jan. 13, 1895.

SEELYE, JULIUS HAWLEY, was born near Bethel, Conn., September 14, 1824, and was graduated at Amherst College in 1849. He studied theology at the seminary of Auburn, N. Y., also at Halle, Germany, and was ordained in 1853. The same year he was called to the first Dutch Reformed Church of Schenectady, N. Y. In 1858 he severed his connection with that church to accept the chair of philosophy at Amherst, and in 1874 was elected to congress as a Republican, serving until March 4, 1877, when he entered upon the duties of president of Amherst College. He was made a D.D. in 1862 by Union College, and an LL.D. by Columbia College in 1876. He wrote numerous essays addresses, translations, and works of a miscellaneous character. He died May 12, 1895.

SEELYE, LAURENS CLARK, was born in Bethel, Conn., September 20, 1837, and was graduated at Union College during June, 1857. He afterward became a theological student at Andover, and from 1860 to 1863 continued his studies at the universities of Heidelberg and Berlin. The First Congregational Church at Springfield was the charge to which he was first assigned, and he subsequently became professor of rhetoric at Amherst. In 1872 he was one of the incorporators of the Smith Female College, Northampton, Mass., and in 1874 was elected to the presidency of that institution. He was made a D.D. by Union College in 1875.

SEEMAN, BERTHOLD, a German explorer, a native of Hanover was born February 28, 1825. In 1846 he entered the service of the English Government as the naturalist to accompany the *Herald* on a voyage around the world. He afterward made a tour through Central America. He published accounts of his voyages to the East, to the Arctic regions, and to other parts of the world; was the editor of a botanical journal, and made frequent contributions to London periodicals of a scientific character. He died in Nicaragua, October 10, 1871.

SEGUIN, EDOUARD, physician, born in Clamecy, France, January 20, 1812; died in New York city, October 28, 1880. He was taught at the French colleges of Auxerre and St. Louis, and subsequently studied medicine. In 1838 he opened a school in Paris for idiots. In 1848 he came to the United States and opened a similar school, which expanded into the New York State asylum at Syracuse. In 1863 Doctor Seguin settled in New York city, where he gained high repute as a specialist in nervous diseases, and in 1873 was appointed United States commissioner of education at the Vienna exposition. He wrote sundry manuals and treatises, mostly in the French language, and invented the physiological thermometer.

SELBORNE, EARL OF (THE RIGHT HON. ROUND-DELL PALMER), was born at Mixbury, England, November 27, 1812. He was educated at Rugby and Winchester schools, and was elected in 1830 to an open scholarship at Trinity College, Oxford, where he graduated as a first class in classics, in Easter term, 1834. He was made Q. C. in 1849, entered parliament and became solicitor-general. In October, 1863, on the death of Sir William Atherton, he became attorney-general, and retired from office with Lord John Russell's second administration in June, 1866. On the return of the Liberal party to power, under the leadership of Mr. Gladstone, in December, 1868, he was of-

fered the chancellorship, but, not being able to indorse the policy of the government in relation to the Irish church, declined taking office. Sir Roundell Palmer's views on the Irish Church question were embodied at the time in a speech addressed by him to his constituents at Richmond. He concurred with the government in recommending the disestablishment of the Irish Church, but differed from them on the question of disendowment. He was appointed lord chancellor of England, in succession to Lord Hatherley, in October, 1872, on which occasion he was created Baron Selborne, of Selborne, in the county of Hants. Ten years later he was raised to the rank of earl. He again became lord chancellor in Gladstone's second ministry, 1880-85, but disapproved the premier's Irish policy, refused to join his cabinet in 1886 and spoke against Home Rule. He died in 1895.

SELLAR, ALEXANDER CRAIG, born at Morvich, Scotland, in 1835, and educated at Rugby, and Balliol College, Oxford, entered parliament as a Liberal, but broke with Gladstone in 1886 and was reelected as a Liberal Unionist. He died January 17, 1890.

SELLAR, WILLIAM YOUNG, LL.D., born in Sutherlandshire, Scotland, in 1825, and educated at Glasgow University and Balliol College, Oxford, became professor of Greek at St. Andrews, 1861, and professor of humanity (the Latin language and literature) in the University of Edinburgh, 1863. He published *Roman Poets of the Republic* (1863), *Roman Poets of the Augustan Age* (1877) and other works, and contributed articles on Latin literature to the *Encyclopædia Britannica*, ninth edition. He died October 12, 1890.

SELOUS, FREDERICK COURTENAY, the greatest hunter of modern times, born in London, England, in 1852, went to Africa in 1871 as explorer and pioneer, and on numerous hunting trips from then to the present time, making an astonishing record in the slaughter of lions and other big game, besides opening Mashonaland to English trade in 1889.

SELWYN, JOHN RICHARDSON, son of the late Dr. George Augustus Selwyn, bishop of Lichfield, was born in 1845, and educated at Trinity College, Cambridge. He held several curacies, entered on the Melanesian mission in 1872, and in February, 1877, became successor to Bishop Patteson, the first bishop of Melanesia, who was consecrated in 1861, and murdered in 1871.

SEMBRICH, MARCELLA, vocalist, was born at Lemberg, Austria, February 15, 1858, and for some years studied the piano and violin under the best masters. While receiving piano lessons from Liszt at Vienna, it was discovered that she had a splendid voice, and she was at once sent to Milan to study singing. She made her *début* as an opera singer at Athens in *I Puritani*, 1877. Mlle. Sembrich has sung in all the principal cities of Europe, and has been everywhere received with the greatest enthusiasm. In 1883-84 she was a member of an Italian opera company at New York, where she created a great sensation by the compass of her voice and the brilliance of her execution.

SEMMESE, RAPHAEL, a naval officer who made himself well known by his services in the interest of the Confederacy, was born in Charles county, Md., September 27, 1809, and died in Mobile, Ala., August 30, 1877. In 1826 he was appointed a midshipman in the navy. He managed to study law and was admitted to the bar, but the navy had more charms for him than a law office, and in 1837 he took a commission as lieutenant in the navy. Semmes served in various capacities until the breaking out of the rebellion, when he resigned and united his fortunes with the South. Going to New Orleans, he was placed in command of the



**steamer *Sumter*.** With her he did great execution for the Confederacy, and when his vessel was blockaded at Tangiers, Semmes sold her and made his way to England. There the fast sailing steamer *Alabama* was built for the South, and Semmes, being promoted to the rank of captain, was put in command of her at the Azore Islands. With the *Alabama*, Semmes became a veritable scourge of the seas; he captured, pillaged and burned sixty-two United States merchantmen. The *Alabama* was a wooden vessel and was built by Messrs. Laird & Son, at Birkenhead, near Liverpool. The American minister to England warned the authorities that all was not right with the vessel, which ostensibly was being built for a merchantman, but it was plainly evident from her hatches, from the great number of berth hooks, and from her extra heavy planking, that she was destined for some other purpose. The English Government showed the most culpable negligence in regard to the *Alabama*. When it was made too plain to be controverted that she was a vessel being built in the interest of the Southern Confederacy, she was allowed to get away into the open sea, and was armed, manned, and stocked from English ports. Up to the time of her leaving England she was known as "No. 290," but once away the mask was torn off, and Captain Semmes, from the quarter-deck, read his commission from Jefferson Davis, president of the Southern Confederacy, as commander of the *Alabama*. This man used the most unscrupulous means to make his captures, frequently making the United States merchantmen believe his was a United States vessel, until he had boarded them and made their crew prisoners. The *Alabama* met the fate that was her due, however, off Cherbourg harbor, France, on June 19, 1864. Captain Semmes had put into the harbor, and shortly after the *Kearsarge*, in command of Capt. John A. Winslow, appeared outside.

Semmes appeared willing to fight, and made his preparations while the *Kearsarge* awaited him. The naval duel lasted less than an hour and the *Alabama* was sunk. Captain Semmes was taken from the water by John Lancaster on board the English yacht *Deerhound*. The *Alabama* had 120 men and the *Kearsarge* 162, both boats having seven guns. On October 3d Captain Semmes sailed for Havana, and from there went to Mexico, making his way in a roundabout manner into the Southern States. He was appointed rear-admiral of the Confederate navy and ordered to the James river squadron. He guarded the approach to Richmond until the city was evacuated. After the war Semmes took up his long delayed practice of the law, and with newspaper work and as a professor in a military institute in Louisiana, finished an active life.

**SENIOR, WILLIAM**, journalist and author, is the angling editor of the London *Field*, and member of the councils of the National Fish Culture Association and National Society for the Prevention of River Pollution. In 1875 he accepted a government appointment as editor of the Queensland *Hansard*, and proceeded to that colony to start an official daily report of the parliamentary debates. He returned after five years' residence in Queensland, to England, and rejoined the special correspondent staff of the *Daily News*.

**SERGEANT, JOHN**, was born in Newark, N. J., about 1710; was graduated at Yale College in 1730, and until 1735 occupied the chair of assistant professor at that institution. He then became a missionary among the Indians, settling among them during 1735, and a year later was located at Stockbridge, Mass. He died at Stockbridge, July 27, 1749.

**SERPA-PINTO**. See PINTO, *ante*.

**SERRANO, FRANCISCO**, was born near Cadiz,

Spain, October 17, 1810, and became a cadet at the military academy of that country in 1822, and three years later an ensign in the army. He supported the claims of Isabella II., and participated in the struggle that culminated in the downfall of Espartero. Meanwhile, he was promoted to be major-general, and in 1843 was elected speaker of the Cortes, after which, until his death, he was prominently identified with the revolutionary movements that took place in Spain. He filled the positions of minister of war, lieutenant-general, senator, captain-general of Grenada and New Castile, returning from Saragossa, where he had been in exile, to become a participant in the revolution of O'Donnell and Espartero, and uniting with the former in 1856, by whom he was appointed minister to Paris the following year. In 1860 he was transferred to Cuba as captain-general of that dependency, and for his diplomatic services in connection with the acquisition of Santo Domingo, was named duke de la Torre. Subsequently he was exiled to the Canary Islands, but returned and aided in the deposition of Queen Isabella, and after serving as regent of the kingdom until the accession of Amadeo, was, by the latter, appointed secretary of state. He commanded the Carlists, but went to France in 1873. He was made chief of staff of General Pavia in 1874, and interested himself actively in the fortunes of Alfonso XII. in 1875. He died at Madrid, November 26, 1885.

**SERVER PASHA**, a Turkish statesman, commenced his official career in the imperial divan, and, after filling the post of chief of the correspondence department of the minister of war, was appointed first secretary of the Ottoman embassy at Vienna. Server Pasha possessed in an eminent degree all the qualifications necessary for the high post of minister for foreign affairs, to which he was appointed—experience in its special duties, a very conciliatory manner, a European education, and great popularity with the diplomatic body. The improvements carried out by him during the time he was mayor of Constantinople, 1868-70, caused him to be styled the "Haussmann of Stamboul."

**SEVIER, JOHN**, born in Rockingham county, Va., September 23, 1745; died in Georgia, September 24, 1815. He was educated at the academy at Fredericksburg; married at the age of seventeen, and eventually founded the village of Newmarket, in the Shenandoah Valley. He soon became known as an Indian fighter. In 1779 he was commissioned lieutenant-colonel, and defeated the Indians at Boyd's creek, and on October 7th defeated the Loyalists at King's mountain. In 1784 North Carolina ceded her territory beyond the mountains to the general government, and the settlers, finding their interests neglected, organized a separate State called Franklin, and chose Sevier for its governor. In 1796 the part ceded by North Carolina was erected into the State of Tennessee; Sevier was elected its governor, serving two terms; in 1803 he was again chosen, and served six years. In 1811 he was elected to congress.

**SEWELL, ELIZABETH MISSING**, sister of the Rev. William Sewell, was born in the Isle of Wight in 1815. She became known as a writer of High church fiction by her *Amy Herbert*, 1844. It was followed by a long list of stories, many of them having become popular in later years.

**SEYMOUR, GEORGE FRANKLIN**, a bishop of the Protestant Episcopal church, was born in New York city, January 5, 1829; was graduated at Columbia College in 1850, and at the General Theological Seminary, New York, during 1854. He was ordained a priest in 1855, and was engaged in missionary services at Annandale, N. J., for the five years next succeeding, es-



establishing, while there, a school now known as St. Stephen's College. After filling the rectorship of churches at Manhattanville, Hudson, and Brooklyn, N. Y., he was, in 1874, elected bishop of Illinois, but failed of confirmation by the House of Deputies. On April 2, 1878, he declined the bishopric of the diocese of Springfield in that State, to which he had been elected the previous October, but in May, 1878, he was again elected to the same bishopric and accepted. He was consecrated June 11th following, and has since administered the affairs of the diocese. In 1867 the degree of S.T.D. was conferred on him by Racine (Wis.) College, and that of LL.D., by Columbia in 1878. He has been a frequent contributor to religious publications, and is the author of works on questions of interest to the church.

SEYMOUR, HORATIO, governor of New York, was born at Pompey, N. Y., May 31, 1810. Mr. Seymour studied law and practiced in Utica. He was for years the recognized leader of the Democratic party, and was by it nominated for governor of the State in 1850, but was defeated by Washington Hunt. He was nominated again in 1852, and was this time elected by a large majority, only to be defeated again when running for the same office in 1854. In the crisis of 1861 Mr. Seymour gave the national government cause to fear that he was in too deep sympathy with the Southern movement, and the fear was augmented when, in 1862, he was again elected governor of the State. He was actually accused of desiring to urge the adhesion of New York city to the Southern Confederacy. He in 1863 still further compromised himself by his opposition to President Lincoln's drafts, and insisted they should be stopped until the courts decided upon their constitutionality. Nothing treasonable was ever shown against Governor Seymour, and some historians speak of him as one of the most active and zealous of all the "war governors." Governor Seymour was president of the Democratic national convention held in Chicago in 1864, and again at New York in 1868, where he was nominated for the presidency of the United States, but was defeated by General Grant. After this campaign Governor Seymour retired to private life, and died on February 12, 1886.

SHALER, NATHANIEL S., an American scientist, was born at Newport, Ky., February 22, 1841. He received his education at Miami University, and graduated from Lawrence Scientific School, at Cambridge, Mass., in 1862. Two years later he accepted the position of assistant in the zoological museum at Harvard University, becoming professor of zoology at the same institution in 1887, meanwhile filling a similar position at the Lawrence Scientific School. He was employed by the State of Kentucky to conduct a geological survey in 1873, and by the United States, in 1884, to direct the geological survey of the Atlantic coast. He has been the author of contributions to the *Popular Science Monthly* and other magazines, and is a member of many scientific societies.

SHARPLESS, JAMES, painter, born in England about 1751; died in New York city, February 26, 1811. He was educated for the priesthood of the Roman Catholic Church, and afterward studied art. He came to the United States in 1794. In 1796 he took Washington's portrait in profile, in Philadelphia. It has always been regarded as a truthful likeness.

SHARSWOOD, GEORGE, was born at Philadelphia, July 7, 1810; was graduated at the Pennsylvania University in 1828, and on September 5, 1831, was admitted to the bar of his native State. He was not long engaged in the practice of his profession, becoming a member of the legislature in 1837, and serving in that

capacity at intervals until 1844. A year later he was appointed to the bench of the Philadelphia District Court, where he remained until 1867, when he was elected to the State Supreme Court, and served part of the time as chief justice, until 1880, when he retired. He was made an LL.D. by New York University and Columbia College, and died at Philadelphia, May 28, 1883.

SHATTUCK, AARON D., born in New Hampshire, March 9, 1832; studied art in the Boston studios and also at the New York Academy of Design. He became an associate and an academician in 1860, and was recording secretary of the association for one term. His pictures consist almost entirely of scenes from farm life in America.

SHAW, EYRE MASSEY, was born in 1830, and educated at Queenstown, and at Trinity College, Dublin, where he took his B.A. and M.A. degrees. He entered the army, but retired in 1860. He was appointed chief officer of the Metropolitan Fire Brigade of London, England, in 1861.

SHAW, HENRY, born July 24, 1800; emigrated to the United States when nineteen years old. He located in St. Louis, where he was engaged in business for nearly a quarter of a century, and accumulated a large fortune. He was the founder of Shaw's Garden, near St. Louis, which he donated to that city, together with other properties in the vicinity. He also gave liberally to Washington University and other educational and scientific institutions. He died at St. Louis, August 25, 1889.

SHAW, HENRY W. ("Josh Billings"), was born at Lanesborough, Mass., April 21, 1818, and matriculated at Hamilton College in 1832, but left that institution without graduating. He settled at Poughkeepsie, N. Y., upon his return in 1858, and became a contributor of amusing sketches to the daily press. They received little attention, however, and about 1860 he wrote an *Essay on the Mueh*, which was first printed in a New York paper, and attracted attention, comment, and imitation. His productions were in constant demand thereafter, and he wrote for a large syndicate of papers. Later he issued *Josh Billings' Farmers' Almanax*, which was continued annually for a number of years, and attained to an enormous circulation. He became a lecturer about the close of the war, and was also a regular contributor to New York magazines and weeklies, and published a number of "Josh Billings'" books in addition to the *Alminax*. He died at Monterey, Cal., October 14, 1885.

SHAW, LEMUEL, was born at Barnstable, Mass., in 1781, and died in Boston in 1861. Mr. Shaw became an able jurist. He was for several years a member of the State legislature, and in 1830 was appointed chief justice of Massachusetts.

SHAWBENA, a chief of the Ottawas, born near Toledo, Ohio, about 1775, was with Tecumseh in many of the latter's encounters with the whites, including the battle of the Thames, fought during 1813, at which Tecumseh was mortally wounded. Shawbena subsequently surrendered to General Cass at Detroit and was afterward of great assistance to the American forces. For many years Shawbena resided in DeKalb county, Ill., where his estate was then and is still known as "Shawbena's Grove." He removed to Missouri in 1837, but returned to Illinois upon the death of his son at the hands of hostile Indians, and was again removed, this time to the reservation in Kansas. He again returned to Illinois, but was ejected from his property by a decision of the secretary of the interior, and removed to a tract of land near Morris, Ill., where he died July 27, 1859.

SHAYS, DANIEL, born in Hopkinton, Mass., in



1747; died in Sparta, N. Y., September 29, 1825. He was an ensign at the battle of Bunker Hill, and afterward a captain. Captain Shays was chosen leader of a band of insurgents, who, in January, 1787, attempted to capture the Continental arsenal at Springfield, and secure a removal of the heavy taxes caused by the high salaries paid to officials. In February, 1788, the rebels were entirely overcome. Shays retired to Vermont, and later received a pardon. In his old age the State of Massachusetts gave him a pension for military services during the Revolution.

SHEA, JOHN D. G., was born July 22, 1824, near New York city, was admitted to the bar but abandoned law for literature, publishing *Discovery and Exploration of the Mississippi Valley* (1853), *History of the Catholic Missions Among the Indian Tribes of the United States* (1854), *Lincoln Memorial* (1869), and other works, besides his *History of the Catholic Church in the United States*, in five volumes, not quite completed on his death, February 22, 1892.

SHEDD, WILLIAM GREENOUGH THAYER, D.D., LL.D., was born at Acton, Mass., June 21, 1820, graduated at Andover Theological Seminary in 1843, held various pastorates and became professor of ecclesiastical history at Andover, 1854 and professor of systematic theology at Union Theological Seminary, New York in 1874. He wrote many theological works and translations and died November 17, 1894.

SHELBY, ISAAC, soldier, born in North Mountain, Md., December 11, 1750; died near Stanford, Ky., July 18, 1826. He was educated at Fredericktown, and in 1771 removed with his father to what is now Bristol, Tenn. Later he repaired to Boonesborough, Ky., where he settled as a planter. In 1792, when Kentucky became a State, Shelby was chosen its first governor. In the war of 1812 he organized a body of 4,000 volunteers, led them as a reinforcement to Gen. W. H. Harrison, and fought at the battle of the Thames. In 1818 he joined with Gen. Andrew Jackson in making a treaty with the Chickasaw Indians.

SHEPARD, CHARLES UPHAM, M.D., LL.D., an American naturalist, born at Little Compton, R. I., in 1804, and died May 1, 1886. He graduated at Amherst College, and was appointed professor of chemistry in Charleston Medical College in 1834, and professor of natural history in Amherst College. One of his works was a *Report on the Geographical Survey of Connecticut*.

SHEPARD, ELLIOTT F., was born at Jamestown, Chautauqua county, N. Y., July 25, 1833, and was educated at the New York City University. He was admitted to the bar in 1858, and practiced his profession in New York city until the breaking out of the Civil war. In 1861 he was placed in charge of the recruiting service at Elmira, N. Y., and rendered valuable services. He subsequently aided in the enlistment of the 51st regiment of New York infantry, and at the close of hostilities returned to the practice of law. He became attorney for the New York Central road and in 1868 married W. H. Vanderbilt's eldest daughter, who inherited several million dollars. In 1888 he became owner and editor of the *New York Mail and Express*, in which he bitterly opposed Sunday travel and traffic. He died March 24, 1893.

SHEPSTONE, SIR THEOPHILUS, born in England, 1817, served in the Kaffir war, 1835, and was long in the colonial service. He crowned the king of Zululand in 1873, annexed the Transvaal in 1879 and restored Cetewayo in 1883. He died June 24, 1893.

SHERBROOKE, VISCOUNT (THE RIGHT HON. ROBERT LOWE), was born at Bingham in 1811, and educated at Winchester and at University College, Ox-

ford, where he graduated in high honors in 1833. Educated for the law, he practiced successfully, and in 1842 he went to Australia. He returned to England in 1851, and served the government in various capacities, mainly under Mr. Gladstone. In 1868 he became chancellor of the exchequer. In 1880 he was made a peer. He was created honorary LL.D. of Edinburgh in 1867, and D.C.L. of Oxford, 1870. He died July 27, 1892.

SHERIDAN, PHILIP HENRY. American soldier, was born in New York on March 6, 1831, and died in Massachusetts in August, 1888. His early education was meagre in the extreme, his origin being humble. His natural abilities having attracted the notice of the congressman for his district, he received an appointment to a cadetship in the West Point Military Academy, and, having entered that institution in 1848, he was graduated in 1853—having been suspended one year for insubordination—being thirty-fourth in a class of fifty-two, among whom were several other noted soldiers on both sides of the conflict during the late Civil war. He was brevetted second lieutenant of infantry, and served in various portions of the country till 1861, at which time he had reached the rank of captain. On the outbreak of the war, in 1861, he was sent to the far South, and in December of the same year was made quartermaster of the army of Southwestern Missouri. He was, at the beginning of the next year, made chief quartermaster of Halleck's army, in Mississippi. He was shortly afterward promoted colonel of the 2d Michigan cavalry, and in July, 1862, he became brigadier-general of volunteers, being assigned to the eleventh division of the army of the Ohio. At the battle of Perryville Sheridan particularly distinguished himself, and from this time his fame as a soldier began to increase. He was accredited with the salvation of the Union army from defeat in this engagement. He was, shortly after this, transferred to the command of a division of the army of the Cumberland, and took an important part in the battle of Stone River, and, in recognition of his services, was made major-general of volunteers. At Chickamauga the disastrous rout of the Federal army was changed into an orderly retreat by the exertions of Sheridan, and during the operations around Chattanooga he was an important factor in the success of the Union arms. After this campaign was over, and General Grant had been made commander-in-chief of the Union armies, General Sheridan was transferred to the army of the Potomac and given command of all the cavalry of the army, that branch of the service being erected into a separate command for the purpose. Entering upon the service in Virginia during the bloody Wilderness campaign, his vigilance and ability contributed in no small degree to the accomplishment of General Grant's plans. His maneuvers to cover the rear, flanks, and van of the Federal army were of incalculable value to the commanding general, and his services secured for him the high personal regard and confidence of General Grant. During this campaign he made several raids into the surrounding country, cutting the lines of communication with the Confederate bases of supply, and on one occasion making a dash at Richmond, but, finding the defenses too strong for cavalry attack, retired leisurely, rejoining the army on May 25th, having inflicted immense damage and received but little harm in return. It was during one of the fights of this raid that Gen. J. E. B. Stuart was killed at Yellow Tavern—a terrible blow to the Confederate cause. So valuable had been Sheridan's services, and so great was the confidence which General Grant had in him, that he was selected for the important position of commander of the army of the Shenandoah, to which was

assigned the duty of covering Washington and destroying the supplies which the Confederates were drawing from the fertile country of the valley of Virginia. Here he met and defeated Early, driving him in utter defeat down the valley as far as Waynesboro, and scattering his demoralized army to the winds. Shortly after, on the reorganization and reinforcement of Early's army, the Federal troops were surprised and panic stricken at Cedar Run, and the appearance of Sheridan (who hastened up from Winchester) alone saved the army from annihilation. This incident in his career has been celebrated in song and story until now it is hard to separate fact from fiction in the accounts of "Sheridan's Ride." He performed the duty assigned to him so zealously and thoroughly that his devastation of the valley of Virginia brought upon him the charge of unnecessary cruelty and rapacity; but his apologists have justified his measures as a necessity of war.

For his services in this campaign he was gazetted major-general in the regular army in October, 1864, and received the thanks of congress for gallantry and meritorious services. He took a prominent part in the campaigns of 1865, and his raids with the cavalry under his command contributed, in no small degree, to the downfall of the Confederacy. He particularly distinguished himself at Five Forks and again at Sailors' Creek. His actions at this time were the subject of repeated commendations from General Grant, who seemed to find no terms too strong to express his regard and admiration for the man and his generalship. After the war he was made commander of the department of the Gulf; his conduct during this time has been severely criticised, particularly his administration of affairs in New Orleans. He was next transferred to the department of the Missouri and conducted several campaigns against the Indians. When Grant became president General Sherman was made general of the army and Sheridan became lieutenant-general, it being understood that these titles were to expire with these incumbents. In 1870 he went to Europe to witness the conduct of the Franco-Prussian war, and on his return was commander of the western and southwestern military divisions. In 1883, on the retirement of General Sherman, he became general-in-chief, being the nineteenth occupant of that position. In 1888 a bill was passed and signed by the president (Cleveland), bestowing upon him for life, the rank and emoluments of full general. It was said of him that he was never defeated, and, uniformly, where present, turned the tide of defeat into victory. He was greatly beloved by his officers and men and enjoyed their thorough confidence, and their affection was exhibited in the imposition upon him of the title of "Little Phil." He was the author of *Personal Memoirs*, which were published in two volumes in New York in 1888.

SHERMAN, JOHN, statesman, was born May 10, 1823, at Lancaster, Ohio. When he was but six years old his father died, leaving a large family in reduced circumstances, and he was subsequently adopted by a relative living at Mount Vernon, Ohio. At the age of twelve a sister took charge of him and put him in a school at Lancaster, where he acquired an education. He studied law with his brother, C. T. Sherman, at Mansfield, where he afterwards practiced for ten years, and where he was married in 1848 to a daughter of James Stewart. In 1855 he was elected to the thirty-fourth congress in the interest of the Free-Soil party, and was reelected to the thirty-fifth and thirty-sixth congresses. He became a power on the floor and in committees, and was recognized as the foremost man in the House, particularly in matters affecting finance. He was again elected to congress in 1860, but in the fol-

lowing year was chosen to the United States Senate, where he at once became a leader. After the close of the Civil war he and Thaddeus Stevens prepared the bill for the reconstruction of the Southern States, which was passed by congress in the winter of 1866-67. In March, 1877, Senator Sherman was appointed, by President Hayes, secretary of the treasury, a position which he retained until the close of Mr. Hayes' administration in 1881, when he reentered the Senate, of which he is still a member. It was due to his management while at the head of the treasury, that the resumption of specie payments was effected in 1879 without disturbance to the financial or commercial interests of the country. He was a prominent candidate for the Republican presidential nomination in 1880, and again in 1888. He died October 22, 1900. He was in 1895 a member of the committee on foreign relations, the committee on finance, the select committee to investigate the condition of the Potomac River Front of Washington, the select committee on Universities of the United States, and the select committee on the quadro-centennial.

SHERMAN, THOMAS W., born at Newport, R. I., March 26, 1813; was graduated at West Point in the summer of 1836. He was attached to the artillery branch of the service in the Florida war, and in the war with Mexico was made captain by brevet for gallant services at Buena Vista. He was transferred from the frontier at the outbreak of the Civil war, and promoted to be lieutenant-colonel of the 5th artillery, engaged in the defense of the national capital. He took part in the expeditions against Southern ports, commanded the forces led against Port Royal, and subsequently a division in the army operating in Tennessee. After the battle of Corinth, Miss., at which he was present, he was transferred to the department of the Gulf, and remained in New Orleans until the attack upon Port Hudson. At that engagement he led the advance (May 27, 1863), where he lost his right leg. Upon his restoration to duty he was placed in charge of the defenses of Louisiana. After the war he was stationed at Fort Adams, R. I., as colonel of the 3d artillery, and was retired from active service December 31, 1870, with the rank of major-general. He died at Newport, R. I., March 16, 1879.

SHERMAN, ROGER, born in Newton, Mass., April 19, 1721; died in New Haven, Conn., July 23, 1793. Roger Sherman's father was a poor man, and a small farmer. As he was unable to give his son a college education, Roger picked it up as best he could, became a prominent lawyer, and when he removed to New Haven was made treasurer of Yale College, and in 1766 was appointed judge of the Supreme Court. When the Revolution began he sided with the patriots, and in August, 1774, was chosen as delegate to the Continental congress. Later, with Adams, Franklin, Jefferson and Livingston, he was one of the committee who drew up the Declaration of Independence. From 1784 until his death he was mayor of New Haven, and in 1791 was United States senator for Connecticut.

SHERMAN, WILLIAM TECUMSEH, American soldier, was born in Ohio, February 8, 1820. Early in life he was adopted by THOMAS EWING (*q. v.*), and in 1836 he was sent to West Point, from which institution he was graduated in 1840, being sixth in a class of forty-two members. He was commissioned second lieutenant of artillery in that year and sent to Florida, being thence transferred to various posts till the outbreak of the Mexican war. At this period he was sent to California, where he served with distinction under Generals Kearny and Smith. At the close of the war he became captain in



the commissary department, and in this capacity was stationed in St. Louis and New Orleans. In 1853 he resigned his commission in the army and was appointed manager of the branch bank of Lucas, Turner & Co., San Francisco, Cal. He was subsequently transferred to the New York branch of the house. After severing his connection with the firm, he practiced law for a time in Leavenworth, Kan., and, in 1860, became president of the State Military Academy at Alexandria, La. At the commencement of the war he returned to St. Louis, where he engaged in the street railway business, being president of the Fifth street line. His sentiments and expressions of opinion in regard to the Civil war at this time caused him to be looked upon with distrust as a radical, or, in modern terminology, a "crank," he regarding the preparations then made as totally inadequate to suppress the rebellion, which, he insisted, was not a mere riot to be put down by a sheriff's posse, but the beginning of a war to be fought out by colossal armies. In May, 1861, he was commissioned colonel in the regular army, and ordered to report to General Scott at Washington. At Bull Run he commanded a brigade in Tyler's division, and was a participant in the defeat of the Northern forces in that battle. In August he was made brigadier-general of volunteers, and sent to Kentucky to act as lieutenant to Gen. Robert Anderson. Here his declaration that 60,000 men were required to drive the secessionists out of that State and that 200,000 were necessary to hold the State for the Union, met with a cold reception, and he was relieved of the command to which he had succeeded on the resignation, on account of ill health, of General Anderson. He was then placed in command of Benton Barracks, St. Louis. After the capture of Forts Henry and Donelson by General Grant, Sherman was assigned to the army of the Tennessee, in which he was placed in command of the fifth division. At the battle of Shiloh he took an important part, and was wounded in the hand. During the advance on Corinth he acted with distinguished bravery and judgment, and was made major-general of volunteers in recognition of his services. In July General Grant was made commander of the department of the Tennessee, and Sherman was sent to Memphis to put the city in a state of defense. His administration of affairs in this city has been the subject of much adverse criticism, but the events of the war are yet of too recent a date to enable an impartial estimate of his services in this connection to be formed. During the operations against Vicksburg, Sherman bore a most conspicuous part, and in reward for his services was made brigadier-general in the regular army. On October 4th Sherman was ordered to move toward Chattanooga. On the morning of November 24th Sherman took up a position on the northern end of Mission Ridge, and sustained the heaviest shocks of battle in that bloody engagement. On the next morning the enemy were in retreat, and to Sherman was assigned the duty of pressing them back toward Ringgold, at which place he arrived the same day, cutting the enemy's communications as he went. From this time till March, 1864, he was engaged in the various military operations transpiring in the section of the country in which he was stationed, during which time he relieved Burnside at Knoxville, and attacked and defeated the Confederates at Jackson and Meridian. In March, General Grant was made commander-in-chief of the armies of the United States, and he almost immediately assigned Sherman to the command of the military division of the Mississippi, in connection with which appointment General Grant indited a letter of commendation and thanks to Sherman, who was also the recipient of a vote of thanks from congress for brilliant services in the Chat-

tanooga campaign. Soon after his appointment to the command of the division he received orders to proceed from Chattanooga to Atlanta. His force amounted to 90,000 men, while he was confronted by Johnston with an army of 62,000. The first collision of the forces occurred at Dalton. Johnston retreated. The next scene of operations was Allatoona pass, which Sherman carried, fighting in rapid succession the bloody battles of New Hope Church, Dallas, and Kenesaw Mountain. By July 17th he was ready to begin the direct attack on Atlanta. On the 20th he fought the battle of Peach Tree Creek; on the 22d he fought another on the east side of Atlanta, and on the 28th the engagement at Ezra Church took place, all these being Union successes. After several ineffectual attempts on the lines of communication of the Confederates, General Sherman finally fought the battle of Jonesboro, in which the Confederates were defeated, and on September 1st Atlanta was evacuated. Thence Sherman took up his "march to the sea." On December 24, 1864, he had occupied Savannah and captured 150 guns, large stores of ammunition, and 25,000 bales of cotton. These he laid at President Lincoln's feet as a Christmas gift. The value of these operations cannot be overestimated, as they opened a line of communication between the seacoast and the fleet and the interior of the State, and thence to other portions of the hostile territory.

In the meantime Sherman had been promoted major-general of the United States army, and on January 10, 1865, he was the recipient of a vote of thanks from congress for his triumphal march through Georgia. From Savannah, Sherman marched northward through the Atlantic States, flanking Charleston, S. C., and compelling its surrender. Advancing into North Carolina, he opened communication between Schofield's command and his own, fighting at Averysborough and Bentonville. At Goldsborough he met Schofield on March 23d, and leaving Schofield there with his command, he visited General Grant and President Lincoln at City Point, Va., where the historic interview on board the *Ocean Queen* was held. Sherman was on April 10th ready to move northward to cut Lee's lines of communication or to reinforce Grant, as circumstances should dictate. On the 12th he received news of Lee's surrender, and on the 14th proposals from Gen. Joseph E. Johnston, looking to a conference preliminary to the surrender of the Confederate army under that general. In the articles of agreement he was said to have exceeded his powers, and the conference was repudiated by the secretary of war, who ordered General Grant to proceed to North Carolina, and negotiate the terms of surrender. General Sherman bitterly resented the action of Secretary Stanton at the time, but they were finally reconciled. It has always been credited to Sherman that his efforts were the outcome of an honest desire to avoid further strife, and a humane disposition to render further bloodshed impossible. On May 24th his army passed in final review before the president, and on the 30th Sherman took leave of them in an affecting and eloquent valedictory. He was immediately assigned to the command of the Division of the Mississippi, and this position he held till March, 1869. When General Grant was made general of the army, in 1866, Sherman succeeded him as lieutenant-general, and on the election of Grant to the presidency, Sherman became general, which position he held till February, 1884, when he was retired on full pay. In 1871-72 he made a professional tour of Europe, and was everywhere received with great consideration. He received many honors, having been the recipient of degrees from several colleges and universities; and, from 1871 to 1883, was a member of the board of regents of the Smithsonian



Institution. He wrote his life under the title of *Memoirs of General William T. Sherman, by Himself*. Gen. Sherman died in New York city, Feb. 14, 1891.

SHIELDS, JAMES, was born in Dunganon, Ireland, in 1810, and died in Ottumwa, Iowa, in June, 1879. Shields had an exceedingly active career. He came to the United States at the age of sixteen, studied law, and in 1843 was chosen judge of the Supreme Court of Illinois. He fought under Generals Taylor and Scott in the Mexican war, and was made brigadier-general. He was United States Senator from Illinois from 1849 to 1855. He went to Minnesota and was sent to the senate from that State also. He went to California but remained there only a short time, going to Carrollton, Mo., where he again took up the practice of law. He was a railroad commissioner, and from 1874 to 1879 was a member of the State legislature.

SHILLABER, BENJAMIN PENHALLOW, writer of the "Mrs. Partington" sketches, was born in Portsmouth, N. H., July 12, 1814. From 1840 until 1850 he was editor of the *Boston Post*, from 1851 until 1853 edited a comic weekly, *The Carpet Bag*, and from 1856 until 1866 conducted the *Saturday Evening Gazette*. His "Mrs. Partington" sayings gave him a wide reputation. He died Nov. 24, 1890.

SHIPLEY, ORBY, M.A., was born July 1, 1832, at Southampton, England, and was educated at Jesus College, Cambridge. For twenty-three years he worked as a clergyman of the Church of England; and on October 26, 1878, was received into the Roman Catholic Church. He is the author of some tracts, pamphlets, theological books, and sermons and is an occasional contributor to periodical literature.

SHIPPEN, EDWARD, jurist, born in Philadelphia, Penn., February 16, 1720; died there April 16, 1806. Young Shippen read law at the age of seventeen, and in 1748 went to London to complete his course of study at the Middle Temple. Returning to Philadelphia, he became, in 1770, a member of the provincial council, serving for five years. He was a royalist, during the Revolution, and became associate justice and chief justice of the Supreme Court of Pennsylvania. His third daughter, Margaret, was the second wife of Gen. Benedict Arnold.

SHIRAS, GEORGE, JR., LL.D., was born in Pittsburgh, Pa., January 26, 1832; graduated from Yale, 1853, and practiced law in Pennsylvania till appointed Associate Justice of the Supreme Court of the United States, by President Harrison, to succeed Justice Bradley. He took the oath of office October 10, 1892.

SHIRLAW, WALTER, painter, born in Paisley, Scotland, 1838, was brought to America in 1840, studied in Munich, 1870-77, and painted *Toning of the Bell* (1874), and *Sheep-Shearing in the Bavarian Highlands* (1876), which received honorable mention at the Paris Exhibition of 1878, and with *Rufina* were exhibited at the World's Fair in Chicago in 1893. He painted other well-known pictures and is a National Academician.

SHIRLEY, WILLIAM, colonial governor, born in Preston, England, 1693; died in Roxbury, Mass., March 24, 1771. He came to Boston, Mass. in 1734, practiced law and in 1741 was appointed governor of Massachusetts, continuing as such until 1745. He went abroad, returned in 1753 as governor, built several forts in Maine, and in 1755 was appointed commander of the British forces in North America, planned the expedition against the French at Niagara and led it as far as Oswego. In 1756 he was made lieutenant-general and governor of the Bahama Islands, returning to Massachusetts in 1770.

SHORE, THOMAS TEIGNMOUTH, born at Dublin,

Ireland, 1841; was educated at Trinity College, Dublin, where he graduated in 1861. He has published *Some Difficulties of Belief*, *The Life of the World to Come*, and a volume of sermons to children, *St. George for England*.

SHORT, CHARLES, born at Haverhill, Mass., May 28, 1821, and graduated at Harvard University, 1846; in 1863 was called to the presidency of Kenyon College, Gambier, Ohio, remaining there until 1868, when he accepted the professorship of Latin at Columbia College, where he remained until his death, December 24, 1886. He was a member of the committee on the revision of the New Testament, and was the author of standard text-books and translations from the classics. He was made an LL.D. by Kenyon College in 1868.

SHORTHOUSE, JOHN HENRY, was born in 1834, in Great Charles street, Birmingham, England, and educated at private schools. He is the author of the celebrated romance, *John Inglesant*, which was first privately printed and afterward published in 1881, and excited much interest. He has also written *Sir Percival* (1886), *Countess Eve* (1888), and other works.

SHUFELDT, ROBERT WILSON, an American naval officer, born in Dutchess county, N. Y., February 21, 1822, and passed as midshipman July 2, 1845. He secured promotion, and resigned from the navy in June, 1854, to accept a position in the service of the Collins line of steamers, operating between New York and Liverpool. In 1861 he became United States consul at Havana, Cuba, but resigned in 1863 to reënter the navy. He was in command of the *Conemaugh* off Charleston and of the *Batus* belonging to the squadron blockading the eastern gulf ports. After the close of hostilities he was transferred to the East India and Asiatic waters, where he commanded the *Hartford* and *Wachusett*, respectively. Later he was in charge of the *Miantonomah* and directed the expedition sent to the isthmus of Tehuantepec for purposes of survey and exploration. His next important service was as commissioner to the East Indies and Africa in connection with the reopening of the American trade. He was promoted through the various grades of the navy, and was retired February 27, 1884. He died Nov. 7, 1895.

SIBLEY, HENRY, was born in Louisiana about 1815. He was graduated at West Point in 1838, and enlisted in the Confederate army in 1861. His service was confined to New Mexico, where he commanded a small army which made an attack upon Fort Craig in 1862. He attained the rank of general. Died in 1886.

SIBLEY, HENRY H., was born in Detroit, Mich., in 1811. He became governor of Minnesota in 1857, and was appointed brigadier-general in 1862. He led an expedition against the Sioux Indians in June and July, 1863. He died February 18, 1891.

SICKLES, DANIEL E., was born in the city of New York, October 20, 1823; graduated at the New York University, studied law and was admitted to the bar in 1844. He became a member of the State legislature in 1847, city attorney of New York in 1853, and the same year secretary of the American legation in London. Two years later he was sent to the State Senate and in 1857 was elected to congress and reelected in 1859. During his first congressional term he killed Philip Barton Key, the tragedy growing out of the latter's intimacy with Sickles' wife. He was tried and acquitted. He entered the service at the outbreak of the war as commander of the Excelsior brigade, and was conspicuous for gallantry in the various battles of the Peninsular campaign, also at Antietam, Fredericksburg, Chancellorsville, and Gettysburg, where he lost a leg. In 1865 he was commissioner to the South American republics, and in 1866 was appointed to the colonelcy of the 42d



infantry. The year following his gallantry at Fredericksburg and Gettysburg he was recognized by promotion to be major-general. From 1865 to 1867 he was commander of the second military district, with headquarters at Columbia, S. C., whence he was removed by President Johnson, during the latter year. He was placed on the retired list of the army with the rank of major-general in May, 1869, becoming United States minister to Spain one month later. He resigned that position in 1873, at once resuming his residence in New York city. In 1890 he was appointed sheriff of Kings county, and served in congress, 1893-95.

SIDGWICK, HENRY, M.A., born at Skipton in Yorkshire, England, in 1838, was educated at Rugby and Trinity College, Cambridge, and was appointed Knightsbridge professor of moral philosophy in 1883. Mr. Sidgwick is the author of works on *The Methods of Ethics*, and on the *Principles of Political Economy*, and of several articles. He died Aug. 18, 1900.

SIGEL, FRANZ, soldier, born in Sinshheim, Baden, November 18, 1824. He was graduated at the Military School at Carlsruhe. In 1852 he came to the United States, and for some years taught mathematics and history in German academies. At the breaking out of the Civil war Sigel organized a regiment of infantry and a battery, doing good service for the Union among the Missouri rebels. He was made a brigadier-general in May, 1861. He fought and won the battle of Pea Ridge, and was at the second Bull Run. On September 14, 1862, General Sigel was placed in command of the eleventh army corps under Gen. John Pope, and in March, 1864, was ordered to the command of the department of West Virginia. General Sigel met the enemy on May 15, 1864, under General Breckenridge, and was badly defeated. His command was taken from him and given to General Hunter. Sigel resigned and became the editor of a German newspaper, the *Baltimore Wecker*. Going to New York city in the fall of 1867, he was made collector of that port, and in 1886 was appointed pension agent. General Sigel has written several books relating to the German revolution. Died Aug. 21, 1902.

SIGOURNEY, LYDIA HUNTLEY, born in Norwich, Conn., September 1, 1791; died in Hartford, Conn., June 10, 1865. As a child, she was precocious in acquiring knowledge, studied at Hartford and Norwich schools, and taught for five years in the first-mentioned city. In 1815 her first volume was published, *Moral Pieces in Prose and Verse*; and in 1819 she was married. During her life she published forty-six different works, and contributed 2,000 articles to about 300 periodicals. In 1840 Mrs. Sigourney visited Europe, and two volumes of her verses were issued in London. Mrs. Sigourney always retained her interest in education, and was noted for her sympathy with the poor and afflicted. Many of her prose writings were of a semi-religious character.

SIKES, SIR CHARLES WILLIAM, born in 1818; was the founder of penny savings and post office savings' banks. In 1833 he entered the service of the Huddersfield Banking Company, the second stock joint bank established in England. In 1837 Mr. Sikes became one of the cashiers of the company, and, in 1882, its managing director. In 1850 he addressed a letter to the *Leeds Mercury*, in which he recommended the formation of pennysavings' banks in connection with mechanics' and similar institutes. The committee of the Yorkshire Union of Mechanics' Institutes gave their cordial sanction to the scheme set forth, and penny banks were soon established in connection with nearly every mechanics' institute in Yorkshire. Sikes was knighted in 1881. He died October 15, 1889.

SILL, JOSHUA W., was born at Chillicothe, Ohio, December 6, 1831, and graduated at West Point in the class of 1853. He afterward was appointed professor at the United States Military Academy, and resigned in January, 1861, to accept the chair of mathematics at the Brooklyn Polytechnic College. In April of the same year he was appointed adjutant-general of Ohio, and in August following was placed in command of the 33d regiment of Ohio infantry. For the next twelve months he was identified with the operations of the army in Kentucky, Mississippi, and Tennessee, and rose to the rank of brigadier-general. He was killed at Shiloh, April 6, 1862.

SIMCOE, JOHN GRAVES, British soldier, born near Exeter, England, February 25, 1752; died in Torbay, October 26, 1806. Simcoe fought against the patriots during the Revolutionary war, and in 1791 was governor of Upper Canada. From December, 1796, until July, 1797, he was in command at Santo Domingo.

SIMEONI, GIOVANNI, an Italian cardinal, was born at Paliano, in the diocese of Palestrina, July 23, 1816, and, having been ordained priest, he was, on account of his solid learning, employed in offices of considerable importance. Having been created cardinal in 1875, he remained in the nunciature at Madrid in the quality of pro-nuncio, and on the death of Cardinal Antonelli, in 1876, he was appointed secretary of state to Pius IX., an office which he retained until the death of that pontiff. He was made prefect of the Propaganda, by Pope Leo XIII., in 1878. He died Jan. 14, 1891.

SIMMONS, FRANKLIN, was born January 11, 1842. He developed a talent for sculpture early in life, and visited Italy in 1868. In 1865 he modeled medallion portraits of the cabinet at Washington, and in 1888 executed a number of busts of leading Americans. His principal works embrace statues of Oliver P. Morton, Henry W. Longfellow, and others, with a large number of ideal pieces in bronze and marble.

SIMMONS, SIR JOHN LINTORN, G.C.B., was born at Langford, Somerset, England, in 1821, and educated at Elizabeth College, Guernsey, and at the Military Academy, Woolwich. He entered the royal engineers in 1837, and after serving for several years in North America was appointed inspector of railways, December, 1846, and in 1850 secretary to the railway commissioners. In 1853, being in Turkey, he was specially employed by the late Viscount Stratford de Redcliffe on several important missions, and became commissioner with the Turkish Army under the command of Omar Pasha, in which position he served on the Danube. He was appointed governor of Malta, April 19, 1884, holding office some years.

SIMMONS, WILLIAM HENRY, engraver, was born in London, June 11, 1811. While a pupil with Messrs. Finden he obtained the large silver medal of the Society of Arts in 1833, for a finished engraving from an original design. Mr. Simmons died in England, June 10, 1882.

SIMMS, WILLIAM GILMORE, born at Charleston, S. C., April 17, 1806. He studied both law and medicine, but devoted his attention to literary pursuits, and when twenty-one years of age published a volume of poems. In 1828 he succeeded to the editorship of the *Charleston Gazette*, of which he subsequently became the owner. It turned out to be a disastrous venture financially, and, after publishing a collection of poems, he retired to his estate near Midway, S. C., and there wrote a series of novels illustrative of Southern life and customs. He also prepared a geography of South Carolina, and contributed a number of sketches, stories, reviews, etc., to magazines, which have since been collected and published in book form. He died at Charleston, June 11, 1870.



**SIMON, JOHN, C.B., F.R.S.**, born in 1816, became an honorary fellow of the Royal College of Surgeons in 1844; medical officer of the privy council, surgeon to St. Thomas' Hospital, and was the first appointed officer of health to the city of London. He is the author of several papers on physiology, pathology, and surgery, and of reports and other official papers relating to the sanitary state of the people of England.

**SIMON, JULES**, a French statesman, was born at Lorient (Morbihan), December 31, 1814. The name given to him by his parents was Jules François Simon Suisse, but he adopted the name of Simon, and has never been known by any other. He studied in Lorient and at Vannes, after which he entered as an assistant teacher, the Lycée at Rennes. He remained at the normal school for some time, was received as fellow of philosophy in 1835, and professed that science successively at Caen and Versailles. At the latter place he achieved a brilliant success. In December, 1847, he founded at Paris, in conjunction with his university colleague, M. Amédée Jacques, a political and philosophical review called *La Liberté de Penser*. M. Simon edited the political department of that publication.

On the formation of the government of national defense in September, 1870, he took the post of minister of public instruction, public worship, and fine arts. After the armistice he was sent to Bordeaux to see that the decrees relating to the elections were carried out in their integrity, and not with the modifications introduced by M. Gambetta. At the elections of February 8, 1871, M. Simon's candidature failed at Paris, but he was reelected a representative of the department of the Marne in the national assembly. He classed himself among the members of the Left, and was chosen by M. Thiers to take, in the cabinet of conciliation formed February 19, 1871, the portfolio of public instruction. He held it till May, 1873, when he resumed his seat among the members of the Left, who made him their president. On December 16, 1875, he was elected a senator for life. In December, 1876, M. Dufaure resigned, and a new ministry had to be formed, which, according to constitutional principles, must rest upon a parliamentary majority. The president sent for M. Jules Simon, who became premier, holding, with the presidency of the council, the portfolio of the interior. The cabinet lasted till May 16, 1877, when Marshal MacMahon sent M. Simon a letter, which was, in fact, nothing less than a dismissal from office. M. Simon went immediately to the Marshal and tendered his resignation, which was accepted. M. Simon was elected a member of the French Academy in November, 1875, in the place of the Comte de Rémusat, and was formally received into that learned body, June 22, 1876. M. Jules Simon vigorously opposed the bill introduced by M. Ferry in 1879 for the suppression of the non-authorized religious congregations. In April, 1880, the French Academy elected him a member of the new supreme educational council, and on November 11, 1882, he was elected permanent secretary of the academy of moral and political science, in the place of M. Mignet. He has brought out editions of the philosophical works of Descartes, Bossuet, Malebranche, and Antoine Arnauld; and has contributed to the *Revue des Deux Mondes*. Died June 8, 1896.

**SIMONIN, LOUIS LAURENT**, a French engineer and author, was born at Marseilles, August 22, 1830, and died in 1886. He was appointed professor of geology to the Ecole Centrale d'Architecture in 1865, and became an expert in the examination of mines. He was a frequent visitor to the United States. The professor published, in France, a number of valuable works, mostly concerning America.

**SIMPSON, EDMUND**, actor, born in England in 1784; died in New York city, July 31, 1848. He made his first appearance as "Baron Steinforth," in *The Stranger*. Coming to the United States, he joined a dramatic corps in New York city. He became, in 1810, stage manager of the Park theater, and later was joint manager and manager until 1848, when he retired in poor circumstances. The theater with which he was connected for so many years became the dramatic temple of the United States under his able management, and it was there that nearly all the noted actors of the time in this country made their appearance.

**SIMPSON, EDWARD**, born at New York city March 3, 1824, and graduated at the Annapolis Naval Academy in the class of 1846. He was present at the capture of Vera Cruz, and participated in the subsequent naval engagements of the Mexican war. He was afterward attached to the coast survey, and to the Brazil and East India squadrons; was also assistant instructor and commander of cadets at the naval academy, remaining in the latter position until 1863. In that year he commanded the *Passaic* off Charleston, and commanded at other points along the southern coast, including Mobile, where he participated in the capture of that city. After the war he was employed on various missions and in several official capacities until March 3, 1886, when he was placed on the retired list with the rank of rear-admiral. He died December 2, 1888.

**SIMPSON, JOHN PAIGRAVE**, born in Norfolk, England, early in the nineteenth century; received his education under a private tutor and at Corpus Christi College, Cambridge, where he took the degree of B.A., and proceeded M.A. in due course. A severe reverse of fortune caused him to devote his attention to literature, and for many years he contributed to *Blackwood* and *Fraser's Magazines* and *Bentley's Miscellany*. He wrote *Second Love*, and other Tales, published in 1846; and produced about sixty pieces of different kinds. He died in 1887.

**SIMPSON, MATTHEW**, was born at Cadiz, Ohio, June 21, 1810. He graduated as a physician in 1833, and in 1839 was elected president of the Indiana Asbury University (Methodist). He was elected bishop in 1852. He was an intimate friend of President Lincoln, and was a zealous supporter of the national cause during the rebellion. He died June 18, 1884.

**SIMPSON, WILLIAM**, was born at Glasgow, October 28, 1823. He began life as an architect, and then took to art. He went through the war in the Crimea as an artist, and published sketches in two volumes, entitled *Campaigns in the East*. Mr. Simpson has published other works relating to his extensive travels in the East.

**SIMS, CHARLES N.**, an American minister of the Methodist Episcopal Church, is a native of Union county, Ind., born May 18, 1835. He graduated at De Pauw University in 1859, became president of a college at Valparaiso, Ind., the year following, and afterward was the pastor of churches in the Indiana, Pennsylvania, New York, and New Jersey conferences. He was made chancellor of the University of Syracuse, N. Y., in 1880, and has served in other official capacities, besides contributing to magazines and the religious press. He was made an LL.D. by his alma mater in 1882.

**SIMS, GEORGE ROBERT**, born in London, September 2, 1847, and educated at Hanwell College, and afterward at Bonn. He first joined the staff of *Fun* on the death of Tom Hood the younger in 1874; and the *Weekly Dispatch* the same year. Taking to the dramatic field, he produced his first play, *Crutch and Toothpick*, at the Royalty theater in April, 1879; *Mother-in-*



*law*, 1881; *Member for Slocum*, 1881. These were followed by *The Lights of London*, *Romany Rye*, *In the Ranks*, and others that have become very popular in the United States.

SIMS, JAMES MARION, surgeon; born in Lancaster county, S. C., January 25, 1813; died in New York city, November 13, 1883. He was graduated at South Carolina College in 1832, and studied medicine in Charleston and Philadelphia. In 1853 Doctor Sims removed to New York city. In 1857 he visited Europe, but in 1868 returned to settle in New York city. Part of the last period of his life was spent with his family in Paris. Among his benefactions is the J. Marion Sims asylum for the poor, in Lancaster, S. C. He is chiefly famed for his surgical appliances and inventions.

SIMS, WINFIELD SCOTT, an American electrician, was born in New York city, April 6, 1844; and upon completing his education at Newark, N. J., entered the army, and served during the Civil war. He is the inventor of an electric motor, also of a device for the conduct, location, and explosion of submarine torpedoes; the latter consisting of a boat, the movements of which are governed by power generated on board an accompanying boat, or on the shore.

SIMSON, MARTIN EDWARD, a German jurist, was born at Königsberg in 1810. After studying at Bonn under Niebuhr he, in 1836, became a professor of law at Königsberg. He was elected president of the National Assembly at Frankfort in 1848.

SITTING BULL, the chief of the Sioux Indians of Dakota, was born in 1836 or thereabouts, and owes his reputation to his victory over the forces of General Custer at the battle of the Rosebud on the Little Big Horn in June, 1876; General Custer, together with his entire command, being cut off from escape and slaughtered. Sitting Bull made his escape to Canada, but surrendered in 1880, and remained on the Indian reservation until December, 1890, when he was shot by a body of Indian police who had captured him.

SKEAT, WALTER WILLIAM, M.A., born in London, November 21, 1835, was educated at King's College School; at Sir R. Cholmeley's School, Highgate; and at Christ's College, Cambridge, where he graduated B.A. in 1858, being fourteenth wrangler. Mr. Skeat, who has chiefly devoted his attention to early English literature and English etymology, has published many volumes of that character.

SKELTON, SIR JOHN, a Scottish author, born in Edinburgh, July 18, 1831. He was educated at St. Andrew's and Edinburgh. His books include *Nuga Critica*, *A Campaign at Home*, *The Impeachment of Mary Stuart*, *Essays in Romance*. Died July 20, 1897.

SKENE, PHILIP, soldier, born in England, February, 1725; died June 10, 1810. He entered the British army, came to America, and fought with the Royalists in the Revolutionary war. He received a grant of land, and by purchase made it 60,000 acres. Here he established a town, which he named Skenesborough, now Whitehall, N. Y., which was burned by the British to prevent its falling into the hands of the patriots. Skene was in London when peace was proclaimed between England and the colonies, and he at once came to America in the endeavor to recover his property. Not being successful, the British Government gave him £20,000 compensation, and a pension of £240 a year.

SKENE, WILLIAM FORBES, was born at Inverie, Kincardineshire, Scotland, June 7, 1809, and educated at the High School of Edinburgh. He then studied in Germany, and at the Universities of Edinburgh and St. Andrew's. He afterward entered the legal profession as a writer to the *Signet*. In 1881 he was ap-

pointed historiographer for Scotland in the room of the late Dr. Hill Burton. He died August 29, 1892.

SKINNER, RICHARD, a jurist of Connecticut, born at Litchfield, May 30, 1778, who, upon his admission to the bar, removed to Manchester, Vt., where he began the practice of law. He was a member of the lower house of congress in 1813-15, a justice of the Vermont Supreme Court in 1817, speaker of the Vermont Legislature during the year following, and governor of that State from 1820 to 1823. He was also connected with various associations of a scientific and benevolent character, and devoted much of his time to the advancement of educational interests. He was made an LL.D. by Middlebury College in 1817, and died at Manchester, May 23, 1833.

SKOBELEFF, MIKHAIL DIMITRYEVITCH, a Russian soldier, born in the Riazan district in 1845. He was educated in a military school in St. Petersburg. He greatly distinguished himself in 1873-76 by gallant service in the Khiva and Khokand wars, becoming a major-general. He was also conspicuous in the Turkish war in 1877. He died July 7, 1882.

SLEMMER, ADAM J., GEN., an American soldier, born in Pennsylvania in 1828; was graduated at West Point, July 1, 1850. He was engaged in services on the frontier, also as professor of mathematics at the United States Military Academy until 1860, when he was sent South, and had charge of one of the forts in Charleston harbor. Later, he was transferred to Florida, and secured possession of Fort Pickens, January 10, 1861, holding it until relieved by the United States Government. In May, 1861, he was promoted major of the 16th infantry, and later, served in the Southwestern armies. He fought at Corinth, Miss., and became brigadier-general, but was so severely wounded at Stone River as to incapacitate him from further active service. Subsequently he was promoted to be colonel by brevet of the 4th infantry, and placed in command of Fort Laramie, Kan., where he died, October 7, 1868.

SLIDELL, JOHN, born in New York city in 1793; died in London, July 29, 1871. Mr. Slidell played a somewhat prominent part in the Rebellion, acting in the interest of the Confederacy. He was graduated at Columbia in 1810, and shortly after entered mercantile life in his native city. A little later he read law, and in 1819 removed to Louisiana, where he became district attorney, a position he held until 1833. He was sent to congress, and in 1845 was appointed minister to Mexico. In 1853 he was elected United States senator, serving until February 4, 1861. Mr. Slidell was known in congress as a rabid States' rights man, and when his State withdrew from the Union, in 1861, he gave up his seat in the Senate and espoused the cause of the Confederacy. In the same year he and John Y. Mason, of Virginia, were dispatched upon a diplomatic mission to France, the object being to enlist and solicit more substantial aid in the way of a loan. The two ambassadors sailed from Havana in the British steamer *Trent*, but were seized on the open seas by Capt. Charles Wilkes, commander of the frigate *San Jacinto*, and were imprisoned in Fort Warren, Boston harbor. The British government demanded that the prisoners should be liberated, a demand which was at once complied with, and Messrs. Slidell and Mason sailed from Boston to England. Mr. Slidell went at once to Paris and had conferences with Napoleon III. Some time after this Mr. Slidell settled in England and remained there until he died.

SLOAN, SAMUEL, an American designer and builder, was born March 7, 1815, in the county of Chester, Penn., and, upon the completion of his education,

applied himself to the study of architecture. He furnished the plans for the insane asylum at Montgomery, Ala., as also for other prominent public and private edifices in other portions of the country, and was the author of standard works on architecture. He died at Raleigh, N. C., July 19, 1884.

SLOCUM, HENRY W., an American soldier, born at Delphi, Onondaga county, N. Y., September 24, 1827; was graduated at West Point in 1852, and after serving in the artillery until 1856, resigned. He afterward practiced law at Syracuse, and served one term in the legislature of New York, but upon the outbreak of the war reentered the army as colonel of the 27th New York infantry. He was wounded at the first battle of Bull Run, and in August, following, was made brigadier-general. In the Peninsula campaign he was promoted to be major-general of volunteers, and in the campaigns of the following spring commanded the twelfth army corps, with which he participated in the battles of Chancellorsville, Fredericksburg, and Gettysburg. He was conspicuous in the southwest in 1864, succeeding Gen. Joseph H. Hooker as commander of the twentieth corps, and accompanying Sherman on his march to the Carolinas in command of the left wing of the army. In 1865 he located at Brooklyn, and was defeated for the office of secretary of New York. In 1868, 1870 and 1884 he was elected to congress as a Democrat. He died April 14, 1894.

SLOPER, E. H. LINDSAY, musical composer and pianist, born in London, June 14, 1826; although not intended by his parents to become a professor, was allowed to follow the bent of his inclination. He studied diligently for years under the best instructors, and in 1871 he visited the United States and Canada, in company, at first, with a distinguished English concert party; and, when there, was also associated in a short professional tour with Miss Clara L. Kellogg. Of late years, like many of his brother professors, he chiefly devoted his time to the laborious duties of tuition. He died July 3, 1887.

SMALLEY, EUGENE V., an American journalist, born July 18, 1841, in Portage county, Ohio, and educated at the public schools of that State. He served through the war as a member of the 7th Ohio infantry, and began his journalistic career as a correspondent during his residence in Washington, where he served as a committee clerk from 1868 to 1873. He was founder of the *Northwest*, a magazine published at St. Paul, Minn., and has been a contributor to periodicals and the daily press for many years.

SMALLEY, GEORGE W., an American journalist, was born at Franklin, in the county of Suffolk, Mass., June 2, 1833; graduated at Yale college in 1853, studied law and practiced his profession at Boston until 1861. At the breaking out of the Civil war he became a correspondent of the *New York Tribune*. He served in that capacity until 1863, accompanying the Union army to North Carolina, Virginia, and Pennsylvania, and furnishing descriptions of the battles he witnessed that secured for their author a national reputation. In the latter year he was appointed to a position in the editorial department of the *Tribune*, and afterward was sent to Europe by that paper, when he established a London bureau. His principal professional work while abroad has been letters descriptive of the war between Austria and Prussia, descriptive of the Franco-Prussian war, of the death and burial of the German emperors, and of the social and political conditions existent in the countries he visited.

SMILES, SAMUEL, born at Haddington, Scotland, in 1812; was educated for the medical profession, and practiced for some time as a surgeon at Haddington;

but, abandoning medicine, he succeeded the late Mr. Robert Nicoll as editor of the *Leeds Times*. He became, in 1845, secretary of the Leeds and Thirsk railway, and after ten years (on the amalgamation of that railway with the North-Eastern), he transferred his services, at the end of 1854, to the South-Eastern railway, from which he retired in 1866. He is best known as the author of *Self Help*, and of the lives of several distinguished engineers. He edited the autobiography of Mr. James Nasmyth, 1883, and has been a constant contributor to the *Quarterly Review* and other periodicals.

SMILLIE, GEORGE H., an American artist, was born in New York city, December 29, 1840, where he studied art and executed an occasional order during his early career. He received instruction from William Cumming Smillie, his father, and others, and passed nearly the entire year 1871 in the Yosemite Valley, among the cañons of Colorado, and at other scenic points in the West, engaged in sketching and painting. During 1884 he visited Europe and continued his studies. He is an academician of the National Academy, and is a member of art societies in this country and in Europe. He excels both in oil painting and in water colors, and the products of his professional labors have been numerous and popular.

SMILLIE, JAMES, born in Edinburgh, Scotland, November 23, 1807; died in Poughkeepsie, N. Y., December 4, 1885. In 1819 he was apprenticed to a silver engraver, and later worked with an engraver of pictures. Coming to Canada, and later to New York city, he made a series of engravings from Weir's paintings for the *New York Mirror*. From 1861 until his death he devoted much of his time to bank-note engraving. In his best days Mr. Smillie was noted as a landscape engraver.

SMITH, ANDREW JACKSON, a native of Bucks county, Penn., born April 28, 1815; graduated at West Point in 1838, and at the commencement of the Civil war was a captain of infantry serving on the frontier. He was appointed colonel of the 2d California cavalry in 1861 and assigned to the department of Missouri, where he became chief of that branch of the service. In 1862 he operated in Tennessee, but after the surrender of Corinth was sent to the department of Ohio. Later he participated in the battles occurring about Vicksburg during the siege of that city, also in those of the Red River expedition. In 1864 he relieved Missouri from the presence and depredations of Price's army, joined in the pursuit of Hood's army upon its retreat from Nashville, and commanded the advance upon Mobile, being also present at the capture of that stronghold. He became colonel of the 7th regular cavalry in 1866, commanded the department of Missouri in 1867 and 1868, and in May of the year following resigned his commission.

SMITH, BENJAMIN BOSWORTH, LL.D., a bishop of the Protestant Episcopal Church in the United States, was a native of Bristol, R. I., born June 13, 1794; graduated at Brown University in 1816, and was ordained priest June 24, 1818. He at once entered upon the discharge of his ministerial duties, and during his career as rector occupied the pulpits of churches in Massachusetts, Vermont, Virginia, Pennsylvania and Kentucky. He was consecrated the first Episcopal bishop of the latter State October 31, 1832, and became the senior bishop of his church upon the death of Bishop Hopkins, January 9, 1868. In addition to his parochial and episcopal duties, Bishop Smith was at times editor of church journals, also the author of works on church discipline and religious subjects. He was made an S.T.D. by Hobart college in 1831, and an



LL.D. by Brown University in 1872, and by Griswold (Iowa) College in 1870. He died in New York city, May 31, 1884.

SMITH, BENJAMIN LEIGH, was born in England, March 12, 1828, and educated at Jesus College, Cambridge, where he graduated as a wrangler in 1852. He was called to the bar by the Inner Temple in 1856, but gave himself up to navigation. He made five voyages to the Arctic regions and has done much in the way of discoveries. He took deep-sea temperatures, which added much to the knowledge of the gulf stream, and established the fact of warm under-currents flowing beneath surface-water of a much lower temperature. His last trip was in 1881, when he started in the *Eira* for Franz Joseph Land, which he reached on July 24th, but the *Eira* was crushed in the ice on August 21st, and sank before many stores were saved. The crew built a hut of turf and stones, where they wintered, living mostly on bears and walrus. On June 21, 1882, they left in four boats, and reached Nova Zembla on August 2d. The next day they fell in with the *Willem Barents* and the *Hope*, which had been sent to their relief, and they arrived at Aberdeen on board the *Hope* on August 20th. Mr. Smith received a gold medal of the Paris Geographical Society in 1880; and a gold medal of the Royal Geographical Society in 1881.

SMITH, CALEB B., an American lawyer, born at Boston, Mass., April 16, 1808; removed, with his parents, to Ohio six years later; was educated at Miami University, admitted to the bar in 1828, and the same year began the practice of his profession at Connerville, Ind. He afterward became a member of the State legislature, and upon the expiration of his legislative career, in 1849, resumed the practice of law at Cincinnati, O. He was appointed secretary of the interior by President Lincoln, and in 1862 became judge of the United States Court for the district of Indiana. He died January 7, 1864.

SMITH, CHARLES EMORY, an American journalist, born February 18, 1842, at Mansfield, Conn., and educated at Union College. Upon his graduation, in 1861, he became connected with the Albany, N. Y., papers, and served there in an editorial capacity on the *Express*, and later on the *Journal*. In 1880 he assumed charge of the Philadelphia Press, and has continued that connection except in the interval of 1890-93, when he was United States minister to St. Petersburg.

SMITH, CHARLES FERGUSON, an American soldier; born at Philadelphia, Penn., April 24, 1807; graduated at West Point in 1825, and from 1829 to 1842 served at the academy as professor of tactics, adjutant of the post, and in command of the cadets. He participated in the campaigns of Texas prior to the Mexican war, and was conspicuous in the latter contest, being present at all the leading battles, and securing promotion from a lieutenancy to the rank of colonel by brevet at the close of hostilities. In 1855 he became lieutenant-colonel of the 10th infantry, and engaged in the expedition to the Red river and Utah. At the outbreak of the Civil war he was placed in command of the forces at Washington city, subsequently being transferred to Kentucky, where he was made colonel of the 3d infantry. He participated in the operations against Forts Henry and Donelson, and to his bravery and skillful tactics, it was said at the time, the capture of the latter stronghold was due. He died April 25, 1862, at Savannah, Tenn., whither he had been sent to prepare for a forward movement against Shiloh, having, one month previous, been made a major-general of volunteers.

SMITH, CHARLES ROACH, F.S.A., born in the Isle of Wight, England, early in the century; has written *Collectanea Antiqua*, *The Antiquities of Richborough*,

*Reculver and Lyme*, *Illustrations of Roman London*. With Mr. T. Wright he founded the British Archaeological Association, the forerunner of the numerous archaeological societies, and many of his contributions are in its *Journal*. He received the first medal of the London Numismatic Society, of which for some years he was secretary. He died August 2, 1890.

SMITH, DANIEL B., an American scientist, was born July 14, 1792, at Philadelphia, Penn., and after obtaining an education at the village school, entered upon commercial pursuits, and so continued for many years. During that period he was made professor of chemistry in Haverford College, was one of the incorporators of the Philadelphia College of Pharmacy, assisted in founding the *Journal of Pharmacy* and in the organization of the Pharmaceutical Association of the United States. He was a member of leading philosophical and scientific societies in various parts of this country and Europe, and the author of a number of works on chemistry. He died near Philadelphia, March 29, 1883.

SMITH, EDWARD KIRBY, born in St. Augustine, Fla., May 16, 1824. He was graduated at the United States Military Academy in 1845, and received the rank of brevet second lieutenant, and at once took part in the Mexican war. He went to West Point as professor of mathematics, received a captain's commission, and went to the frontier in 1855. In 1861 he was promoted to major, and when Florida seceded was appointed lieutenant-colonel of cavalry in the Confederate army. He made himself a great record during the Rebellion, reaching in 1864 the rank of full general. General Smith's most efficient service was in managing the blockade-running department in the Southwestern States. He forwarded much cotton to Europe, and received in return from France and England munitions of war and material for clothing. He established furnaces and factories, and when the war closed his department was more than self-supporting. General Smith did some excellent work in the field, and won some notable battles. He was president of the Atlantic and Pacific Telegraph Company, 1866-68, chancellor of the University of Nashville, 1870-75, and professor of mathematics in the University of the South at Sewanee, Tenn. from 1875 until his death, March 28, 1893.

SMITH, FRANCIS HOPKINSON, born in Baltimore, Md., October 23, 1838, a successful civil engineer, artist and author, produced admirable water color paintings, and wrote and illustrated *A White Umbrella in Mexico*, *American Illustrators*, *Colonel Carter of Cartersville*, and other works.

SMITH, GEORGE, financier, born in Aberdeenshire, Scotland, March 8, 1808; founded the Firemen's Marine and Fire Insurance Company at Milwaukee in 1837, and in 1839 established the first bank in Chicago. He has lived in London since 1861.

SMITH, GEORGE, an American educator and writer, was born in Delaware county, Penn., February 12, 1804; matriculated at the Pennsylvania University. He devoted his attention to the study of medicine at that institution, graduated in 1826, and at once commenced the practice of his profession. He served as State senator and judge of the Common Pleas Court, in his native county, for nearly thirty years, giving special consideration meanwhile to scientific and educational interests, and being also the founder of an institute of science in Delaware county. He was a contributor to the press of articles on geology and other scientific subjects, also the author of several works of an historical character. He died March 10, 1882.

SMITH, GEORGE BARNETT, F.R.G.S., was born at Owendon, near Halifax, Yorkshire, England, May 17,

1841, and educated at the British Lancasterian School, Halifax. At a very early age he began to write poems and sketches, and to contribute to the local press. In March, 1864, he went to London for the purpose of pursuing a journalistic and literary career. His first published work was a volume of poems, followed by *Poets and Novelists*, a series of literary studies, and *Shelley: a Critical Biography*. In 1879 was published his *Life of Mr. Gladstone*, a work which has attained great popularity. Two years afterward appeared the companion work, *The Life of Mr. Bright*, which was also very favorably received. His *Half-Hours with Famous Ambassadors* appeared in 1883.

SMITH, GEORGE VANCE, B.A., Philos. and Theol. Doct., was educated for the Nonconformist ministry, and is principal of the Presbyterian College, Carmarthen, Wales. He is the author of various works, including *The Prophecies relating to Nineveh and the Assyrians* from the Hebrew. He was a member of the company for the revision of the New Testament from the formation of the company, in May, 1870, till the conclusion of the work.

SMITH, GEORGE W., an American divine, was born at Catskill, N.Y., November 21, 1836; graduated at Hobart College in 1857, and was ordained a priest of the Protestant Episcopal Church in 1864. He accepted the rectorship of various churches in Washington, D.C., afterward serving as assistant mathematical professor at the United States Academy, Annapolis, Md., and as chaplain in the navy; also as rector of the Church of the Redeemer, Brooklyn, N.Y., until 1883, when he was elected president of Trinity College, from which he received the degree of LL.D. the same year, having previously been made a D.D. by Hobart, in 1880, and subsequently by Columbia College.

SMITH, GERRET, philanthropist, born in Utica, N. Y., March 6, 1797; died in New York city, December 28, 1874. His father left him a vast estate, consisting of over a million acres of land in northern New York. He graduated at Madison College in 1818, and then gave himself up entirely to the management of his property. Being of a philanthropic turn of mind, he, in 1825, joined the American Colonization Society, and gave away many of his acres to colored people. His interest and sympathy being more particularly with the negro, he dropped the colonization society and identified himself with the Anti-Slavery Society, and later he gave to actual settlers of any race or color. In 1852 he was elected to congress, and some years after he became interested in the free soil settlers in Kansas, and it is claimed that in 1859 he gave strong encouragement to John Brown, the noted abolitionist, in his raids in Virginia. During the war Mr. Smith equipped a colored regiment, and when peace was declared was one, with Horace Greeley and Cornelius Vanderbilt, to sign Jefferson Davis' bail bond. Mr. Smith left by will a fortune of about a million dollars, having given away in his life time about eight times as much.

SMITH, GOLDWIN, LL.D., M.A., historian, was born at Reading, Berkshire, August 13, 1823, and educated at Eton and Oxford. He gained, in 1842, the Hertford Scholarship, and in 1845 the scholarship founded by Dean Ireland. In the latter year he graduated B.A. as first class in classics, and subsequently he proceeded to the degree of M.A. In 1858 he was appointed to the regius professorship of modern history at Oxford, and he held this chair till 1866. His tenure of the chair was marked by the delivery of a large number of brilliant public lectures. Professor Goldwin Smith was a prominent champion of the American Federal government during the Civil war. In 1864 he visited the United States on a lecturing tour. He met

with an enthusiastic reception, and Brown University conferred upon him the honorary degree of LL.D. On his return he published *England and America*, 1865, and *The Civil War in America*. In November, 1868, having resigned his chair at Oxford, he settled as professor of English and constitutional history in the Cornell University at Ithaca, N. Y. In 1871 he removed to Toronto, Canada, and edited the *Canadian Monthly*. During his occasional visits to England, Mr. Goldwin Smith has written much in the English reviews, and during the home rule controversy of 1886, his voice was raised on the platform and in the press, in the strongest opposition to Mr. Gladstone's proposals.

SMITH, GREEN CLAY, an American soldier, divine, and presidential candidate, was born July 2, 1832, at Richmond, Ky.; graduated at Transylvania University in 1850, from the law school at Lexington three years later, and at once entered upon the practice of his profession. In 1860 he was elected to the legislature from Covington, Ky., and in 1861 enlisted as a private in the Union army. He was promoted from the ranks to a brigadier-general, but resigned his commission, December 1, 1863, to take his seat as a member of congress, to which position he had been elected while serving in the army of the Tennessee. He was reelected in 1865, but resigned the year following to accept the appointment of governor of Montana, tendered him by President Johnson. In 1869 he was ordained a Baptist minister, and has since occupied the pulpits of various charges in Kentucky. In 1876 the Prohibitionists made him the candidate of their party for president of the United States. Died June, 1895.

SMITH, GUSTAVUS W., born in Scott county, Ky., January 1, 1822, and upon graduating at West Point with the class of 1842, was assigned to the engineer department. He was afterward assistant professor of engineering at West Point, and served in the Mexican war, but resigned his commission of captain in 1853. From that date he was in the employ of the Cooper & Hewitt iron works, New York; street commissioner of New York city, and otherwise engaged until 1861, when he became a major-general in the Confederate army. He served in the army of Northern Virginia, being temporarily in command in May, 1862, subsequently at Richmond and in Georgia. He was taken prisoner during 1865, and after the war, was in charge of the Chattanooga (Tenn.) iron works. Since then he has held the office of commissioner of insurance in Kentucky and latterly resided in New York. Died June, 1896.

SMITH, HOKE, born in Newton, North Carolina, September 2, 1855; was admitted to the bar at Atlanta, Ga., 1873, and at once began practice in that city, achieving a good reputation as a lawyer; established the *Atlanta Journal* in 1887, consistently supporting President Cleveland and the low tariff policy, and was appointed Secretary of the Interior, in President Cleveland's second cabinet, taking office March 7, 1893.

SMITH, JAMES, an American patriot and signer of the Declaration of Independence, was born in Ireland, but emigrated to America with his parents and settled in Pennsylvania during 1729. He was admitted to the bar, and practiced law for many years, but upon the call for volunteers against Great Britain in 1774, he enlisted the first company raised in Pennsylvania. He was one of the delegates to the convention called for June 18, 1776, and proclaimed himself in favor of declaring the colonies independent of the mother country. He participated in the deliberations of the Pennsylvania constitutional convention of July 15, 1776, and five days later he was elected a representative in the Continental congress, where he served until 1778, going the next year to the legislature of Pennsylvania



as a representative, and in 1784 he was elected to congress. He died at York, Penn., July 11, 1806.

SMITH, JOHN LAWRENCE, an American chemist, born near Charleston, S. C., December 16, 1818, and died in 1884. He was educated at Charleston College, at the University of Virginia, in the South Carolina College, and in Europe in 1841-44. Returning home from abroad he practiced medicine, but gave a good deal of attention to chemistry. In 1846-50 he was in Asiatic Turkey as cotton and mining expert, and later held professorships in several universities.

SMITH, JONATHAN B., a soldier of the Revolution and member of the Continental congress, was born at Philadelphia, February 21, 1742; graduated at Princeton in 1760, and was among the first citizens of the State to protest against the encroachments of Great Britain. He was elected to congress in 1777, and served as a delegate during that year and 1778. He held various civil and judicial offices during the war, and subsequent thereto was elected auditor of Pennsylvania. He was one of the organizers of the University of Pennsylvania, of which he was trustee, and for many years a member of the Philosophical Society of America. He died in Philadelphia, June 16, 1812.

SMITH, JOSEPH, Mormon leader, born in Sharon, Vt., December 23, 1805; died in Carthage, Ill., June 27, 1844. His parents were poor, and when he was sixteen years of age, in the midst of a revival, four of his family united with the Presbyterian Church. In 1823 Joseph pretended to have had visions and interviews with angels, by whom the book of Mormon was revealed to him. This volume was eventually published at Palmyra, N. Y., in 1830. A Mormon church was established on April 6th of that year in Fayette, N. Y. The membership rapidly increased, and Ohio was at first declared to be the promised land of the new denomination. The first Mormon temple was erected at Kirtland, Ohio, and dedicated on March 27, 1836. In 1837-38 difficulties arose among the members occasioned by financial troubles and unbelief, so that many members left the denomination; and on January 13, 1838, Smith fled from his creditors to Far West, Mo., followed by his converts. Hardly had they entered Missouri before the citizens rose against them, and the strife threatened to assume the character of internal warfare. The Mormons then wandered to Illinois, where their coming occasioned trouble, and their leaders were frequently arrested. Here they began the settlement of Nauvoo and a city charter was obtained, signed by the governor of the State on December 16, 1840. Subsequently Smith was chosen mayor and sole trustee of the Mormon Church, with unlimited powers; a military organization of 1,500 men was formed, called the "Nauvoo Legion," and Smith was appointed lieutenant-general. Missionaries sent to England brought large accessions of members, and the erection of a new temple attracted others. In 1843 several high-handed measures were carried by Smith and his immediate advisors, causing a serious split in the denomination. In 1844 the apostates established a newspaper in Nauvoo for the purpose of denouncing Smith, and making war upon the auxiliary leaders of his people. The sheet, called the *Nauvoo Exposition*, began and ended with a single number reflecting on the immorality of the "spiritual wife" system, then newly introduced. On one side the opposition was then summarily driven out of the city by the Mormon leaders, and the newspaper property destroyed; on the other a warrant was issued for the arrest of Joseph and his brother Hyram, and both were sent to jail. For their protection the governor had a guard placed over the building. On the evening of June 27, 1844, a party of 100 armed men,

with blackened faces, rushed into the jail and shot the two brothers.

SMITH, JOSHUA HETT, lawyer, born in New York city in 1736; died there in 1818. He was a younger brother of William Smith, the historian. Smith's claim to notoriety is based entirely upon his connection with the treason of Benedict Arnold. It was at Smith's house that the traitor and Major André met to arrange plans, and when André was ready to return to the *Vulture*, Smith, who was to have taken him, for some reason refused to do so. Smith was arrested for his supposed connection with the plot, but after an imprisonment for several months made his escape, in disguise, to New York city, where he was protected by the royalists. He went to England after the war, but later came back to the United States.

SMITH, MELANCTHON, an American naval officer, a native of New York city, born May 24, 1810, and was graduated at the New York naval academy April 28, 1832. From that date until the commencement of the Civil war his duties were principally of a routine character. In July, 1861, he silenced the guns of the fort on Ship Island, and in December of the same year compelled the surrender of the fort at Biloxi or the Gulf. He was with Farragut at Forts Jackson and Phillip, and on his way up the Mississippi encountered and sunk the confederate iron-clad *Manassas* below the city of New Orleans in 1862. He participated in the assault upon Fort Hudson, in the attacks upon Fort Fisher, N. C., and afterward served on James river, and in command of the fleet operating in Albemarle Sound. After the war he was chief of the naval recruiting service, commanded at the New York navy yard, and was retired May 24, 1871, with the rank of rear admiral. He died July 19, 1893.

SMITH, ROBERT ANGUS, F.R.S., born near Glasgow, Scotland, February 15, 1817; was educated at Glasgow, and studied chemistry at Giessen, under Liebig, from 1839 till 1841. Assisting Dr. Playfair, he labored on the sanitary condition of towns in Lancashire, and, while practicing as a professional chemist, wrote numerous papers relating to the condition of the air. His report to the British Association, in 1848, on the air and water of towns, gave a great impulse to the question of sanitation and a paper on the air of towns in the *Chemical Society's Journal* of 1858 first produced data establishing the difference of the town and country air wherever found. Having been appointed by the royal mines commission to inquire into the state of the atmosphere in the metalliferous mines, he drew up a very valuable report, which contains analyses of the air of mines and the variations from pure air. In 1882 he published the first report under the Rivers Pollution Prevention Act, containing investigations on water and drainage, and later he wrote a volume on *Science in Early Manchester*. He died May 12, 1884.

SMITH, ROBERT PAYNE, D.D., dean of Canterbury, born in Gloucestershire, England, in November, 1818; was educated at Pembroke College, Oxford, of which he was scholar, and where he graduated in 1841. He is known as a profound Hebraist and an excellent Arabic scholar, and his *Messianic Interpretation of the Prophecies of Isaiah*, published in 1862, affords proof of his erudition. He was a member of the Old Testament revision committee. In January, 1871, Dr. Smith was raised to the deanery of Canterbury, made vacant by the death of Dr. H. Halford. Died March, 1895.

SMITH, RICHARD, an American journalist, a native of Ireland; born June 30, 1823. Accompanied by his widowed mother, he emigrated to the United States in 1840, and one year later settled at Cincinnati, Ohio. In



1844 he obtained a position on the *Cincinnati Price Current*, and became agent for the Associated Press, continuing to discharge the duties incident to both positions until 1854, when he secured an interest in the *Cincinnati Gazette*, and thereafter directed the policy of that paper until the organization of the *Commercial Gazette* company in 1880, when the interests of the *Cincinnati Commercial* were consolidated with those of the *Gazette* under the above corporate title. He is vice-president and member of the directory of the company, and exerts a powerful influence professionally and politically in Ohio.

SMITH, SEBA, an American journalist, born at Buckfield, Me., September 14, 1792; graduated at Bowdoin College in 1818, and located at Portland. He was the editor of a number of papers published in his native State, but is best known to the reading public as the author of a collection of sketches issued during the administration of President Andrew Jackson under the pseudonym, "Major Jack Downing." He died at Patchoque, L. I., July 29, 1868.

SMITH, SIR ALBERT JAMES, a Canadian jurist, was born in New Brunswick in 1824, where he was also admitted to the bar and practiced law. Subsequently he became a member of the assembly of that country, serving from 1852 until the province was made part of Canada in 1867, when he was chosen to the Dominion parliament and reelected in 1872 and 1878. In 1873 he was tendered the lieutenant-governorship of New Brunswick, but declined the honor, and was appointed minister of marine and fisheries. In 1877 he was before the fisheries commission which convened at Halifax as the Dominion representative, and in 1878 was made a knight commander of the order of St. George.

SMITH, SIR DAVID, a jurist and statesman of Canada, was born in England September 4, 1764, but emigrated to the dominion of Canada, where he studied law, and was admitted to the bar. He was afterward a member of parliament, and otherwise identified with the administration of the government. In recognition of his services he was knighted, August 30, 1821. He died in the county of Northumberland, England, May 9, 1837.

SMITH, SIR DONALD ALEXANDER, was born in Scotland about 1820, and at an early age settled in Canada as an employé of the Hudson Bay Company. He has been a conspicuous figure in Canadian politics for years, having served in the legislature of Manitoba, also in the dominion parliament almost continuously from 1871 to 1887. To his efforts also is due in a large measure the completion of the Canadian Pacific road, for which he was knighted in 1886. He is a member of many scientific and art organizations, and the Montreal scholarship in the College of Music, London, was established through his liberality.

SMITH, THOMAS, a clergyman of the colonial period, was born at Boston, Mass., March 10, 1702; graduated at Harvard University in 1720, and was pastor of the first church at Portland, Me., for a continuous period of sixty-nine years. He died in that city May 25, 1795.

SMITH, THOMAS KILBY, born at Boston, Mass., September 23, 1820; graduated at the College of Cincinnati in 1837, and was admitted to the bar in 1845. He held various public offices until the breaking out of the Civil war, when he entered the Union army as lieutenant-colonel of the 54th regiment of Ohio volunteers. He was present at the battle of Pittsburgh Landing, at Corinth, before Vicksburg, and with Banks on his Red River campaign. Afterward he participated in the campaigns in Tennessee and Alabama. He re-

signed July 1, 1864, on account of ill-health, and after the war was appointed American consul at Panama. He was promoted through various grades to be major-general of volunteers, and died in New York city, December 14, 1887.

SMITH, SIR WILLIAM, LL.D., D.C.L., classical examiner in the University of London, born in London, in 1813; received his education at that university, where he gained the first prizes in the Latin and Greek classes; was intended for the bar, but abandoned the profession of the law for the study of classical literature. In 1850 Doctor Smith began the publication of his *School Dictionaries*, and of his more voluminous publications, consisting of *A Classical Dictionary of Mythology, Biography, and Geography*; *A Smaller Classical Dictionary*, abridged from the preceding work; *A Smaller Dictionary of Antiquities* and many other works. He was classical examiner at the University of London, 1853-69, was editor of the *Quarterly Review* from 1867 until his death, and was knighted in 1892. He died October 7, 1893.

SMITH, WILLIAM, a patriot of the Revolutionary war, a member of the Continental congress, auditor of the treasury in 1791, and a presidential elector at the second election of George Washington, was born at Baltimore about 1730, and died in that city March 27, 1814.

SMITH, WILLIAM, an American politician, was born in the county of King George, Va., September 6, 1796; and upon his admission to the bar opened an office in Culpeper county, where he also devoted his attention largely to politics. He was elected to the State Senate in 1830, to congress in 1840, and in 1845 the legislature chose him to be governor of the State. He visited the Pacific coast in 1850, but returned to Virginia after a year's absence, and served in congress from 1853 to 1861. He entered the Confederate army at the breaking out of the Civil war, and was wounded during the campaign that succeeded the battle of Malvern Hills. In 1863 he was elected governor of the State, and remained such until the surrender at Appomattox. He was known as "Extra Billy" Smith, because of the extra charges he made for carrying the United States mails. His death occurred at Warrenton, Va., May 18, 1887.

SMITH, WILLIAM, jurist, born in New York city, June 25, 1728; died in Quebec, Canada, November 3, 1793. After graduating at Yale he practiced law, and in 1763 was appointed chief justice of the province of New York. During the Revolution he claimed to be entirely neutral, but was put on parole at Livingston Manor on the Hudson. He went to England with the British troops. From 1786 until he died, at Quebec, he was chief justice of Canada.

SMITH, WILLIAM HENRY, M.P., was born in London, June 24, 1825. He was educated at the grammar school, Tavistock. He was financial secretary of the treasury from February, 1874, till August 8, 1877, when he was appointed first lord of the admiralty, in succession to the late Mr. Ward Hunt. On the resignation of Sir Wm. Hart Dyke in January, 1886, Mr. W. H. Smith was appointed chief secretary for Ireland, but the Salisbury government fell immediately afterward, and he only held the appointment for six days. In Lord Salisbury's second administration he was appointed Secretary of State for war. When the ministry was reconstructed on the resignation of Lord R. Churchill, Mr. Smith became first lord of the treasury and leader of the House of Commons. Mr. Smith was a member of the first and second school boards for London, his retirement in 1874 being occasioned by the pressure of official duties. He died October 6, 1891.



**SMITH, WILLIAM ROBERTSON, M.A., LL.D.**, was born at Keig, Aberdeenshire, Scotland, November 8, 1846, and educated privately, and then at Aberdeen University, the New College, Edinburgh, and the universities of Bonn and Göttingen. He was appointed professor of Hebrew in the Free Church College, Aberdeen, in 1870, and was removed from this office by an extraordinary act of the general assembly in 1881, on account of his critical views as to the Old Testament published in the *Encyclopædia Britannica* and elsewhere. Since then he was associated with Professor Baynes in editing the *Encyclopædia Britannica*. In February, 1886, he was appointed librarian at Cambridge. He published *Lectures on the Religion of the Semites* and other works, and died March 31, 1894.

**SMITHSON, JAMES**, philanthropist, born in England about 1754; died in Genoa, Italy, June 27, 1829. He was a natural son of the duke of Northumberland. For a time he bore the name of James Lewis Macie, but in 1791 changed it to James Smithson. In 1786 he was graduated at Oxford. He spent much time in traveling on the European continent, engaged in scientific observations, carrying with him a portable laboratory, and formed a large collection of gems and minerals. Mr. Smithson was a member of the Royal Society of England, and of the French Institute. He bequeathed his property, about £120,000, to a nephew, on the condition that, should the latter die without heirs, the estate be "left to the United States, for the purpose of founding an institution at Washington to be called the Smithsonian Institution, for the increase and diffusion of knowledge among men." The nephew died in 1835 without heirs, and the property came into possession of the United States Government, amounting to \$508,318.46. In 1846 this institution was founded.

**SMYBERT, JOHN**, painter, born in Edinburgh, Scotland, about 1684; died in Boston, Mass., in 1751. He studied the elements of his art in his native place, and extended his studies in London. Bishop Berkeley engaged Smybert to accompany him to North America, in 1729. He went to Boston, Mass., in 1730, was married, and established himself as a portrait painter. His works were held in esteem by W. Allston and others.

**SMYTH, EGBERT COFFIN, D.D.**, a noted divine, born at Brunswick, Me., August 29, 1829. Graduating at Bowdoin College in 1848, he studied divinity, and in 1863 was called to the chair of ecclesiastical history in Andover Seminary. Doctor Smyth has been a large contributor to current literature.

**SMYTH, NEWMAN, D.D.**, an American divine, was born in Brunswick, Me., June 25, 1843. His full name is Samuel Phillips Newman Smyth, and he is a brother of Egbert Coffin Smyth. After graduating at Bowdoin College, he entered the Congregational ministry, but he was rejected on suspicion of doctrinal unsoundness when proposed for a professorship in Andover Seminary. He was soon after called to a pastorate in New Haven.

**SMYTH, PIAZZI**, a British astronomer, was born at Naples, January 3, 1819. He held some high positions in various universities, and in 1845 was made royal astronomer for Scotland. Professor Smyth's literary works are well known.

**SNELLING, JOSIAH**, a distinguished soldier of the early days of the Republic, was born at Boston, Mass., in 1782, and was member of a company of soldiers while yet a boy. He participated in the wars with the Indians at the West, also in the war of 1812, and was present in the leading battles that occurred from Tippecanoe to the surrender of Detroit, where he was captured and taken to Montreal. Meanwhile, he had been

promoted inspector-general with the rank of lieutenant-colonel, and later colonel of the 5th infantry. In 1819 he was ordered to take charge of operations in the Northwest, and in 1824 completed Fort St. Anthony on the Mississippi river, between the present cities of St. Paul and Minneapolis, the name of which was afterward changed to Fort Snelling. He was the author of works on the campaigns of the Northwest, and died in Washington, D. C., August 20, 1829.

**SORBY, HENRY CLIFTON, LL.D., F.R.S.**, was born at Woodbourne, near Sheffield, England, May 10, 1826, and educated at the Sheffield Collegiate School. He is the author of many papers on the microscopical structure of rocks, on the construction and use of the microspectroscope in studying animal and vegetable coloring matter, on a new method of studying the optical characters of minerals, on the physical geography of former geological periods, and on various other subjects connected with geology and the use of the microscope.

**SOTHERN, EDWARD ASKEW**, English actor, was born in Liverpool, April 1, 1830, and he died in London, January 20, 1881. His relatives intended him to enter the church, but in 1851 he came to the United States and made his appearance on the stage. He played "Dr. Pangloss" in Boston, but was not well received. He became a member of a company in New York, and after several years achieved a great success as "Lord Dundreary" in *Our American Cousin*. Later he played several rôles with success, none of which ever eclipsed his first.

**SOULE, PIERRE**, statesman and soldier; born in Castillon, France, in September, 1802; died in New Orleans, March 26, 1870. He was first taught at the Jesuit College in Toulouse, but later went to Bordeaux. While editing a paper in Paris he attacked the ministry of Charles X., and was compelled to leave France. He first went to Hayti, and from there, in September, 1826, to Baltimore, and a little later to New Orleans. He was desirous of studying the English language, and he did so diligently in his spare hours. When he had sufficiently mastered that he began studying law, and was soon admitted to practice. In 1847 he was appointed to fill a vacancy in the United States Senate, and was afterward elected for a full term. In 1853 he was sent as minister to Spain, and while there engaged in a duel with the Marquis de Tourgot, and crippled him for life. In June, 1855, he resigned and returned to New Orleans. He remained in New Orleans until the city fell, in 1862, when he became a prisoner in Fort Lafayette, in New York harbor. On his release he went to Nassau, West Indies, but later joined the staff of General Beauregard and went to Richmond, where, in 1863, he was made a brigadier-general, and was commissioned to raise a foreign legion. He failed to do so, however, and then went to Havana, where he remained until the close of the war. Then, returning to his home in New Orleans, he resumed the practice of law.

**SOULOUQUE, FAUSTIN**, emperor of Hayti, born about 1785. He was a full-blooded negro, and was originally a slave, but by courage, energy, and good luck, reached the highest position. He entered the army and became a general. He was elected president in 1847, but being ambitious, usurped the title of emperor in 1849. As might be expected, his reign was cruel and tyrannical, and he was deposed in 1859, and retired to France, where he died in 1867.

**SOWER, CHRISTOPHER**, born near Maubourg, Germany, in 1693; died in Germantown, Penn., September 25, 1758. Sower came to the United States in 1724, and settled in Lancaster county, Penn., but in 1737 moved to Germantown. He published a German al



manac, which was continued annually by himself and descendants until 1798. He started a paper, and printed a German edition of the Bible. He established a type foundry, compounded a printer's ink, made paper and bound books. He introduced cast-iron stoves into use, and made the old-fashioned eight-day clocks. He amassed quite a fortune, and though he remained strictly neutral during the Revolution, he was arrested as a spy and his estate confiscated.

SPALDING, JOHN FRANKLIN, bishop of the Protestant Episcopal Church, was born August 25, 1828, at Belgrade, Me., and graduated at Bowdoin College in 1853. He afterward pursued a course of theological study at the General Theological Seminary, New York, and was ordained priest July 14, 1858. He was rector of churches in Massachusetts, Rhode Island, and Pennsylvania until 1873, when he was consecrated missionary bishop of Colorado and Wyoming. He was made a D.D. by Trinity College in 1874, and is the author of a number of religious works.

SPALDING, JOHN LANCASTER, D.D., an American bishop, was born at Lebanon, Ky., June 2, 1840. He was liberally educated, and graduated in 1859. In 1877, having become a Catholic priest, he was consecrated bishop of Peoria, Ill., being the first to bear that title. He wrote *Religious Mission of the Irish People*, and many other works.

SPARKS, JARED, historian and biographical writer, born in Willington, Conn., May 10, 1789; died in Cambridge, Mass., March 14, 1866. He graduated from Harvard, studied theology, and was ordained minister of the First Unitarian Church of Baltimore. He was one of the editors of the *North American Review*, and, after some years of travel in Europe, he became proprietor and editor of the *Magazine*. He turned his attention to biography and history. In 1849 he was president of Harvard University, but resigned in 1853. According to some, Professor Sparks' histories are hardly reliable.

SPEED, JAMES, an American jurist, was born March 11, 1812, in Kentucky; graduated at St. Joseph's College, Bardstown, and at Transylvania University, Lexington, and located at Louisville, in the practice of law. He was elected to the legislature in 1847, and in 1849 was the candidate of the anti-slavery party for the constitutional convention, but was defeated. In 1861 he was a member of the faculty of the law department in the Louisville University, and during the Civil war was active in his efforts to prevent the secession of Kentucky. He served in the State Senate from 1861 until 1863, and in addition to the faithful performance of his public duties, was mustering officer for volunteers. He was appointed attorney-general of the United States in 1864, but resigned in 1866, owing to his disagreement with President Johnson in respect to the latter's policy, and died in Jefferson county, Ky., June 25, 1887.

SPENCE, DONALD MAURICE, M.A., dean of Gloucester, born in London in 1836, was educated at Westminster School and at Corpus Christi College, Cambridge (B.A., 1864; M.A., 1866). In 1877 he was presented to the vicarage of St. Pancras, London, void by the promotion of Dr. Anthony Wilson Thorold to the see of Rochester. Mr. Spence was in the same year appointed rural dean of St. Pancras. He has contributed many papers to the *Bible Educator*; is joint author with Dean Howson of a *Commentary on the Acts of the Apostles* (Anglo-American commentary); and is one of the commentators of the New Testament, and also of the Old Testament, edited by the bishop of Gloucester and Bristol.

SPENCER, HERBERT, was born at Derby, England,

in 1820. At the age of seventeen he became a civil engineer, but after about eight years abandoned the profession, having during this period contributed various papers to the *Civil Engineers and Architects' Journal*. His first productions in general literature were in the shape of a series of letters on *The Proper Sphere of Government*, published in the *Nonconformist* newspaper in 1842, which were reprinted in pamphlet form. From 1848 to 1853 he was engaged as sub-editor of the *Economist*, and during this time published his first considerable work, *Social Statics; or, the Conditions essential to Human Happiness specified, and the first of them developed*, 1851. In 1855 appeared his *Principles of Psychology*, which interpreted the phenomena of mind on the general principle of evolution (this was four years before the *Origin of Species* appeared). A breakdown in health followed, which prevented work for eighteen months. In 1857, 1858, and 1859, he was occupied in writing various essays for the quarterly reviews, etc. In 1860 Mr. Spencer issued the programme of his *System of Synthetic Philosophy*, which proposed to carry out in its application to all orders of phenomena the general law of evolution set forth in two essays published in 1857. To the execution of this project his subsequent life has been mainly devoted. Mr. Spencer's works have been extensively translated. All are rendered into French, nearly all into German and Russian, many into Italian and Spanish; and his work on education has appeared also in Hungarian, Bohemian, Polish, Dutch, Danish, Swedish, Greek, Japanese, and Chinese.

SPENCER JOHN CANFIELD, lawyer and statesman, born at Hudson, N. Y., in 1788, and died in Albany in May, 1855. He practiced law and in 1816 was sent to congress, later becoming a senator from New York State. He was secretary of war from 1841 to 1843, and was appointed secretary of the treasury in the latter year. He was thoroughly opposed to the annexation of Texas and resigned his office.

SPENCER (EARL), JOHN POYNTZ SPENCER, K.G., born in England in 1835; received his education at Harrow school and at Trinity College, Cambridge, where he graduated in 1857. In December, 1868, he was appointed lord lieutenant of Ireland. He retained that office till the resignation of the Gladstone ministry in February, 1874. On the return of the Liberals to office in May, 1880, he was appointed lord president of the council. He was nominated lord lieutenant of Ireland on the resignation of Earl Cowper, May 4, 1882, retaining his seat in the cabinet. He arrived in Dublin Castle on May 6th, on the evening of which day Lord Frederick Cavendish, the newly appointed chief secretary, and Mr. Thomas A. Burke, the under-secretary, were stabbed to death by assassins in the Phoenix Park, close to the castle. After this it fell to Lord Spencer to administer the provisions of the Crimes Act. The University of Dublin conferred on Lord Spencer the honorary degree of LL.D., June 30, 1883.

SPIELHAGEN, FRIEDRICH, a German novelist, was born at Magdeburg, February 20, 1820. At an early age he accompanied his father to Stralsund, and on this journey the sea made a lasting impression on the susceptible mind of the future novelist, who has in most of his works described life and incidents at sea with remarkable force and vividness. Since the year 1854 he has brought out, with ever-increasing success, a series of novels, which have gained for him a foremost place among German writers of fiction.

SPINNER, FRANCIS E., an American politician, was born in Herkimer county, New York, in 1802. He was elected to congress for the seventeenth district of New York, and served from 1855 to 1861. He was then appointed treasurer of the United States. His



peculiar signature on paper money made his name a well-known one. He died December 31, 1890.

SPINOLA, FRANCIS B., was born near Stony Brook, L. I., March 19, 1821, educated in Dutchess county, and was in business in New York thereafter. He was a delegate to the Charleston convention in 1860. In 1862 he raised a brigade and served through the war, resigning in 1865 with rank of brigadier-general. He was elected to congress from New York city in 1886, 1888 and 1890, and died April 13, 1891.

SPOFFORD, HARRIET PRESCOTT, author, born in Calais, Me., April 3, 1835. For many years she was a resident of Newburyport, Mass. She began writing for several story papers of Boston, and since 1859 contributed to the *Atlantic Monthly*, and other leading periodicals. In 1865 she was married to R. S. Spofford, a lawyer of Boston. She died in 1895.

SPOFFORD, HENRY MARTYN, was a native of Gilmartin, N. H., born September 8, 1821. He was educated at Amherst, afterward removing to Louisiana, where he was admitted to the bar and began the practice of law. He was elevated to the supreme bench of the State in 1854, and four years later removed to New Orleans. In 1877 Judge Spofford was elected to the United States Senate by one of two contending legislatures, but was refused admission. He died at Red Sulphur Springs, Va., August 20, 1880.

SPOTSWOOD, ALEXANDER, governor of Virginia, born in Tangier, Morocco, in 1676; died in Annapolis, Md., June 7, 1740. In early manhood he served in the European wars under the duke of Marlborough. He was appointed governor of Virginia, where he arrived in June, 1710. He had some difficulties with the colonists, but in the main governed to their satisfaction. He took much interest in William and Mary College, and introduced numerous reforms. In 1722 Spotswood was removed from his post, and from 1730 to 1739 was postmaster-general of the colony.

SPRAGUE, CHARLES, poet, born in Boston, Mass., October 26, 1791; died there, January 22, 1875. His first poem was a prologue on the occasion of the opening of the Park theater in New York. In 1829 he delivered before the Phi Beta Kappa society, of Harvard, his poem on *Curiosity*. Several collections of his works have been published in New York city and in Boston, Mass.

SPRINGER, WILLIAM M., an American lawyer and statesman, was born May 30, 1836, at New Lebanon, Sullivan county, Ind.; graduated at the University of Indiana in 1858, was admitted to the bar one year later, and began the practice of his profession at Springfield, Ill. He was a member of the Illinois constitutional convention of 1862, and of the State legislature in 1871, and served continuously as a Democrat in congress from his first election in 1875 to 1895. During his official career there he has served on the leading committees, notably on that reporting the electoral commission bill, and on the committee which investigated the presidential election of 1876. He was also the author of the resolution adopted by the House in 1875, declaring against a third term in the presidential office, and of the bills which provided for the organization of State governments in Dakota, Montana, Washington, and New Mexico. He took an active part in tariff discussions, and was chairman of the Committee on Appropriations, 1893-95. Defeated for reelection in 1894, he was appointed Federal Judge of Oklahoma by President Cleveland in March, 1895.

SPULLER, EUGÈNE, a French politician, born at Seurre (Côte d'Or), December 8, 1835; studied at the Lyceum and the faculty of laws at Dijon, and became a member of the Paris bar in 1862. After having been

employed in several political cases, he abandoned the legal profession in order to engage in active political life and journalism. Having formed a friendship with M. Gambetta, he became, in 1868, one of the founders of the *Revue Politique*. He was also one of the contributors to the *Encyclopédie Générale*. After the revolution of September 4, 1870, he was M. Gambetta's confidential friend and secretary, and in November, 1871, he became the principal editor of *La République Française*. On February 6, 1880, he was elected president of the advanced left deputies, and he was elected vice-president of the chamber in 1890. Died July, 1896.

SPURGEON, CHARLES HADDON, a noted English preacher, born at Kelvedon, Essex, June 19, 1834. He was educated at Colchester, Maidstone, and elsewhere, and became usher in a school at Newmarket. Against the opposition of many of his relatives, who were Independents, Spurgeon adopted Baptist views, and became very active in religious work. He preached his first sermon when only sixteen years of age, at Teversham, near Cambridge, and a little later preached at Waterbeach by invitation, becoming pastor of the chapel there. This edifice soon failed to hold the crowds that came there to hear the now well-known speaker. Invitations came to Mr. Spurgeon from London, and he finally accepted the pastorate of the New Park street chapel, addressing his first congregation there in 1853. The chapel was soon found to be too small, and it was enlarged. The first enlargement, however, proved insufficient, and its size was again increased, and finally it became necessary to build the Metropolitan Tabernacle, which was opened in 1861. Mr. Spurgeon's sermons were published weekly from 1855 until his death and were translated in various foreign languages. He also wrote *The Treasury of David*, *Salt Cellars*, two volumes of proverbs, and other works, edited *The Sword and Shield*, and was extremely active in charitable measures, founding the Stockwell Orphanage and other institutions. He died Jan. 31, 1892.

SQUIER, EPHRAIM GEORGE, was born at Bethlehem, N. Y., June 17, 1821. In his youth he worked on a farm in summer, and taught school in winter. In 1848 he was appointed *chargé d'affaires* to the republics of Central America. He spent 1863-64 in Peru (as United States commissioner), examining the remains of the Inca works, and had begun the publication of *Peru: Incidents and Explorations in the Land of the Incas* (1877), when interrupted by a mental disorder. He died April 17, 1888.

STAINER, SIR JOHN, born in England, 1840, was a chorister at St. Paul's at the age of seven, organist to St. Michael's College, Tenbury, at sixteen, and organist of Magdalen College, Oxford, at 19. He is a brilliant instrumentalist and composed many anthems, church services and songs, and wrote a *Treatise on Harmony* and other works. He was knighted in 1888 and became professor of music at Oxford in 1889. Died Mar., 1901.

STAMBULOFF, STEPHEN, one of the foremost statesmen of Europe and in large measure the maker of the modern independent state of Bulgaria, was born in 1853, and educated in Russia. He was Prime Minister under Prince Alexander when the Servians were defeated at Slivnitsa, was president of the Sobranje, 1884-86, regent of Bulgaria, 1886-87, and premier under Prince Ferdinand, 1887-94, during which time he steadily pursued his policy of consolidating the kingdom and fostering a national spirit. He frustrated numerous conspiracies, and by his command many of the conspirators were executed for treason. He was stabbed in the streets of Sophia, July 15, 1895, and died from the effects of his wounds three days later.

**STANBERRY, HENRY**, was born in the city of New York, February 20, 1803; educated at Washington (Penn.) College, and admitted to the bar in 1824. He removed to Lancaster, Ohio, and in 1846 became attorney-general of the State. He was a member of the Ohio constitutional convention of 1850, and removed to Cincinnati of 1853, where he practiced law until 1866. In this year he accepted the appointment of attorney-general of the United States, tendered him by President Johnson. He resigned the trust, however, to appear in behalf of Johnson upon the latter's impeachment trial. Upon his acquittal, the President nominated Mr. Stanberry to be an associate justice of the Supreme Court, and upon the Senate's refusal to confirm the appointment, Stanberry again took up his residence at Cincinnati. He died in New York city, June 26, 1881.

**STANDISH, MILES**, soldier, born in Lancashire, England, about 1584; died in Duxbury, Mass., October 3, 1656. He entered the British army in the Netherlands, and rose to the rank of captain. Later he accompanied the Pilgrims to Cape Cod on board the *Mayflower*. On September 21st, after the founding of Plymouth, Standish, with ten armed followers, and three savages as guides, explored the land, anchoring off Thomson's Island, and entered that portion of the country now known as Quincy. In 1625 he went to England as agent for the colony, and returned in the following year with supplies. Besides being military head of the colony, he was its counselor, and for a long time its treasurer. He was an iron-nerved Puritan. He is the hero of Longfellow's poem, *The Courtship of Miles Standish*.

**STANFORD, CHARLES VILLIERS**, was born at Dublin, December 30, 1852. In 1870 he matriculated at Queen's College, Cambridge, but shortly afterward migrated to Trinity, where, on the death of Dr. J. L. Hopkins, in 1873, he was elected organist of the college, a post he has retained ever since. Doctor Stanford has composed a large number of important works.

**STANFORD, LELAND**, senator, was born at Watervliet, N. Y., March 9, 1824, admitted to the bar in 1849, and opened an office at Port Washington, Wis., the same year. He removed to California in 1852, and locating at Michigan Bluff, in Placer county, engaged in mining and commercial ventures until 1856, when he established himself at San Francisco. He was a delegate to the Chicago convention that nominated Abraham Lincoln, was elected governor of California in 1861, and United States Senator in 1885, and 1891. He was first president of the Central Pacific in 1861, constructed that railroad, and made a vast fortune from it and the Union Pacific. In 1886 he founded the LELAND STANFORD JUNIOR UNIVERSITY (*q. v.*), in memory of his son, at Palo Alto, and gave it to the State of California, increasing the endowment at his death, June 20, 1893, to the magnificent sum of \$20,000,000. Suit was begun against his estate in 1894 by the United States government to recover \$15,000,000 for government loans made for the construction of the Union Pacific.

**STANHOPE, EDWARD**, born in England, September 24, 1840, and educated at Harrow, and Christ Church, Oxford. Was elected fellow of All Souls, 1862. He was called to the bar in 1865, and was elected member of parliament for Mid-Lincolnshire in February, 1874, for which constituency he sat until 1885, when he was elected for the Horncastle division of that county. He was parliamentary secretary to the Board of Trade from November, 1875, to April, 1878. In 1886, he was appointed Secretary of State for the colonies by Salisbury. He died in 1893.

**STANWIX, JOHN**, British soldier, born in England, about 1690; died at sea in December, 1765. In 1706 young Stanwix entered the British army, and from being captain of grenadiers, became colonel and equerry to the Prince of Wales. In 1756 he was made colonel in the 6th royal American regiment. On arrival, his headquarters were at Carlisle, Penn., where, on December 27, 1757, he was appointed brigadier-general. In 1759 General Stanwix superintended the repairs of the old fort at Pittsburg. In 1759 he became major-general, and in 1761 was appointed lieutenant-general. On his return to England he became governor of the Isle of Wight and was a member of parliament. He was lost at sea while crossing from Dublin to Holyhead.

**STANLEY, FREDERICK ARTHUR, LORD STANLEY OF PRESTON, G. C. B.**, was born in London in 1841, and received his education at Eton. He entered the grenadier guards in 1858, was appointed lieutenant and captain in 1862, and retired from the army in 1865. In Lord Salisbury's government he was Secretary of State for the colonies from June, 1885, till February, 1886, and in the cabinet of August, 1886, was appointed president of the Board of Trade, and raised to the peerage as Lord Stanley of Preston. He was governor-general of Canada, 1888-93, and became Earl of Derby on his brother's death, 1893.

**STANLEY, SIR HENRY M.**, born near Denbigh, in Wales, in 1840. When three years old he was placed in the poor-house of St. Asaph, where he remained ten years, and received an education which enabled him to teach in a school. At the age of fifteen he sailed as cabin-boy in a vessel bound for New Orleans. Here he was adopted by a merchant named Stanley, whose name he took, in place of his original one, which was John Rowlands. His patron died without leaving a will, and young Stanley was left to his own resources. He enlisted in the Confederate army; was made a prisoner; and joined the Federal marine service. In 1867 was sent by the New York *Herald* as its correspondent with the British army in Abyssinia, and subsequently traveled in Spain and elsewhere. He was finally sent by the editor of the *Herald* to find Doctor Livingstone, of whom nothing had been heard for more than two years. Stanley reached Zanzibar, on the east coast of Africa, early in January, 1871, and on October 28th reached Ujiji, on Lake Tanganyika, where Livingstone had just arrived from the southwest. Stanley remained with him until February, 1872, when Livingstone started on the journey from which he never returned, and Stanley made his way back to Europe. The *éclat* of this exploit induced the conductors of the New York *Herald* and of the London *Daily Telegraph* to send him, at their own expense, on another African expedition. He reached Zanzibar in the autumn of 1874, and, learning that Livingstone was dead, resolved to go northward, and explore the region of Lake Victoria Nyanza. This, after many encounters with the natives, he reached in February, 1875, and judged it to be the largest body of fresh water on the globe, its estimated area being 40,000 square miles. He then pushed westward toward Lake Albert Nyanza, and satisfied himself that it was not, as had been generally supposed, connected with Lake Tanganyika. Forced by the hostility of the natives to return to Ujiji, he determined to descend the great river discovered by Livingstone, believed by him to be the Nile, rightly thought by others to be the Congo, and named by Livingstone, the Luālabā, and by Stanley, the Livingstone. The descent, chiefly by canoes, occupied him eight months, cost the lives of 35 out of his 150 men, and was accomplished under the greatest difficulties and privations. On reaching a settlement on the coast, a Portuguese



national vessel took him to St. Paul de Loanda, whence an English vessel conveyed the party to the Cape of Good Hope, and thence to Zanzibar. Here his men were left at their homes, and Stanley reached England in February, 1878. He has published an account of his first expedition, under the title *How I Found Livingstone*, 1872. Of his other expedition an account is given in *Through the Dark Continent*, 1878 (abridged edition, 1885). The president of the French Geographical Society presented the cross of chevalier of the Legion of Honor to Mr. Stanley at the Sorbonne, Paris, June 28, 1878. In 1879-82 he visited Africa again under the auspices of the African International Association, founded at Brussels. The object he had in view was to develop the great basin of the River Congo. The king of the Belgians devoted from his private purse \$250,000 per annum toward this costly enterprise. He completed the work in 1884, having established trading stations along the Congo river from its mouth to Stanley Pool, 1,400 miles by river. In 1885 he published *The Congo and the Founding of its Free State*. (See ZAIRE.)

The death of General Gordon brought trouble for Emin Bey or Emin Pasha, and he was compelled to retreat south to a branch of the Nile which issues from Lake Albert Nyanza. Here he was practically blockaded and lay for months constantly threatened with danger. In the latter part of December, 1886, an expedition was sent to his relief under command of Stanley. Stanley reached Zanzibar, where he recruited a force and took it by steamer around the Cape and thence up the Congo river 1,300 miles to Yambuya, where he left part of his command as a rear guard. It was June 15, 1887, when he reached this point and he concluded to make it the base of operations for the expedition. With 389 men he entered the unexplored forest with Kavalli for his objective point, distant 330 miles. On December 14, 1887, he reached Kavalli, but could hear nothing of Emin. Compelled to return to the forest for a steel whale boat he had left there, it was April, 1888, when he again reached the banks of Lake Albert Nyanza, upon which the village of Kavalli stands, and this time he received a letter from Emin and the next day they met. Leaving a supply of stores for Emin's use, Stanley once more plunged into the forest to learn what had become of his rear guard, which had been ordered to follow him when fresh stores should arrive from the south. Nothing had been heard of it, and he retraced his steps to Yambuya, where it had been left, before he learned its fate. Major Barttelot, who had been left in command, had been murdered, together with nearly all the English officers. More than half the native force had deserted or died. Reorganizing once again his force, Stanley started through the forest for Albert Nyanza, making his third trip through it, and in January, 1889, he succeeded in reaching Kavalli for the last time. It took three months to prepare to escort Emin Pasha and his people to Zanzibar. April 10th they started, going to the southern extremity of Lake Albert Nyanza, and on December 4th reached their destination. Besides accomplishing the direct object of his expedition, this is said to have been the most important one Stanley had made into the interior of the dark continent, by reason of the new discoveries he made. His fate for a long time was uncertain. Mr. Stanley returned to England after his last expedition. He was married July 12, 1890, to Miss Dorothy Tennant, a noted London artist.

STANSFELD, SIR JAMES, was born at Halifax, England, in 1820, and educated at University College, London, where he attained the degree of LL.B. He

was called to the bar at the inner temple in 1840, and held many minor offices under Liberal administrations. Mr. Stansfeld supported Mr. Gladstone's home rule policy, and in 1886, on the resignation of Mr. Chamberlain, succeeded him as president of the local government board, reëntering the cabinet for the first time for twelve years. He has continued to sit for Halifax since 1859. Mr. Stansfeld is well known for his opposition to the Contagious Diseases Acts, and his support of woman's suffrage. Died Feb. 17, 1898.

STAPLETON, AUGUSTUS GRANVILLE, born in 1800; was educated at Rugby and St. John's, Cambridge. He was appointed private secretary to Mr. Canning in 1822. At that statesman's death he was made a commissioner of customs, and, having been intrusted with Canning's papers, he published, in 1830, his *Political Life* during his last tenure of office. Mr. Stapleton contributed letters on foreign policy, signed "Sulpicius," to the *Times* during April and May, 1836. In 1871 he published *The French Case Truly Stated*, showing how the French Government was beguiled into the declaration of war against Prussia; and in 1873, essays in *Macmillan's Magazine* commenting, from a contemporary point of view, on *Charles Greville's Memoirs*.

STARK, JOHN, soldier, born in Londonderry, N. H., August 28, 1728; died in Manchester, N. H., May 8, 1822. While engaged in hunting he was taken prisoner by Indians, and held for six weeks, until set free on the payment of ransom. He took an active part in the French war, and when it ended returned to his farm, remaining there until the beginning of the Revolution. On learning of the conflict at Lexington, he repaired to Cambridge, Mass. Here he was made colonel of a body of New Hampshire troops, and took part in the battle of Bunker Hill. He fought through the war and was promoted to the rank of brigadier-general. Except Sumter, who died in 1832, he was the last surviving general of the Revolution.

STARKEY, THOMAS ALFRED, a bishop of the Protestant Episcopal Church, was born at Philadelphia in 1824, and, having been educated as an engineer, pursued that profession until 1845. He subsequently studied for the ministry, and was ordained a priest, May 21, 1848. He served as rector of churches in New York, New Jersey, Ohio, and elsewhere until January 8, 1880, when he was consecrated bishop of the diocese of Newark, N. J.

STARKWEATHER, JOHN C., GEN., a native of Cooperstown, N. Y., born May 11, 1830, graduated at Union College in 1850, and practiced law in Milwaukee, Wis., until 1861. At the outbreak of the Civil war he entered the army and participated in most of the battles of the southwest. He was wounded at Chickamauga, and was mustered out May 11, 1865, with the rank of brigadier-general. He practiced law at Washington, D. C., and died in December, 1890.

STEAD, WILLIAM THOMAS, an English journalist and author of great ability, but sensational methods, was born July 5, 1849; became editor of the *Northern Echo*, 1871, assistant editor of the *Pall Mall Gazette*, 1880, and editor-in-chief, 1883. He wrote *The Truth About the Navy*, 1884, *The Maiden Tribute of Modern Babylon*, 1885, an exposure of London iniquities which gained him imprisonment; *No Reduction, No Rent*, a record of a visit to Ireland; *The Pope and the New Era*, and many other works. He left the *Pall Mall Gazette* on founding, in 1890, the *Review of Reviews*, which he edits. He visited the United States in 1893, spent some time in Chicago, and wrote, *If Christ Came to Chicago*, dealing sensationally, but vigorously, with real and fancied evils.



STEDMAN, EDMUND CLARENCE, was born at Hartford, Conn., October 8, 1833. He studied at Yale College, and in 1852 became editor of the *Norwich (Conn.) Tribune*, and in 1853 of the *Winsted (Conn.) Herald*. He removed to New York in 1855, where, in 1859, he became a contributor of poetry to the *Tribune*. From 1861 to 1863 he was a war correspondent of the *New York World*. He became a stockbroker in New York city in 1865 and has written lyric poetry and poetical criticism of great literary merit. He published *Victorian Poets* (1875); *Poets of America* (1885) and edited with Miss Ellen M. Hutchinson *A Library of American Literature* (1890).

STEEDMAN, JAMES B., was born in the county of Northumberland, Penn., July 30, 1818, and removed to Ohio in 1837, settling at Toledo. In 1843 he was elected to the State legislature. After spending a year in California, he was elected a member of the Ohio board of public works in 1851, served as public printer during the administration of James Buchanan, and became colonel of the 4th Ohio infantry at the outbreak of the Civil war. He commanded a division in the army of the Cumberland, and at the battle of Chickamauga was conspicuous for his gallantry, and was promoted to be major-general. At the battle of Nashville he was equally prominent. After the war he was appointed collector of internal revenue by President Johnson, whence he returned to Ohio in 1879, and was elected to the State Senate. He died at Toledo, October 18, 1883.

STEELE, FREDERICK, GEN., an American soldier, was born January 14, 1819, at Delhi, N. Y.; graduated at West Point in 1843, and was promoted for gallant conduct in the battles of the Mexican war. In February, 1861, he became colonel of the 8th Iowa infantry, and operated in southwest Missouri and Arkansas. He was engaged in the battles about Vicksburg, and, upon the surrender of that city, was promoted to be lieutenant-colonel. He was prominent at the capture of Little Rock, also in the campaign against Mobile, and at the close of the war was made brevet brigadier-general in the regular army. He died at San Mateo, Cal., January 12, 1868.

STEELE, SIR JOHN, R.S.A., sculptor, born in Aberdeen, Scotland, in 1804; studied art in Edinburgh, where his parents resided; afterward proceeded to Rome, and on his return from that city, in 1833, distinguished himself by a colossal model of Alexander and Bucephalus, now cast in bronze and erected in Edinburgh. One of his principal works in Edinburgh, the sitting colossal figure of the queen, in her royal robes, with orb and scepter, above the Royal Institution, gained for him the appointment of sculptor to her majesty for Scotland. In August, 1876, the queen conferred knighthood on the sculptor. Sir John Steele executed for America a colossal statue in bronze of the great Scottish poet, Robert Burns, erected in the Central Park, New York. He died September 15, 1891.

STEINITZ, W., a noted chess player, is a native of Prague, of humble origin, and a self-made man. In 1873 he won the great tournament in Vienna, and at the London chess tournament in 1883 he secured the second prize. In 1886 he played against Zukertort, in America, for the championship, and was never beaten in a championship contest from 1866 until Emanuel Lasker defeated him in 1894. He contributes extensively to chess literature. Died Aug. 13, 1900.

STEINMETZ, KARL FRIEDRICH VON, a German soldier, was born at Eisenach in 1796, and died at Landeck, August 4, 1877. He became a lieutenant in 1814, and distinguished himself in command of the division which repulsed the Austrians at the battle of

Skalitz. During the Franco-Prussian war he invaded France in advance of the army in 1870, and was largely instrumental in defeating the French at Metz.

STEPHEN, SIR ALFRED, G.C.M.G., C.B., born in England in 1802, was educated at the Charterhouse, and the grammar school of Honiton, Devon. He was chief justice of New South Wales from 1844 till November, 1873; received knighthood in 1846, and was appointed governor of New South Wales in November, 1875. He died October 14, 1894.

STEPHEN, SIR JAMES FITZJAMES, K.C.S.I., D.C.L., eldest son of the late Right Hon. Sir James Stephen, born at Kensington Gore, London, March 3, 1829, and educated at Trinity College, Cambridge, was made a member of the royal commission appointed in 1878 to inquire into the provisions of a draft code relating to indictable offenses, published a *General View of the Criminal Law of England*, *Digest of the Law of England*, and other works, and was a judge of the English high court of justice from 1879 to 1891, when he resigned and was given a baronetcy. He died March 12, 1894.

STEPHEN, SIR LESLIE, was born at Kensington, England, November 28, 1832, and educated at Eton School and at King's College, London, whence he proceeded to Trinity Hall, Cambridge, where he graduated B.A. in 1854, and M.A. in 1857. He was editor of the *Cornhill Magazine* from 1871 till 1882, when he resigned that post in order to undertake the responsible task of editing the *Dictionary of National Biography*, a labor which failing health obliged him to relinquish in 1891. In May, 1883, he was elected to the lectureship of English literature at Cambridge, resigning twelve months later. He has written *The Playground of Europe*, *Essays on Free Thinking and Plain Speaking*, *The Science of Ethics* and other works. Mr. Stephen, who is a brother of the late Sir James Fitzjames Stephen, married Harriet Marian, younger daughter of William Makepeace Thackeray, the celebrated novelist.

STEPHENS, ANN SOPHIA, author, born in Derby, Conn., in 1813; died in Newport, R. I., August 20, 1886. She was married in 1831, and settled in Portland, Me. There, in 1836, she founded the *Portland Magazine*, which she continued until 1837. In 1836 she published the *Portland Sketch Book*. In 1837 her husband was appointed to a position in the New York custom-house, and while in that city she edited the *Ladies' Companion* for several years, and later became editorial writer for *Graham's Magazine* and *Peterson's Magazine*. In 1843 she founded *The Ladies' World*, and in 1840 *The Illustrated New Monthly* and wrote *Fashion and Famine* (1854) and many other novels.

STEBUN, FRIEDRICH WILHELM AUGUST HEINRICH FERDINAND, BARON VON, was born at Madgeburg, Prussia, November 15, 1730. Entering the army at fourteen, he rose to be adjutant-general and staff-officer to Frederick the Great. After his retirement from active service, Silas Deane induced him to go to America, where he was made major-general and inspector-general. He rendered eminent service by giving the army its first systematic drill. In this department he was the most important accession which the American army received from Europe. He settled as a farmer on land in what is now Steuben county, N. Y., given him by the State, and died there November 28, 1794.

STEVENS, EDWIN AUGUSTUS, an American inventor, was born at Hoboken, N. J., July 28, 1795, and early in life was made treasurer of the Camden and Amboy railroad. He was constantly devising plans for the improvement of the mechanical department of the service, and for improved equipments and roiling



stock. He also invented the "air-tight fire room" and its application to vessels, and devoted years to the study of plans formulated with a view to perfect improvements in naval warfare. The *Naugatuck*, one of the first ships to attack the *Merrimac*, was presented to the government by Mr. Stevens; the Stevens battery he donated to New Jersey, and directed in his will that a fund of \$1,000,000 should be set apart for its completion. He also founded the Stevens Institute at Hoboken, and provided liberally for its support. His death occurred in Paris, France, August, 1868.

STEVENS, JOHN, a member of the Continental Congress, was born at New York city in 1708, but settled in New Jersey and was for six years, from 1776 to 1782, vice-president of the New Jersey council. In 1783 he was elected to congress, and became prominent as a member of committees, also in debate, and in 1787 was chairman of the State convention at which the ratification of the Federal constitution was perfected. He died in 1792.

STEVENS THOMAS H., an American naval officer, was born at Charleston, S. C., February 22, 1795. His name was Holdup, and, upon the death of his parents, he was adopted by a family in that city named Stevens, through whose influence he was enabled to secure admission to the navy. During the war of 1812 he was actively engaged on the Niagara frontier, and received promotion for bravery. Later he participated in the battle of Lake Erie, with Com. Oliver H. Perry, and compelled the surrender of the *Queen Charlotte*. His services in that action were recognized by Congress, from which he received a silver medal, as also by the citizens of Charleston, who presented him with a sword. Subsequently he was in command of vessels attached to the Mediterranean and West Indian squadrons, became a captain in 1836, and died January 22, 1841, while in command of the Washington navy yard.

STEVENS, ISAAC INGALLS, an American soldier, was born March 28, 1818, at Andover, Mass., and graduated at West Point in 1839. He served through the Mexican war from Vera Cruz to the taking of the city, where he was dangerously wounded. He resigned from the army in 1853 to accept the governorship of Washington Territory, and the same year surveyed the route of the Northern Pacific road from Minnesota to Puget Sound. While Territorial executive he concluded treaties with the Indians of Washington and Oregon, put down an insurrection among them, and was of inestimable value to the government in the administration of affairs within his jurisdiction. He was sent as a delegate to congress in 1857, and served until 1861. When the Civil war began he became colonel of the 79th regiment of New York volunteers, and fought at Bull Run. He was promoted brigadier-general during September of the same year, and participated in the attack upon Port Royal. At the conclusion of the Peninsula campaign he was ordered to Virginia, and rendered important services under General Pope. He was appointed major-general July 4, 1862, and was killed at Chantilly on the first of the following September.

STEVENSON, ADLAI EWING, was born in Christian county, Ky., in 1835. He was educated at Center College, Danville, Ky., was called to the bar in 1858 and practiced law at Bloomington and Metamora, Ill. He served two terms as Prosecuting Attorney of Woodford county, and was elected to Congress in 1874 and 1878. In 1885 he became First Assistant Postmaster General, which office he held during Mr. Cleveland's full term. In 1892 Mr. Stevenson was elected Vice-President of the United States.

STEVENSON, ANDREW, an American statesman

and educator, was born in the county of Culpeper, Va., in 1784, and began his public career at an early age. He was elected to the House of Delegates in 1804, and as a Democratic representative in congress in 1823, serving until 1834, part of the time as speaker. He was United States minister to England for five years from 1836, and was elected dean of the University of Virginia in 1842. He died on his plantation in Albemarle county, Va., January 25, 1857.

STEVENSON, ROBERT LOUIS, a Scottish author, born in Edinburgh in 1850. He at first studied for an engineer, and later the law. In 1879 he came to the United States, and married. He won wide reputation as a writer by his delightful story, *Treasure Island*, in 1883, and by his *Master of Ballantrae*, *Dr. Jekyll and Mr. Hyde* and other works. He died December 3, 1894, on his island estate in Samoa.

STEVENSON, THOMAS G., an American soldier, was born February 3, 1836, at Boston, where he was also educated. He entered the army at the breaking out of the war as a major of militia, and, after serving as drill master at Fort Independence, was made colonel of the 24th regiment of Massachusetts infantry. His service was in North and South Carolina until 1863, during which time he was promoted to be brigadier-general. He subsequently commanded a division of the ninth army corps, and was killed at the battle of Spottsylvania Court House, May 10, 1864.

STEWART, ALEXANDER TURNER, merchant, born in Belfast, Ireland, October 12, 1803; died in New York city, April 10, 1876. Mr. Stewart started a dry goods house in New York city, on September 2, 1825. This business became simply gigantic; he established a wholesale branch, and his sales annually amounted to over \$50,000,000. During the famine in Ireland, Mr. Stewart sent a shipload of provisions to that country, and after the Franco-German war, sent a shipload of flour to France. He contributed \$50,000 to the Chicago fire sufferers, and gave the sufferers from the floods in Silesia \$10,000. He was engaged in building a large iron and brick structure to be a home for working girls, and to cost over \$1,000,000, at the time of his death. When General Grant was elected president of the United States, he appointed Mr. Stewart secretary of the treasury, but a law which prohibits a man engaged in importing goods from holding any cabinet office made him ineligible. Mr. Stewart left an estate of about \$40,000,000. The building intended for working girls was changed into a hotel; his large art gallery was sold at auction in 1887, Judge Hilton managing affairs for the widow. After Mr. Stewart's burial, his remains were stolen, and have never, confessedly, been recovered, though it has been given out that they had been found and secretly interred.

STEWART, BALFOUR, M.A., LL.D., F.R.S., born November 1, 1828, at Edinburgh, Scotland, was educated at the Universities of St. Andrews and Edinburgh. He was appointed director of the Kew Observatory, July 1, 1859. Doctor Stewart was the discoverer of the law of equality between the absorptive and radiative powers of bodies, for which he received the Rumford medal from the Royal Society in 1868. He was the author of *Heating Produced by Rotation in Vacuo*; and wrote numerous papers on meteorology and magnetism. He died December 19, 1887.

STEWART, CHARLES, naval officer, born in Philadelphia, Penn., July 28, 1778; died in Bordentown, N. J., November 6, 1869. At the age of thirteen young Stewart became a cabin boy, and gradually rose to the captaincy of a merchant vessel. Going into the navy, he in 1800 commanded the schooner *Experiment*, and captured several French vessels. In



1804 he became attached to the Mediterranean squadron under Commodore Preble, and two years later was promoted captain. On the outbreak of war with Great Britain he took command of the *Constellation*, and later of the *Constitution*, making several important captures. In 1862 he was made rear-admiral on the retired list.

STEWART, SIR DONALD MARTIN, BART., G.C.B., was born in 1824. He received his education at the University of Aberdeen, and entered the Bengal staff corps in 1840. He served against the hill tribes in the Peshawur district in 1854 and 1855, when he was honorably mentioned in the dispatches. Stewart did great service in the British army in the East Indies; rose to the rank of general, received the thanks of parliament, and was made G.C.B. and baronet.

STEWART, SIR ROBERT PRESCOTT, Mus.Doc., was born in Dublin in December, 1825. He received his education in the school of Christ Church Cathedral, Dublin, and at the age of eighteen he was appointed organist of Trinity College, Dublin, and of both the Dublin cathedrals. He composed a number of cantatas. He died March 25, 1894.

STEWART, SIR THOMAS GRAINGER, born in Edinburgh, Scotland, September 23, 1837, was educated at the high school and university of Edinburgh, and, after graduating, studied in the universities and hospitals of Berlin, Prague, and Vienna. On his return to Edinburgh he became resident physician in the Royal Infirmary, and there made observations upon the diagnosis of certain forms of kidney disease, which attracted considerable attention. Doctor Stewart is the author of a book on Bright's disease of the kidneys.

STIGAND, WILLIAM, born in 1827; was educated at Shrewsbury and St. John's College, Cambridge. After studying the equity branch of the profession of the law, he was called to the bar at Lincoln's Inn in June, 1852. He has written several books and poems.

STILES, EZRA, educator, born in North Haven, Conn., November 29, 1727; died in New Haven, Conn., May 12, 1795. He was graduated at Yale in 1746. From 1778 until his death he was president of Yale College. He made some of the first electrical experiments in New England, and taught all the natural sciences. His diary and other writings are preserved in the library of Yale College.

STILLE, ALFRED, an American physician, was born October 30, 1813, in Philadelphia, Penn., and graduated at the Pennsylvania University in 1832, afterward pursuing his studies at Paris and Vienna. Upon his return to the United States he filled the chair of medicine and practice in the Medical College of Pennsylvania for five years, and in 1864 was called to the same professorship in the Pennsylvania University, where he remained until 1884, part of the time lecturing at the Philadelphia hospital. He was made an LL.D. by Pennsylvania College in 1876, and became the president of the American Medical Society in 1862. He is also a member of medical and scientific societies of Philadelphia, Penn., and in other cities, and is the author of valuable works on medicine and the treatment of diseases. He died Sept. 24, 1900.

STILLE, CHAS. J., an American historical writer; born September 23, 1819; was graduated at Yale College in 1839, and later was admitted to the bar, but adopted literature as a profession. He was for two years professor of history in the Pennsylvania University, and was instrumental in procuring the erection of buildings for the scientific department of that institution, which was established through his influence and labors. He is the author of works of a local char-

acter, and of publications connected with the history of the Civil war. He was made LL.D. by Yale College in 1868. He died Aug. 11, 1899.

STILLMAN, WM. JAMES, an American author, born at Schenectady, N. Y., June 1, 1828; was graduated at Union College in 1848, and in 1849 visited Europe to pursue a course of study in landscape painting. Since 1870 he has been identified with literary work, having served as correspondent of the London *Times* in Montenegro, Greece, and elsewhere in Europe, as the art critic of the *Evening Post*, New York, and editor of art publications in the United States and Europe. He is the author of a number of works on art and artists, and the resident correspondent at Rome of the London *Times*. Died July 5, 1901.

STIMPSON, WILLIAM, an American scientist, born February 14, 1832, at Roxbury, Mass., and studied under Louis Agassiz. In 1852 he was attached to the expedition to the North Pacific in the capacity of naturalist and upon his return in 1856 located at Washington. In 1864 he was made a member of the Academy of Sciences, Chicago, and in 1872 was employed by the United States Government as superintendent of the deep sea dredgings conducted by the coast survey off the coast of Florida. He was a member of many scientific societies and the author of various works on scientific subjects. He died in Maryland May 26, 1872.

STIRLING, JAMES HUTCHISON, LL.D., born at Glasgow, June 22, 1820; was educated at Glasgow University, and spent six years in France and Germany. He became LL.D. of Edinburgh, 1867; and a foreign member of the Philosophical Society of Berlin, 1871. He relinquished professional practice in 1851, and went to the Continent to pursue there his literary and philosophical studies. The following are the titles of some of his works: *Sir William Hamilton, on the Philosophy of Perception*; *Schwegler's History of Philosophy, translated and annotated*.

STIRLING, MRS., an accomplished and versatile actress, born in England in 1817; was educated at a convent in France, and, on her return home, finding that her family had fallen into pecuniary difficulties, determined, although then but sixteen years of age, to try her fortune upon the stage. Adopting the name of Miss Fanny Clifton, she obtained an engagement at the East London theater, at which her reception was encouraging, attributable in no small degree to her handsome person and musical voice. This was followed by a long and successful career, during which she played with some of the best English actors, and made a name in some great parts. She died Dec., 1895.

STIRLING, SIR THOMAS, an English soldier, who entered the army at an early age, and participated in many of the battles of the Revolutionary war. He was appointed brigadier-general under Sir Henry Clinton, whom he accompanied in the latter's expedition against Charleston, S. C., during 1780, and in February, 1782, was promoted to be major-general. He was knighted in 1796, and died May 9, 1808.

STOCKS, LUMB, R.A., born November 30, 1812, at Lightcliffe, near Halifax, Yorkshire; was educated at Horton, near Bradford, and became in after years an engraver of note. He died April 28, 1892.

STOCKTON, FRANCIS RICHARD, an American writer, was born at Philadelphia, April 5, 1834, and died April 20, 1902. He attended the Phila. High School in 1852, and began life as an engraver, but abandoned engraving to devote himself to journalism. His earliest writings were a number of fantastic tales for children contributed to the *Riverside Magazine* and other periodicals. He subsequently became connected with a daily paper in Philadelphia, and afterward with *Hearth*



and Home, New York. Later he joined the editorial staff of *Scribner's Monthly* (now *The Century*), and on the establishment of *St. Nicholas* became its assistant editor. His *Rudder Grange* papers, which appeared in *Scribner's*, were the first to attract general public attention, which he has successfully held by the novel character of the short stories for which he is chiefly celebrated. Among the best known of these are *The Lady or the Tiger*, *The Transferred Ghost*, *The Spectral Mortgage* and *Negative Gravity* and he has also published *The Late Mrs. Null*, *The Squirrel Inn*, and other novels, and *Pomona's Travels* (1894).

STOCKTON, RICHARD, born near Princeton, N. J., October 1, 1730; died there February 28, 1781. He was graduated at Princeton, studied law in Newark, and in 1754 was admitted to the bar. In 1778 he was made judge of the Supreme Court of New Jersey, and in that year submitted to Lord Dartmouth *An Expedient for the Settlement of the American Disputes*. In 1776 he was chosen a member of the Continental congress which met in Philadelphia, and he signed the Declaration of Independence.

STOCKTON, ROBERT FIELD, naval officer, born in Princeton, N. J., August 20, 1795; died there, October 7, 1866. He left Princeton College before completing his course, and in 1811 entered the United States navy as midshipman. In 1821 the American Colonization Society obtained his services to command the schooner *Alligator* to prepare to found the colony of Liberia on the west coast of Africa. From 1826 until 1836 he was on leave of absence and lived in Princeton, N. J. At that time he succeeded in completing the Delaware and Raritan canal. Captain Stockton went to Texas as bearer to its government of the United States resolutions in favor of annexation. In the Mexican war he was commander-in-chief of the naval forces on the Pacific.

STODDARD, CHARLES WARREN, an American author, born at Rochester, N. Y., August 7, 1843, and educated in New York city. He began to contribute poems to the daily press at an early age, and later in life became a public lecturer. While a resident of California he visited Honolulu, the Hawaiian Islands, Europe, Asia, and Africa as the representative of the *San Francisco Chronicle*, afterward filling the chair of English literature in the University of Notre Dame at South Bend, Ind., and at the Catholic University, Washington. He has published poems and sketches.

STODDARD, RICHARD HENRY, was born at Hingham, Mass., in July, 1825. His family removed, in 1835, to New York, where he learned the trade of an iron-molder. In 1848 he began to write for periodicals, both in prose and verse. He has published *Adventures in Fairyland*, *Town and Country*, *The Story of Little Red Riding Hood*, *The Children in the Wood*, (1866), *Putnam the Brave*, *Memoir of Edgar Allan Poe*.

STOKES, SIR GEORGE GABRIEL, born August 13, 1819, at Skreen, county Sligo; was educated at Doctor Wall's school in Dublin, at the Bristol College, and at Pembroke College, Cambridge, where he graduated B.A. in 1841; in 1852 he was awarded the Rumford medal by the Royal Society, in recognition of his services to the cause of science by his discovery of the change in the refrangibility of light. An account of this discovery will be found in the *Philosophical Transactions* for 1852. He became a secretary of the Royal Society in 1854, and president in 1885, resigning in 1890. From 1887 to 1892 he represented Cambridge University in parliament. In 1889 he was created a baronet. In 1891 he published *Natural Theology*.

STOKES, SIR JOHN, K.C.B., was born in Kent in 1825, and received his education at the Proprietary

School, Rochester, and at the military academy, Woolwich. He entered the royal engineers as second lieutenant in 1843, and saw active service in the Kaffir wars of 1846-47 and 1850-51, for which he has the medal, and received the thanks of the commander-in-chief. He did excellent service on the Suez Canal affairs in London and Egypt in 1874. In 1881 he was appointed deputy-adjutant-general royal engineers. He retired with the rank of lieutenant-general in 1887.

STOKES, WILLIAM, the author of *Stokes on Memory*, was born at Brighton, March 20, 1836. After achieving remarkable success in his native town, he appeared in London, and on June 18, 1861, gave his first lecture on memory at the Royal Colosseum, Regent's Park. In addition to his popular treatise, *Stokes on Memory*, he has written a standard series of memory-aiding works on rapid reading, writing, arithmetic, drawing, music, and other subjects.

STONE, CHARLES P., an American soldier, was born September 30, 1824, at Greenfield, Mass., and graduated at West Point in 1845. He served in the Mexican war from Vera Cruz to the surrender of the city of Mexico, and was subsequently in the discharge of routine duty until his resignation, in 1856, to take part in an expedition organized for the exploration of Sonora, Mexico. He was appointed colonel of the 14th infantry, May 14, 1861, and was engaged in operations about Washington until February 9, 1862, when he was placed under arrest and imprisoned at Fort Lafayette until the following August. He was then released, no charges having been preferred against him, and restored to his command in 1863. The same year he was transferred to the department of the Gulf, and was honorably mustered out of the service April 4th, with the rank of brigadier-general. He resigned his commission in September following, and in 1870 accepted a command in the Egyptian army. He returned to the United States in 1883, and was engaged as consulting engineer upon many important public works. He died January 24, 1887.

STONE, THOMAS, a signer of the Declaration of Independence, was a native of Charles county, Md., born in 1743; studied law at Annapolis and began the practice of his profession at Frederick in 1770. He was elected to the Continental congress in 1774, 1775, and 1776; supported the adoption of the resolution of May 15th of the latter year, declaratory of colonial independence, and signed the Declaration, July 4th, following. When Maryland refused to enter the "Union of States," Mr. Stone became a member of the Provincial Senate, but in 1783-84 was reelected to congress, where he served as a member of the more important committees. He died at Alexandria, Va., October 5, 1787.

STONE, EDWARD JAMES, F.R.S., was born in London, February 28, 1831. He did not begin to study classics or mathematics until he was past the age of twenty, but nevertheless graduated as fifth wrangler at Cambridge in 1859. He was appointed chief assistant at Greenwich in 1860; her majesty's astronomer at the Cape of Good Hope in 1870; and Radcliffe observer at Oxford in 1879. He has contributed a large number of papers on all branches of astronomy to the Royal Astronomical Society, and the results of experiments on the heating powers of stars, magnetic observations made in Namaqualand, and a determination of the velocity of sound, to the Royal Society.

STONE, LUCY, an American reformer, was born August 13, 1818, at West Brookfield, Mass., graduated in 1847 at Oberlin (Ohio) College, and at once entered upon her career as a lecturer and reformer, her speciality being woman's rights. In 1848 she was employed by the Anti-Slavery Society of Massachusetts to deliver lect-



ures in various parts of the Eastern States and Canada. She was married to H. B. Blackwell, of Cincinnati, Ohio, in 1855, but maintained her prominence as a public speaker, and as an advocate in behalf of the individual liberty of her own sex. She was conspicuous in procuring the organization of the Woman's Suffrage Association of the United States, and assisted in the editorial management of the *Woman's Journal* and similar publications. She died October 8, 1893.

STONE, MARCUS, R.A., painter of historical and genre subjects, was born in London, July 4, 1840. He was elected associate of the Royal Academy January 24, 1877, and was made full R.A. on January 7, 1887. Mr. Stone received one of the medals awarded to the English school at the Vienna and Philadelphia International exhibitions. As a very young man he illustrated Dickens, and lately Anthony Trollope and the *Cornhill Magazine*.

STONE, WARREN, an eminent American physician, was born February, 1808, at St. Albans, Vt., and gained his degree at a medical college in Massachusetts. He removed to New Orleans in 1832, and in 1837 was appointed professor of anatomy in the University of Louisiana, subsequently being called to the chair of surgery, which he occupied until his death at Baton Rouge, December 6, 1872. He was the author of works on diseases incident to southern latitudes, and of numerous contributions to medical journals.

STONEMAN, GEORGE, an American cavalry leader, was born August 8, 1822, in Chautauqua county, N. Y., and graduated at West Point in 1846. He served in Oregon and California until 1857, going thence to Texas, where he was at the opening of the Civil war. He entered that contest as major of the first cavalry, was promoted to be brigadier-general, August 1, 1861, and commanded the cavalry division of the army of the Potomac in the Peninsular campaign. He was at Fredericksburg with the third army corps, having been made a major-general in the month of November previous, and in 1863 and 1864 was conspicuous as a cavalry leader, especially in the campaigns against Atlanta, Ga., and Asheville, N. C. He retired from the service in 1871, and in 1883 was elected governor of California as a Democrat. He died September 5, 1894.

STOREY, GEORGE ADOLPHUS, A.R.A., born in London, January 7, 1834; was educated at Paris. He returned to London in 1850, and first exhibited at the Royal Academy in 1852. In 1863 he was in Spain, painting portraits at Madrid. In the following year he first attracted the special notice of the public by his picture of *The Meeting of William Seymour with the Lady Arabella Stuart at the Court of James I., 1609*. It was followed by a succession of works that have made the name of Storey famous. He became an academician in 1876.

STOREY, WILBUR F., an American journalist, was born at Salisbury, Vt., December 19, 1819, completed his education there, and learned the trade of a printer. In 1838 he came West, and settled at LaPorte, Ind., where he divided his time between editing a weekly paper, and managing a retail drug store. Thence he removed to Michigan, and, settling in Detroit during 1853, went to work on the *Free Press*, becoming its editor and owner within a short time. In 1861 he purchased the *Chicago Times*. His administration was such as to create a wide demand for each issue, and the circulation, which had previously been insignificant, gradually increased in volume, until it was among the largest west of New York city. During the war the *Times* was sought to be suppressed by order of General Burnside, but through the influence of David Davis, Judge Drummond, and others, the order was revoked by

President Lincoln. In the latter part of the seventies Mr. Storey was overtaken with nervous prostration, resulting finally in an attack of paralysis, from the effects of which he died in 1885.

STORRS, EMERY A., an eminent American lawyer, was born at Hinsdale in Cattaraugus county, N. Y., August 12, 1833, studied law in that village, and upon his admission to the bar, September 5, 1854, became a member of a legal firm in Buffalo. In 1858 he removed to New York city and in the year following he opened an office in Chicago. From the date of his advent into the latter city he became prominent, and during the latter years of his professional career was identified with nearly every case of importance adjudicated in the State or Federal courts of that district. He was a delegate at large to the National Republican conventions of 1868, 1872, 1876, and 1880, and his services as a public speaker were enlisted throughout the succeeding campaigns. He died September 12, 1885, at Ottawa, Ill.

STORRS, RICHARD SALTER, D.D., born at Braintree, Mass., August 21, 1821; graduated at Amherst College, 1839. He studied law, and afterward theology at the Andover Seminary, where he graduated in 1845. He has been pastor of a church at Brooklyn, N. Y., since 1846. Dr. Storrs is noted as an eloquent preacher and as a student of history. From 1843 to 1861 he was one of the editors of *The Independent*. He wrote a number of works on church history. Died June, 1900.

STORY, ROBERT HERBERT, born at Roseneath Manse, Scotland, January 28, 1835. He was educated at Edinburgh, Heidelberg, and St. Andrews. As one of the founders of the Scottish "Church Service Society," and convener of its "editorial committee," he has had charge of its publication of *Euchologion: a Book of Common Order*.

STORY, WILLIAM WETMORE, was born at Salem, Mass., February 19, 1819, and was made A.B. (Harvard), 1838. He studied law under his father, Judge Joseph Story, and published several legal works, but subsequently devoted himself to sculpture and literature. Since 1848 he has passed most of his time in Italy. Among his sculptures are numerous ideal figures and groups, many admirable busts, a statue of Edward Everett, one of Chief Justice Marshall, and another of George Peabody for the corporation of London. He was also a writer of prose and poetry, and has contributed many works of interest. Died Oct., 1895.

STOUGHTON, JOHN, D.D.; born at Norwich, November 18, 1807; was educated at Highbury College, Islington, now incorporated with New College, St. John's Wood, and University College, London. Doctor Stoughton is the author of numerous works, among them being the following: *Windsor in the Olden Time*, *Spiritual Heroes*, *Ages of Christendom*, *Church and State Two Hundred Years Ago*, *Ecclesiastical History of England*, *Haunts and Homes of Martin Luther*, *Progress of Divine Revelation*. Died Oct., 1897.

STOUGHTON, WILLIAM, governor of Massachusetts, born in England, May 30, 1632; died in Dorchester, Mass., July 7, 1701. He was graduated at Harvard in 1650. From 1677 to 1679 he was in England as agent of the colony of Massachusetts. On his return he acted as chief justice from July to December, 1686, and in 1689 became one of the committee of safety that wrested the government from Gov. Edmund Andros. Stoughton, on the death of Sir William Phips, became acting governor. On December 22, 1692, he was appointed chief justice of the Superior Court, and as such presided during the trials for witchcraft. He donated to Harvard College money and lands, and gave liberally to the churches of Milton and Dorchester.



**STOWE, CALVIN ELLIS, D.D.**, an American divine, was born at Natick, Mass., in 1802. After graduating from Bowdoin College, he became professor of languages in Dartmouth College in 1836. He married, in 1832, Harriet Elizabeth Beecher, daughter of the Rev. Lyman Beecher, and author of *Uncle Tom's Cabin*. Between 1852 and 1864 he was professor of sacred literature in Andover Theological Seminary. He died August 22, 1886.

**STOWE, MRS. HARRIET ELIZABETH**, daughter of Lyman Beecher, was born at Litchfield, Conn., June 15, 1811. She was associated with her sister Catherine in the labors of a school at Hartford, in 1827, afterward removed to Walnut Hill, near Cincinnati, and was married in 1832 to the Rev. Calvin E. Stowe, D.D. Mrs. Stowe wrote several tales and sketches, which were afterward collected under the title of *The May Flower*, 1849. In 1850 she contributed to the *National Era*, an anti-slavery paper published at Washington, *Uncle Tom's Cabin*, as a serial. This was published in book form in 1852, and met with great success; 313,000 copies were sold in the United States within three years and a half, and in all, over 500,000 copies, including a German edition. In Great Britain its sale was enormous. It has been translated into more than twenty languages, including Welsh, Russian, Armenian, Arabic, Chinese, and Japanese; there were fourteen different German and four different French versions; and it was dramatized in various forms. Mrs. Stowe has published a great many books since *Uncle Tom's Cabin*. She visited Europe in 1853, and in the following year published *Sunny Memories of Foreign Lands*. A little work entitled *Geography for My Children* was published in 1855, and the next year appeared her second anti-slavery novel, *Dred: a Tale of the Dismal Swamp*, re-published in 1859 under the title of *Nina Gordon*. In subsequent works Mrs. Stowe has delineated the domestic life of New England of fifty or a hundred years ago. In September, 1869, Mrs. Stowe contributed to the *Atlantic Monthly* and to *Macmillan's Magazine* an article, entitled *The True Story of Lady Byron's Life*. This article evoked a storm of literary criticism, which was by no means allayed by the publication in 1870 of her work entitled *Lady Byron Vindicated*. Mrs. Stowe died July 1, 1896.

**STRAFFORD, EARL OF (THE RIGHT HON. GEORGE HENRY CHARLES BYNG)**, was born in London in 1830. He received his education at Eton and at Oxford. In 1855 he was attached to Earl Russell's special mission to Vienna. He was parliamentary secretary to the poor law board from 1865 till July, 1866. He succeeded to the earldom on the death of his father in 1886.

**STRATTON, CHARLES CARROLL**, an American divine, was born January 4, 1833, at Mansfield, Penn., and educated at the University of Willamette, Ore. He became a minister of the Methodist Episcopal Church in 1875, and two years later accepted the presidency of the Pacific University. Under his administration the institution became popular and prosperous, but in 1887 he dissolved his connection with it, and assumed the presidency of the Mills College, at Oakland, Cal. He has published a number of works, including a volume of sermons.

**STRAUSS, JOHANN**, an Austrian composer, was born in Vienna in 1825. He has achieved great fame for his waltzes and his operas. His brothers, Joseph and Eduard, have also become famous for their compositions of dance music. Died June, 1899.

**STREET, ALFRED BILLINGS**, an American philanthropist, was born at New Haven, Conn., November 5, 1791, and died at that city June 12, 1866. He was a

man of large wealth, which he gave freely to deserving objects. To his munificence Yale College is indebted for its school of art and for the Street professorship, also for the endowment of the Titus Street theological professorship.

**STRINGHAM, SILAS H.**, an American naval officer, born November 7, 1798, at Middletown, N. Y., was appointed midshipman in the navy November 15, 1809. Five years later he was promoted to be lieutenant, and up to the breaking out of the Civil war, his service was active and continuous. He participated in the naval engagements of the Algerine and Mexican wars, was engaged in contests off the coast of Africa for the prevention of the slave trade, in the suppression of piracy in the Gulf, and severally commanded at the New York, Boston, and Norfolk navy yards. After the commencement of the Civil war he was placed in command of the North Atlantic squadron. He was present at the capture of the forts at Hatteras inlet, but resigned December 21, 1861, on account of age. In 1862 he was promoted to be rear-admiral, and died at Brooklyn, N. Y., February 7, 1876.

**STRONG, JAMES**, an American educator, was born August 14, 1822, in New York city; graduated at Wesleyan University in 1844, and thereafter devoted his attention to study and instruction. He paid special attention to Greek and Hebrew. In 1858 he accepted the professorship of biblical literature at the University of Troy, N. Y., and in 1868 became professor of exegetical theology in the Drew Seminary, at Madison, N. J. He produced works on biblical subjects, translations, and other publications, his last work being an encyclopædia of biblical literature. He was a member of the committee on the revision of the authorized version of the Bible. He died August 7, 1894.

**STRONG, JAMES HOOKER**, an American naval officer, was born April 26, 1814, at Canandaigua, Ontario county, N. Y., and was graduated at the Naval Academy June 4, 1836. He became commander at the breaking out of the Civil war, and during that struggle was attached to the South Atlantic and Western Gulf squadrons. He was present at the capture of Mobile, and rendered efficient service. After the war he served as commander of the Brooklyn navy yard, also of the steamer *Canandaigua*, and in various other official capacities until April 25, 1876, when he was retired with the rank of rear-admiral. He died at Columbia, S. C., November 23, 1882.

**STROSSMAYER, JOSEPH, D.D.**, a distinguished prelate of the Roman Catholic Church, born at Essak, in Slavonia, February 4, 1815; received his education in the universities of Vienna and Padua, and on May 20, 1850, was consecrated bishop of Bosnia and Sirmio. During the sittings of the Ecumenical Council of the Vatican in 1869-70, he was constantly represented as an earnest opponent of the dogma of the infallibility of the Pope, but the bishop denied the language he was accused of using.

**STROTHER, DAVID HUNTER**, an American writer, was born in Martinsburg, Va., September 16, 1816. About 1830, having meanwhile paid some attention to drawing, he visited Philadelphia, where he entered upon a course of study. He afterward took up his residence in Europe, and upon his return to the United States, in 1845, settled in New York, afterward removing to Virginia. Early in the fifties he began a series of articles descriptive of life in Virginia, North Carolina, and other portions of the South, which were illustrated by his own designs, and published in *Harper's Magazine* under the name "Porte Crayon." They attracted marked attention. During the Civil war he served in the Union



army and rose to the rank of brigadier-general of volunteers. After the war he resumed his contributions of sketches to magazines and weekly periodicals. He died at Charleston, W. Va., March 8, 1888.

STUART, ALEXANDER H. H., an American lawyer and statesman, was born April 2, 1807, at Staunton, Va., and graduated at the University of Virginia, in 1828. He began the practice of law at Staunton during the same year, and in 1836 was elected to the State legislature, where he was continued until 1840. The following year he was made a representative in congress, and in 1850 entered the cabinet of President Fillmore as secretary of the interior. He labored to prevent the secession of Virginia, and, after the war, was instrumental in securing the restoration of order and the enforcement of the laws in that State. He was a member of the faculty of the University of Virginia for eight years, resigning in 1886, and was president of the Historical Society of Virginia. He died Feb. 13, 1891.

STUART, JAMES, M. P., born at Markinch, Fifeshire, January 2, 1843; was educated at home, at St. Andrew's University, and graduated at Trinity College, Cambridge. Professor Stuart has taken a leading part in popular education. He has been instrumental in the foundation and establishment of several local colleges; has taken special interest in women's education, having originated the ladies' lectures in 1867, and the Cambridge higher examination for women in 1868. At the general election of 1885, Hackney being divided into seven districts, Professor Stuart stood for the Hoxton division of Shoreditch, and was elected by a majority of 1,037. He was again returned (as a Gladstone Liberal) in 1886 (but by a majority of only 245), and in 1892.

STUART, JAMES EWELL BROWN, Confederate officer, born in Patrick county, Va., February 6, 1833; died in Richmond, Va., June 12, 1864. He graduated at the United States Military Academy in 1854. With the commission of second lieutenant he entered the army and fought Indians for three years. In 1861 he joined the Confederate army with the rank of colonel, and served throughout the war, greatly distinguishing himself. He fought with Jackson and Lee, and won some very important battles, gaining the rank of general. With the exception of Sheridan, General Stuart was without doubt the foremost cavalry leader in either army. The boldness and rapidity of his movements were remarkable. His death resulted from a wound received in the battle of Yellow Tavern, Hanover county, Va.

STUBBS, WILLIAM, Bishop of Oxford, since 1889, and a distinguished English historian, was born at Knaresborough, June 21, 1825; educated at Ripon, and Christ Church, Oxford, ordained in 1848, and appointed professor of modern history at Oxford, 1866, curator of the Bodleian library, 1868, and Bishop of Chester, 1884. He wrote *The Constitutional History of England*, a work of great erudition, and other valuable works. He died April 22, 1901.

STURGIS, SAMUEL D., an American soldier, born in Pennsylvania, June 11, 1822, and was graduated at West Point in the class of 1846. In the war with Mexico he was present at nearly all the battles of note, and was captured at Buena Vista. He subsequently did garrison duty until 1861, when he was in charge of Fort Smith, Ark., but retired with his command and came North. He took command of the Union forces at Wilson's Creek, Mo., after the death of General Lyon, and August 10, 1861, was made brigadier-general, attached to the army of the Tennessee. In 1862 he was transferred to Washington, and was present at Antietam and Fredericksburg, being thereafter assigned

to the department of Ohio, as commander of cavalry; later he operated in Tennessee and Mississippi, and was retired June 11, 1886, having been promoted to be major-general in 1865. He died September 28, 1889.

STUYVESANT, PETER, Dutch governor of New York, born in Holland, in 1602; died in New York city in August, 1682. He was appointed director-general of the New Netherlands, and reached New Amsterdam on May 11, 1647. Among his first proclamations were orders to enforce the rigid observance of Sunday, and prohibit the sale of liquor and fire-arms to the Indians. In September, 1650, a meeting of boundary commissioners took place at Hartford, Conn., where the different colonial lines were permanently fixed, to the dissatisfaction of most of Stuyvesant's people. He fortified the city, by making a ditch, running from the North river to the East river, and erecting breastworks. In 1655 he equipped a fleet of seven ships with 700 men, sailed into Delaware Bay, and took possession of the colony of New Sweden. In 1664 King Charles ceded a large tract of land, which included the New Netherlands, to his brother, the duke of York. Four British war-ships, with 450 men, commanded by Capt. R. Nicholls, took possession of the harbor, and on August 30th, Sir George Cartwright bore to Stuyvesant a summons to surrender. At first he sent a defiant reply to the British naval commander, and ordered his troops to prepare for an attack, but later signed a treaty at his house on September 9, 1664. Nicholls was proclaimed governor, and the settlement became New York. In the following year Governor Stuyvesant went to Holland to report, and on his return spent the remainder of his life on his farm.

SUCRE, DE, ANTOINE JOSE, a South American patriot, born in Cumana, in 1793, and was killed some time after 1830. He fought under Bolivar, and in 1819 was made a brigadier-general. He succeeded Bolivar as commander, and was instrumental in freeing the country from Spanish thralldom. He was created grand marshal of Ayacucho, and in 1825 was chosen president of Bolivia.

SULLIVAN, BARRY, tragedian, born at Birmingham in 1824; made his first appearance on the stage at Cork, in 1840, when his success was so great that he determined to adopt the stage as a profession, and he followed it with uniform success, playing in all the principal cities in the world. He died May 3, 1891.

SULLIVAN, EDWARD, bishop, was born in Ireland, in 1835, and studied theology upon the completion of his preliminary education. He was ordained a priest in 1857, and was assigned to the parish of St. George, Montreal, where he became assistant, afterward becoming rector of Trinity Church, Chicago. He was consecrated bishop of Algoma, Canada, in 1882.

SULLIVAN, JOHN, soldier, born in Berwick, Me., February 17, 1740; died in Durham, N. H., January, 1795. Being major of a militia regiment at the breaking out of the Revolution, he received the commission of brigadier-general, and was present at most of the important battles of the war. In 1789 General Sullivan retired from the army and resumed the practice of law.

SULLIVAN, SIR ARTHUR SEYMOUR, was born in London, May 13, 1842. His father was principal professor at Kneller Hall, the training school for British military bands. He received his first systematic instruction in music at the Chapel Royal, St. James's, under the Rev. Thomas Helmore, and he was still a chorister when, at the age of fourteen, he gained, the first time it was competed for, the Mendelssohn scholarship. After two years' study under Mr. (afterward Sir Sterndale) Bennett, and Mr. (afterward Sir John) Goss, he studied at Leipsic for three years at the Conservatorium.



Upon his return to England in 1861, he brought with him his music to Shakespeare's *Tempest*, which was performed for the first time at the Crystal Palace. His next work was the cantata *Kenilworth*, produced at the Birmingham Festival in 1864. This was followed by a number of works before he wrote the light operas that have given him a world-wide reputation. These are *The Sorcerer*, *H. M. S. Pinafore*, *The Pirates of Penzance*, *Patience*, *Iolanthe*, *Princess Ida*, *The Mikado*, *Ruddygore* and *The Gondoliers*, and were written in conjunction with Mr. W. S. GILBERT, (q.v.) In his song-writing, which is extensive, his popularity has been greater, perhaps, than that of any other English composer. He was also musical editor of *Church Hymns*, for which he composed several of the best known tunes. He was knighted by the queen at Windsor, May 24, 1883. He died Nov. 22, 1900.

SULLY, JAMES, M.A., born at Bridgewater, Somersetshire, in 1842; was educated in the Independent College, Taunton, the Regent's Park College (one of the affiliated colleges of the University of London), and the University of Göttingen. He took to a literary career in 1871, beginning as a contributor to the *Saturday*, *Fortnightly*, and *Westminster* reviews. He is the author of *Sensations and Intuition: Studies in Psychology and Aesthetics*, and *Pessimism: a History and a Criticism*, *Illusions*, and other works.

SULLY, THOMAS, painter, born in Horncastle, England, June 8, 1783; died in Philadelphia, Penn., November 5, 1872. He came to the United States with his parents in 1792. At the age of twelve he was placed in an insurance office; at the age of sixteen went to his brother, a miniature painter in Richmond, Va. Sully studied at home and abroad, but in 1810 became permanently settled in Philadelphia, Penn., where he executed numerous portraits in oil of distinguished people. In 1837 he visited England to paint Queen Victoria in her coronation robes. He also illustrated several books.

SULLY-PRUDHOMME, RENÉ FRANÇOIS ARMAND, French poet, was born in Paris, March 16, 1839, and educated at the Lycée Bonaparte. He afterward became a lawyer's assistant, and published his first volume of poems in 1865. It attracted considerable attention, and the poem *Le Vase Fêlé* was pronounced a masterpiece of its kind. In 1881 he became a member of the Academy.

SUMNER, EDWARD V., an American general, born in Boston in 1796. He distinguished himself in the Mexican war and was made a colonel in 1855 and a brigadier-general in 1861. He was in a number of the important battles of the war and died at Syracuse, N. Y., March, 1863.

SUMNER, WILLIAM GRAHAM, was born at Pater-son, N. J., October 30, 1840; graduated at Yale College in 1863, and later pursued a course of study at the universities of Göttingen, Germany, and Oxford, England. He was ordained a minister of the Protestant Episcopal Church in 1867, and, until 1872, was assistant rector of Calvary church, New York city. In 1872 he was called to the chair of political economy and social science at Yale College. He is a free trader and has written *History of American Currency*, and other works.

SUMTER, THOMAS, was born in Virginia in 1734, and died near Camden, S. C., June 1, 1832. He removed to South Carolina when a boy, and entered the American army as lieutenant-colonel in 1776. When the British had apparently overrun the State he kept up the struggle, retreating, when hard pressed, to the swamps of the interior. He was made brigadier-general, and thanked by congress. He was a representative for South Carolina from 1789 to 1793 and from 1797 to

1801; United States senator from 1801 to 1810, and minister to Brazil from 1810 to 1811.

SUTRO, ADOLPH H., was born at Aix-la-Chapelle, Rhenish Prussia, April 29, 1830, and, upon the death of his father, came, with the survivors of the family, to the United States in 1850, and located at Baltimore. Sutro thereupon went to California, thence to Nevada, and, after a brief period of prospecting, arranged for the construction of what has since been known as the "Sutro tunnel." The undertaking having been chartered by the Nevada legislature, and by acts of congress in 1865 and 1866, operations were commenced October 10, 1869. Work progressed, notwithstanding its frequent interruption by the flooding of the excavations, and the tunnel was completed in 1879. It communicates with the Savage mine at a depth of over 1,600 feet, and connects with the "Comstock Lode" at a distance of nearly five miles from the tunnel's mouth, the main tunnel being also connected with mines adjoining by lateral excavations. By the terms of his contract with the company for whose benefit the work was carried on, Sutro received \$2 for each ton of ore recovered from the mines from the date when the same was reached. He derived millions of dollars for his services, a portion of which he expended in beautifying San Francisco. Died Aug. 8, 1898.

SUTTER, JOHN AUGUSTUS, pioneer, born in Kander, Germany, February 15, 1803; died in Washington, D. C., June 17, 1880. In 1834 he came to the United States and settled for a short time in St. Louis, Mo. Sutter soon began a roving life, visiting the Sandwich Islands and Alaska, and finally settling on the present site of Sacramento, Cal. Here he obtained a grant of land from the Mexican Government and became rich in lands and cattle. When gold was first discovered in California it was at a mill on Sutter's property. In the excitement that followed his laborers deserted him, his lands were lawlessly overrun by gold seekers, and gradually he was despoiled of his possessions until he was reduced to absolute want. The legislature of California granted him a pension of \$250 per month. Sutter moved East, first going to Lancaster, Penn., and from there to Washington, where he died.

SWAYNE, NOAH HAYNES, LL.D., an American jurist, was born December 7, 1804, in Culpeper county, Va. He was educated at Waterford, in that State, and upon his admission to the bar removed to Ohio, and established himself at Coshocton, where he began the practice of his profession. He served as prosecuting attorney of the county, also as a member of the State legislature; and, upon his appointment as district attorney for the State in 1831, removed to Columbus, the capital. He appeared as counsel in many of the leading causes heard and determined by the Supreme Court of the State, and became prominent by reason of his association with the defense of escaped slaves. He was identified with the Republican party from its inception, and in 1862 was appointed one of the justices of the Supreme Court of the United States by President Lincoln. In 1863 Dartmouth College conferred the degree of LL.D., and in 1865 he was similarly honored by Yale College. He died in New York city, June 8, 1884.

SWEATMAN, ARTHUR, D.D., bishop of Toronto, Canada, was born in London, England, November 19, 1834. He was educated at London University College, and is an honor graduate of Christ's College, Cambridge. In 1862 he was appointed to the curacy of St. Stephen's, Canonbury. On the invitation of Bishop Hellmuth he accepted, in 1865, the head mastership of Hellmuth Boys' College, London, Ontario. Resigning his educational charge, he became assistant rector of



St. Paul's, Woodstock, U. C., and arch-deacon of Brant; and, during the bishop of Huron's absence in England, acted as his commissioner. In March, 1879, he succeeded Bishop Bethune in the see of Toronto.

SWEENEY, THOMAS WILLIAM, born in Cork, Ireland, December 25, 1820. He came to the United States in 1832, and in 1848 was made lieutenant in the regular army. He served in the Mexican war under Gen. Winfield Scott, and later was sent to California, accepted a captain's commission in the Union army in the Civil war, reaching the rank of brigadier-general, and took part in the Fenian invasion of Canada. He died April 10, 1892.

SWEENEY, JOHN, a Roman Catholic bishop of Canada, was born near Clones, Ireland, in 1821, and at an early age accompanied his father to New Brunswick, locating at St. John. His education was commenced at St. Dunstan's College and completed at the College of Quebec, where he graduated in 1844, when he was immediately ordained a priest. After discharging the duties of his office in various parishes of New Brunswick, he became vicar-general of the diocese, and in 1860 was consecrated bishop of Southern New Brunswick, his see being located at St. John.

SWIFT, LEWIS, an American astronomer, was born at Clarkson, Monroe county, N. Y., February 29, 1820, and was educated at the academy in his native town. He began his professional career as a lecturer on magnetic and electrical phenomena, illustrating his subjects by experiments and exhibitions. Between the years 1862 and 1869 he made a number of important astronomical discoveries, and in 1872 located at Rochester, where the Warner Observatory was erected, in which he has since pursued his investigations. His discoveries include the comet of 1862, and similar bodies at intervals from that year to the present time. The value of his researches has been recognized by the Vienna Academy of Sciences of France, by private individuals, and in other forms, including the conferring on him of the degree of Ph.D. by the Rochester University, and by his election to membership of the Royal Astronomical Society of Great Britain. He has been the inventor of microscopic and astronomical appliances, and is a frequent contributor of articles to scientific publications.

SWINBURNE, ALGERNON CHARLES, was born in London, April 5, 1837. He entered as a commoner at Balliol College, Oxford, in 1857, but left the university without taking a degree. He became an author of some note, a number of tragedies being among his works.

SWING, DAVID, an American clergyman, was born at Cincinnati, Ohio, August 23, 1830, and graduated at Miami University, at Oxford in that State, during the summer of 1852. He prepared himself for the ministry, but in 1853 became professor of languages at Oxford, where he remained until 1866, when he was called to the pastorate of the Fourth Presbyterian Church of Chicago. After the fire of 1871, in which the church was destroyed, Professor Swing preached in McVicker's theater. In 1874 charges of heterodoxy were made against him by Prof. F. L. Patton, but after a trial continuing many weeks he was acquitted. He soon after resigned from the Chicago Presbytery, and from 1878, when the Music Hall of Chicago was completed, he occupied the auditorium of that edifice for church purposes, preaching there each Sunday, to a congregation that was limited only by the capacity of the accommodations available, until his death, Oct. 31, 1894.

SWORD, JAMES B., an American artist, was born at Philadelphia, October 11, 1839. He studied his profession at the Philadelphia Academy during 1861, though he had executed a number of sketches while

traveling in China and throughout the United States at a date anterior to that year. His works are suggestive of American scenery and are highly commended. In 1878 he was elected president of the Philadelphia Art Society, a position he has since occupied.

SYBEL, HEINRICH VON, one of the most eminent of living German historians, born at Düsseldorf, December 2, 1817; studied history for four years at Berlin, under the famous Von Ranke, took his degrees at the University of Bonn, and became extraordinary professor there in 1844. He was appointed director of the Prussian State Archives at Berlin in 1875. His principal work is a *History of the French Revolution*, which has been translated into English by Mr. Walter C. Perry, from the third German edition. Died Aug., 1895.

SYKES, GEORGE, an American soldier, was born at Dover, Del., October 9, 1822, and graduated at West Point in 1842, being commissioned a lieutenant in the third infantry. He served in Florida and Texas until the Mexican war, in which he took an active part, participating in all the battles leading up to the capture of the city of Mexico, at which he was present. He was promoted to be brevet-captain for his gallantry in the various campaigns, and at the opening of the Civil war was stationed on the frontier. He was appointed a major of the 14th regular infantry in May, 1861, and brigadier-general during September of the same year. In the Peninsular campaign he was attached to Fitz-John Porter's command, fought at Gaines' Mills and in other engagements, and was made major-general of volunteers in November, 1862. He led the fifth corps at the battles of Chancellorsville and Gettysburg, and was actively engaged until he was transferred to Fort Leavenworth, in 1864. He died at Fort Brown, Texas, February 9, 1880, colonel of the 20th infantry, and his remains were interred at West Point.

SYLVESTER, JAMES JOSEPH, M.A., LL.D., F.R.S., was born September 3, 1814, in London. Professor Sylvester is chiefly known as an algebraist, and as a friend and fellow-worker of Arthur Cayley. He has given a theory of versification in a volume published under the title of *Laws of Verse*; is the inventor of the plagiograph, the geometrical fan, and other geometrico-mechanical instruments. Died Mar., 1897.

SYMINGTON, ANDREW JAMES, was born at Paisley, Scotland, July 27, 1825, and obtained his education in the Paisley Academy. When nineteen years of age he became a contributor of German translations to the standard periodicals of the day, notably the *Edinburgh Magazine*, and in 1859 visited Iceland, an account of his journey and experiences being subsequently published in a book, *Pen and Pencil Sketches of Farøe and Iceland*. He passed the year 1874 in the United States, and wrote the result of his observations, including sketches of some of the leading men, which were also published in book form. He is a member of the Royal Society of Copenhagen, and of the Biographical Society of New York, and is the author of a number of works in addition to those mentioned, which have been republished in America.

SYMME, JOHN CLEVES, soldier, born in New Jersey in 1780; died in Hamilton, Ohio, May 28, 1829. His uncle, of the same name, was chief justice of New Jersey, and obtained a government grant of 1,000,000 acres of land in Ohio, on which he founded the settlements of North Bend and Cincinnati. Symmes entered the army as an ensign in 1802, became captain in the war of 1812, and served at the battle of Niagara, and in the sortie from Port Erie. Later he was settled in Newport, Ky., where he devoted his time to natural philosophy. In 1818 he promulgated the novel theory,



by speech and in type, that the earth is a hollow sphere, habitable within, and open at the poles for the admission of light, containing within six or seven concentric hollow spheres, also open at the poles. In 1822 he petitioned congress to fit out an expedition to test his hypothesis. In 1826-27 he lectured on this subject at Union College where his address was received with ridicule.

## T.

**TAAFFE, COUNT EDWARD FRANCIS JOSEPH**, Austrian statesman, born at Prague, February 24, 1833, is both an Austrian Count and Viscount Taaffe of Corren, and Baron of Ballymote, Sligo, in the Irish peerage. He was appointed Governor of Salzburg in 1863, became Austrian Minister of the Interior and Vice-President of the Ministry in 1867, and President, 1869; became Governor of the Tyrol in 1871, and was again premier from 1879 to 1893. Died Nov. 29, 1895.

**TACHE, ALEXANDER ANTOINE**, born in Rivière-du-Loup, Canada, July 23, 1823, died June 22, 1894. He graduated at the college of St. Hyacinth, studied theology, became an Oblate monk, labored as a missionary among the Red River Indians, reached St. Boniface, 1845, and was there raised to the priesthood. Summoned to France by the superior of the Oblate Fathers, he was consecrated bishop of Arath in Viviers, November 23, 1851. He made a visit to Rome and then returned to Canada to his missionary work. He founded new missions, and through him many chapels and schools were built. About this time the Metis had some grievances, and Bishop Tache laid them before the Canadian Government, to which no attention was paid. He was obliged to go to Italy to take part in the council of the Vatican at Rome, and during his absence the troubles came to a crisis. He at once returned and quieted the insurrection. He was empowered by the Imperial and Dominion Governments to offer full pardon for all political offenses committed by the insurrectionists. On September 22, 1871, St. Boniface was erected into a see and Bishop Tache was appointed archbishop.

**TACHE, SIR ETIENNE PASCHAL**, a Canadian statesman, was born in St. Thomas, Lower Canada, September 5, 1795, and died there July 29, 1865. Serving in the war of 1812, he, at its close, began the study and later the practice of medicine, which he continued until 1841, when he entered parliament. He was deputy adjutant-general in 1847-48, and following that was commissioner of public works. He was knighted in November, 1858, as a recognition of his services, and was appointed, jointly with Sir Allan MacNab, to the honorary rank of colonel in the British army and aide-de-camp to the queen.

**TAFT, ALPHONSO**, was born in Townshend, Vt., November 5, 1810. Graduating at Yale, he remained there as tutor from 1835 to 1837. He was admitted to the bar in 1838 and began practice in Cincinnati, Ohio, after 1840. Judge Taft's political career was not a very exciting one. He was defeated for congress in 1856 by George H. Pendleton, and in 1875 was candidate for governor of Ohio, but an opinion he had expressed on the question of the Bible in the public schools created so much opposition that he was defeated. This same opinion, however, was affirmed later by the Supreme Court of Ohio, and is now a law of the State. When William W. Belknap resigned as secretary of war Judge Taft was chosen by the president to fill the vacancy, and on March 8, 1876, he was duly installed, but in the following May was transferred to the attorney-

**SYMONDS, JOHN ADDINGTON**, born at Bristol, England, October 5, 1840; was educated at Harrow School, and Balliol College, Oxford. He wrote an *Introduction to the Study of Dante*; *Studies of the Greek Poets*, 2 vols.; *Sketches in Italy and Greece*; *Renaissance in Italy*, and other similar works. He died at Rome, April 19, 1893.

generalship, a post he held until the expiration of President Grant's term of office. The judge was appointed minister to Austria in April, but was transferred to Russia in August, 1885. He was a trustee of the University of Cincinnati, and in 1872-82 served on the corporation of Yale, which gave him the degree of LL.D. in 1867. He died in May, 1891.

**TAGLIONI, MARIE**, a celebrated ballet dancer, was born in Stockholm in 1804, and died in 1884, in London. She was taught dancing by her father, Fillippo Taglioni, who was ballet master in her native town. She made tours through all the principal cities of the Continent and succeeded in amassing a large fortune, but lost it in the Franco-German war, after she had retired to private life. In 1832 she married Count Gilbert de Voisins. After the loss of her property she went to London and supported herself by teaching dancing.

**TAINÉ, HIPPOLYTE ADOLPHE**, a member of the French Academy, born April 21, 1828, at Vouziers (Ardennes); pursued his studies with brilliant success in the Collège Bourbon, gaining the prize of honor for rhetoric at the general competition of 1847, and being in the following year first on the list of those admitted to the normal school (section of literature). After having obtained, in 1853, the diploma of doctor in letters, he renounced the career of university teaching and brought out several works. Two of these, written in a most brilliant style, contained opinions diametrically opposed to the traditional doctrines of the university, and produced a great sensation. In March, 1863, M. Taine was appointed examiner in literature at the military school of Saint-Cyr, and, in October, 1864, professor of the history of art and esthetics at the École des Beaux Arts. In June, 1868, he married the daughter of M. Denuelle, a rich merchant. M. Taine was a candidate for the seat in the French Academy that had been vacated by the death of M. Thiers, but he was unsuccessful, being defeated by M. Henri Martin, the historian. Very soon afterward, however, M. Taine gained the coveted seat among the forty, being elected on November 14, 1878, in the place of M. de Lémenie. M. Taine was distinguished as historian, philosopher and critic, his chief works being *Classical Philosophy of the 19th Century in France*, *History of English Literature*, a profound and comprehensive work, *The Intelligence*, and *The Origins of Contemporary France*. He died March 6, 1893.

**TAIT, ARTHUR FITZWILLIAM**, a painter, was born at Livesey Hall, near Liverpool, England, August 5, 1819. In his profession he was mainly self-taught. He came to the United States in 1850, and soon began to attract attention by his pictures of animals. Many of his works have been lithographed or engraved.

**TAIT, JOHN ROBINSON**, artist, was born in Cincinnati, Ohio, January 14, 1834. Graduating at Bethany College, Virginia, in 1852, he went abroad. It was nearly twenty years after this before he made himself any reputation as an artist, having devoted his time mainly to literature and to amateur sketching. In



1859 he went abroad a second time, and began studying at Düsseldorf under August Weber and Andreas Achenbach. His works include *Lake of Four Cantons*, *A Rainy Day*, *Under the Willows*, and many others.

TAIT, PETER GUTHRIE, M.A., was born at Dalkeith, Scotland, April 28, 1831, and educated at the Academy and University of Edinburgh, and at Peterhouse, Cambridge, where he was senior wrangler and first Smith's prizeman. In 1852 he was elected fellow of Peterhouse, and in 1854 was appointed professor of mathematics at Queen's College, Belfast, where he remained until 1860, when he was elected professor of natural philosophy at Edinburgh. Professor Tait has published a number of scientific and other works, among which are: *Dynamics of a Particle*, 1856; *Elements of Philosophy*, 1873; *Quaternions*, 1867; *Thermo-dynamics*, 1868; *Recent Advances in Physical Science*, 1876; *Heat and Light*, 1884; *Properties of Matter*, 1885, besides a large number of papers contributed to periodicals. Died July 4, 1901.

TAIT, P. MACNAGHTEN, F.R.G.S., was born in Edinburgh in 1823. He first entered an insurance office in Edinburgh, and in 1851 proceeded to India; was in India from 1857 to 1859, the years of the mutiny, when he raised the rifle company of the Calcutta volunteer guards, in which he held a command. Subsequently he traveled in India, Ceylon, China, Japan, Canada, and the United States. He has contributed largely to the Calcutta *Quarterly Review*, also to the *Examiner*, and other London weekly papers. His writings are mainly upon matters of mortality and on subjects interesting to insurance companies.

TALBOT, EDWARD STUART, M.A., born in London, 1844. He was educated at Charterhouse and Christ Church, Oxford, where he obtained a first class Lit. Hum., 1865, and first class law and modern history, 1866. He was ordained in 1867 and 1870. He was elected senior student of Christ Church in 1866, and wrote the Ellerton prize essay in 1869, on the *Influence of Christianity on Slavery*. In 1870 he was appointed first warden of Keble College, Oxford, and was select preacher in 1873 and in 1883.

TALBOT, ETHELBERG, bishop, was born in Fayette, Mo., October 9, 1848. He went to Dartmouth, where he graduated in 1870, and at the general theological seminary in 1873, being the same year ordained deacon in the Church of the Transfiguration. He soon became rector of St. James' Church at Macon, Mo., remaining there until elected to the episcopate. He was consecrated in 1887 missionary bishop of Wyoming and Idaho.

TALBOT, JOSEPH CRUIKSHANK, Protestant Episcopal bishop, was born in Alexandria, Va., September 5, 1816, and died in Indianapolis, Ind., on January 15, 1883. He was of Quaker extraction, and was educated at Pierpont Academy, in his native town. He engaged in business in Louisville in 1835, but while there he became impressed with the religious service of the Protestant Episcopal Church, soon uniting with it and abandoning Quakerism. Studying under the direction of the bishop, he became a candidate for holy orders, and was made a deacon in Christ's Church, Louisville, September 5, 1846. In 1853 Bishop Talbot went to Indiana, and became rector of Christ Church, at Indianapolis. In 1865 he was elected assistant bishop of Indiana, and upon the death of Bishop Uphold, in 1872, he became bishop of Indiana.

TALBOT, SILAS, a Revolutionary officer, was born in Dighton, Bristol county, Mass., in 1751, and died in New York city, June 30, 1813. Even as a boy he exhibited the traits that in later life made him famous for his boldness, and the energetic bravery with which

he fought the British was not exceeded by any other man in the army. During the first excitement in the colony he organized a company, and when the news of Lexington reached him he put his company at the service of Rhode Island, received a commission as captain, and joined the patriot army in the siege of Boston. Later he joined Washington's army, and attempted to burn the British fleet by sending a fire ship into the midst of it. He set fire to one of their vessels, but it was eventually rescued. From this time until 1779 his career was one of continued brilliancy and dash, and congress repeatedly voted him thanks. He was made a captain of the navy in 1779, and ordered to protect the coast of Long Island. While in command of the ship *George Washington* he was made a prisoner by the British, but after months of privations and cruelty he was, through the efforts of Benjamin Franklin and John Jay, exchanged for a British officer. Captain Talbot was wounded thirteen times, and carried to his grave five British bullets. He was buried in Trinity churchyard, New York city.

TALBOT, THOMAS, governor of Massachusetts, was born in Cambridge, N. Y., September 7, 1818, and died in Lowell, Mass., October 6, 1886. He was a lineal descendant of John Talbot, first earl of Shrewsbury. In 1840 he entered into a partnership with his brother Charles in Billerica, Mass., in the manufacture of broadcloth, where the business rapidly increased, and he soon accumulated a fortune. Mr. Talbot was for many years a member of the governor's council, and in 1872 was chosen lieutenant-governor on the Republican ticket, and on the election of Gov. William Washburn to the United States Senate he became governor of Massachusetts. Some of his official acts caused an opposition to his election in 1874, but in 1878 he was re-elected, defeating Benjamin F. Butler and Josiah Y. Abbott, candidates of the two wings of the Democratic party.

TALBOT, WILLIAM HENRY FOX, was born in Wiltshire, England, in 1800. Mr. Talbot was, without question, the real inventor of photography; but, by concealing the fact for five or six years, Daguerre, who, it seems, was working on the same problem, published his discovery, before Talbot was ready, in 1839. He, however, afterward discovered the process of photography on paper. His process was called calotype or Talbotype. This inventor died September 17, 1877.

TALCOTT, JOHN, soldier, was born in Braintree, England, about 1630; died in Hartford, Conn., July 23, 1688. He came to America with his father in 1632; was ensign and afterward captain of colonial troops from 1650 until 1660; was assistant magistrate of the colony of Connecticut before it was joined to New Haven, and was treasurer from 1660 until 1676. During the Indian war of 1676 he was in command of the army, with the rank of major, and did excellent service. He soon rose to the rank of lieutenant-colonel, and was known as the "Indian fighter." His official papers, some of which are preserved among the State records in Hartford, contain interesting notes regarding the war with King Philip.

TALLMADGE, BENJAMIN, was one of the most active soldiers in the Revolutionary war. He was the son of a clergyman, and was born at Brookhaven, N. Y., February 25, 1754. He received a high school education, and graduated at Yale in 1773. In June, 1776, he was appointed a lieutenant and adjutant in a Connecticut regiment. He served throughout the entire war, being rapidly promoted by General Washington for brave conduct and efficient service. In December, 1776, he was made a captain of the second light dragoons, and in the April following was made major.



On September 5, 1779, he was promoted to the rank of colonel. He was for some time a member of Washington's staff, and had the custody of Maj. John André until his execution. Litchfield, Conn., had become Colonel Tallmadge's home, and after the war he returned there and engaged in mercantile pursuits. He was sent to congress on the Federalist ticket in 1801, and served until 1817. Colonel Tallmadge married the daughter of General Floyd, a signer of the Declaration of Independence. He died at his home, Tallmadge Place, in Litchfield, March 7, 1835.

TALLMADGE, JAMES, was born in Stanford, N. Y., January 28, 1778; died in New York city, September 29, 1853. He was graduated at Brown in 1798, studied law, and afterward divided his time for several years between the practice of his profession and agricultural pursuits. In the war of 1812 he commanded a company of home-guards in the defense of New York. He was a member of congress from December 1, 1817, until March 3, 1819, and in the latter year made his famous speech in opposition to the extension of slavery. He was a member of the State Assembly of New York in 1824, and in the following year became lieutenant-governor. He founded the American Institute, of which he was president for nineteen years, and aided in the establishment of the University of New York, which gave him the degree of LL.D. in 1838. General Tallmadge was a vigorous writer and an eloquent orator.

TALMAGE, THOMAS DE WITT, clergyman, born in Bound Brook, N. J., January 7, 1832. He was educated at the University of the City of New York, and graduated at the New Brunswick Theological Seminary in 1856. His first pastorate was at Belleville, N. J., in the Presbyterian Church. In 1859 he went to Syracuse, N. Y., and in 1862 became located in Philadelphia, Penn. There he remained seven years, when he was called to the pastorate of the Central Presbyterian Church in Brooklyn, L. I. In the last named city, where he is still stationed, he has gathered a large number of followers, and acquired a national reputation for effective but rather sensational pulpit oratory. His congregation built him a church in 1870, having a seating capacity of 3,400, which was called the Brooklyn Tabernacle. The building was mainly of wood, and in 1871 it was enlarged to hold 500 more people, but in December of the next year it was destroyed by fire. On February, 1874, a new tabernacle was dedicated. The style was Gothic, and it had a seating capacity of 5,000. This edifice was burned in 1890, rebuilt and burned again in May, 1894. Died April, 1902.

TALON, chief of the Ottawas, was born about 1675. He was spokesman for the Indian allies of the French in their conference with Callières, the French governor of Canada in 1701. In the attack on Detroit by the Ottawas in 1706 he saved the life of Father Constantin, the chaplain of the fort. In 1707 he represented the Ottawa chiefs at Montreal, and told Vaudreuil, the governor, that the trouble at Detroit had been occasioned by the commandant, Bourgmont, who had seven times refused him an audience. The governor refused to make peace except on condition that Le Pesant, the chief who was supposed to have incited the attack on Detroit, should be surrendered. Le Pesant gave himself up, but was pardoned on the entreaty of Talon and other chiefs. The date of Talon's death is unknown.

TALON, JEAN BAPTISTE, Canadian administrator, was born in Picardy, France, in 1625; died in Versailles in 1691. He held government offices in Bordeaux, Lyons, and Hainaut, and on March 23, 1663, was appointed intendant of police, justice, and finance to French North America. He caused the first ships to be

built in the colony, and established trade between Canada and the West Indies. He established a military aristocracy, promoted emigration, and laid taxes and restrictions on the unmarried of both sexes. In 1672 he returned to France to become a member of the royal household. His *Mémoire à la Majesté sur l'état présent du Canada* was published in 1667. Talon was an unusually efficient and far seeing statesman.

TAMBERLIK, HENRI, tenor singer, born at Rome in 1820, made his first appearance at Naples in 1841, and after visiting various parts of Europe, sang at Covent Garden Opera, London, taking the leading tenor parts with conspicuous success. He fulfilled engagements in North and South America, and sang at Paris in 1858, and again in 1869. In the latter year he established a large manufactory of firearms at Madrid. Tamberlik died March 15, 1889.

TAMMANY, chief of the Delaware Indians, lived in the seventeenth century and was a party to William Penn's treaty. At that time his tribe was in constant warfare with the Six Nations and the Manhattan Indians. Little is known of his history, but all accounts agree that he was a sachem of great power and influence, much feared by his enemies. At the close of the Revolution the Pennsylvania troops took Tammany as their patron saint, and his day, March 12, was celebrated with festivities. He has since been made the patron of a powerful political organization in New York city, which perpetuates his name.

TANEY, ROGER BROOKE, chief justice, was born in Calvert county, Md., March 17, 1777. He was the son of a Roman Catholic planter, of a family that came to Maryland from England. Young Taney was graduated at Dickinson College in 1795, and was admitted to the bar in Maryland, in 1799. Entering politics he was elected to the house of delegates in the same year, and was the youngest member of that body. Like many other Federalists, he became a supporter of Jackson about 1824, and was called by him to the office of secretary of the treasury in 1833. During his term as secretary Taney put himself in antagonism to the senate by supporting Jackson in his attempt to get supreme control of the government funds. There was a clause in the charter of the bank of the United States which allowed the secretary of the treasury to place deposits in other places than the bank, at the same time stating his reasons for the order. The real meaning of the clause was to cover points where there was no branch bank, but Jackson chose to construe it to mean that the treasurer could refuse to deposit the revenues in any branch bank, or in the mother bank, as well. Taney, according to the president's request, gave the order, and the bank of the United States received no more of the revenues. The Senate would not confirm the treasurer in his position, but he had already done the work he and the president wished. Taney succeeded John Marshall as chief justice of the United States. He easily yielded to the all-pervading spirit of the times, that slavery was right and just. He rendered the important decision in the famous Dred Scott case in 1857. Judge Taney made use of the following language in giving this decision: "For more than a century before the Declaration of Independence, the negroes had been regarded as beings of an inferior order, and altogether unfit to associate with the white race, either in social or political relations, and so far inferior that they had no rights which the white man was bound to respect, and that the negro might justly and lawfully be reduced to slavery for his benefit." He also declared that the Missouri Compromise was unconstitutional, and that the suit Dred Scott had brought for his freedom must be dismissed for want of jurisdic-



tion. It has been proven in later years that Taney never used the language imputed to him above. He certainly did decide against *Dred Scott*, but he did not say that "a slave has no rights which a white man is bound to respect." The position he took on these matters in earlier years refutes the idea of his ever having used the language.

In 1810 Judge Taney defended Gen. James Wilkinson, when on trial before a court martial, and, though he refused a fee for his services, he was compelled to share the odium that attached to that officer. Taney seems to have been particularly unfortunate in the nature of the cases he undertook. In 1819 he defended one Jacob Gruber, who had, in camp meeting, condemned slavery in bitter terms. Taney said that slavery was a blot on our national character. The intimate connection Chief Justice Taney had with slave questions makes the date of his death, October 12, 1864, peculiarly interesting. It was on this date that the State of Maryland abolished slavery. Taney was connected with a great number of important cases, both as the lawyer and the judge upon the bench. His decisions and opinions are contained in the Supreme Court reports of Benj. R. Curtis, Benj. C. Howard, and Jeremiah S. Black. At the age of seventy-seven he began an autobiography, which he brought down to 1801. Chief Justice Taney was married in 1806 to Anne Phoebe Charlton Key, sister of Francis Scott Key. He died Oct. 12, 1864.

TANN, LUDWIG VON DER, Bavarian general, was born at Tann, June 18, 1815; died at Meran, April 26, 1881. He entered the army at an early age, and was made a lieutenant-general in 1860. In the war of 1866 he was chief of staff to Prince Charles of Bavaria, and in the war with France he commanded the first Bavarian corps. He took a prominent part in the operations attending the siege of Paris.

TAPPAN, ARTHUR, abolitionist, was born in Northampton, Mass., May 22, 1786, and died in New Haven, Conn., July 23, 1865. Receiving an ordinary common school education, he started in business for himself in Portland, Me. In 1814 he removed to New York city and opened a wholesale dry goods house, in which business he was very successful and made a great deal of money. He was noted for his charities and was identified with a number of institutions and religious societies. In 1828 he founded the *New York Journal of Commerce*, and in 1833, being warmly interested in the slave question, he established the *Emancipator*. So thoroughly identified was he with this movement that, on October 2, 1833, he was chosen president of the New York city Anti-Slavery Society, and, during the years of his commercial success, he gave that organization \$1,000 a month. Unfortunately, however, his firm failed, and he becoming a poor man, his substantial charities ceased, though the disposition to give still remained.

TAPPAN, BENJAMIN, jurist, was born in Northampton, Mass., May 25, 1773; died in Steubenville, Ohio, April 12, 1857. He received a public school education, and learned copper-plate engraving and printing, but subsequently became a lawyer and practiced in Steubenville. He was elected to the legislature in 1803, served in the war of 1812 as aide to Gen. William Wadsworth, was a judge of one of the county courts, and was president judge of the fifth Ohio circuit for seven years. President Jackson appointed him United States judge for the district of Ohio in 1833, and he was United States senator from December 2, 1839, until March 3, 1845. He became identified with the Free-soil movement at its inception, and was widely known for his anti-slavery sentiments. He compiled and pub-

lished *Cases Decided in the Court of Common Pleas*, with an appendix.

TAPPAN, HENRY PHILIP, was born in Rhinebeck, N. Y., April 23, 1805; died in Vevay, Switzerland, November 15, 1881. After his graduation at Union College and Auburn Theological Seminary, he served for a year as associate pastor of a Dutch Reformed church in Schenectady, N. Y., and for a short time as pastor of a Congregational Church in Pittsfield, Mass., which charge he was compelled by ill health to resign. From 1832 until 1838 he was professor of moral philosophy in the University of the City of New York, and in 1852 he became first chancellor of the University of Michigan. In 1863 he retired and went to Europe, where he spent the remainder of his life. Union College gave him the degree of D.D. in 1845, and Columbia that of LL.D. in 1853. Doctor Tappan wrote a number of works on mental and moral philosophy, and on educational subjects.

TARLETON, SIR BANASTRE, an English officer who came to America with Lord Cornwallis. He was born in Liverpool, England, on August 21, 1754, and died in England January 23, 1833. He served with credit during the Revolutionary war, but was completely defeated by General Morgan at Cowpens, S. C., in 1781.

TASCHEREAU, ELZEAR ALEXANDRE, Canadian cardinal, was born in Sainte Marie de la Beauce, province of Quebec, February 17, 1820. He was ordained a priest September 13, 1842, and for twelve years occupied the chair of moral philosophy in the Seminary of Quebec. He was sent to Rome in 1854 to present the decrees of the second provincial council of Quebec to the pope for ratification, remaining there two years to pursue the study of canon law. After his return he was director of the Petit Seminaire until 1859, when he was appointed director of the Grande Seminaire. In 1860 he became superior of the seminary and rector of Laval University, and in 1862 was appointed vicar-general of the diocese of Quebec. He became archbishop of Quebec in February, 1871, and was consecrated March 19th by Archbishop Lynch, of Toronto. In 1886, after several visits to Rome, he became the first Canadian cardinal, and immediately after his elevation he issued a circular forbidding the sale of liquors on Sunday. He died April 12, 1898.

TATNALL, JOSIAH, son of Josiah Tattall, statesman, was born in Bonaventura, near Savannah, Ga., November 9, 1795, and died there June 14, 1871. His father served in General Nathanael Greene's army until the close of the war. Josiah, the younger, was educated in England, but in 1811 he came home and entered the United States navy as a midshipman. He served in the war of 1812, and was also very active in the Mexican war. General Santa Anna was put in his care after his capture, and he personally prevented an attack on the Mexican general by an excited mob. Tattall, then a captain, was wounded at the bombardment of Tuscan. On the breaking out of the Rebellion, Captain Tattall resigned and offered his services to the State of Georgia. In March, 1862, he was ordered to take command of the iron clad *Merrimac*, Franklin Buchanan having been wounded. To save the vessel from capture he destroyed her, and, being censured by a court of inquiry, he demanded a court-martial, which honorably acquitted him. After the war he took his family to Nova Scotia, but for pecuniary reasons returned to his old home, where he was made collector of the port, a position he held until his death.

TAUCHNITZ, BERNHARD CHRISTIAN, publisher at Leipsic, celebrated for his editions of Greek and Latin classics, Hebrew and Greek Bibles, but best known to travelers and writers for his continental editions of



British authors, is a member of an old family of booksellers and printers—Karl Tauchnitz, half a century ago, having made himself famous for his cheap editions of the classics. He was born at Schleinitz, near Naumburg, in 1816, and died August 13, 1895. He began, in 1841, his series of English authors. In order to mark his appreciation of the endeavors of Tauchnitz to familiarize in Germany the *chefs d'œuvre* of a literature of which he himself was so great an admirer, the duke of Saxe-Coburg, the brother of the late prince consort, raised him to the rank of baron.

TAYLER, FREDERICK, painter in water colors, born near Elstree, Herts, April 30, 1804; became a contributor to the exhibitions of the old Water Color Society in 1831, his pictures being chiefly taken from subjects in highland, rural, and sporting life. Some of his earlier *Scenes on the Moors* were painted in conjunction with the late George Barrett. Occasionally he has executed compositions of importance from Sir W. Scott's works, in which his spirited style in the painting of horses and dogs is turned to good account, as in the *Festival of the Popenjay*, in 1854. He went to Paris as one of the jurors in the fine art department of the French great exhibition in 1855, and received the cross of the Legion of Honor. He died in 1880.

TAYLOR, ALEXANDER SMITH, ethnologist, was born in Charleston, S.C., April 16, 1817; died near Santa Barbara, Cal., July 27, 1876. After traveling extensively, he settled in California in 1848, and lived at Monterey until 1860. He was clerk of the United States district court at that place in 1853. Later he made his home on a ranch near Santa Barbara. He wrote much on the Indian race, the history of California, and natural history, besides publishing a translation of the diary of Juan Rodriguez Cabrillo.

TAYLOR, ALFRED, a Presbyterian clergyman, born in 1831 at Philadelphia, and pastor of churches of the Presbyterian denomination at Williamsport, Bristol, and other points in the State. He was at one time editor of the *Sunday School Workman*, and is the author of hymn books and publications having reference to Sunday school work.

TAYLOR, ARCHIBALD A. E., a Presbyterian divine, was born at Springfield, Ohio, August 27, 1834; graduated at Princeton College in 1854, and at Princeton Theological Seminary three years later. He has occupied the pulpit at Dubuque, Iowa, Cincinnati, Ohio, and elsewhere, and was president of Wooster (Ohio) College for ten years from 1873, since which time he has been editor of the *St. Louis Mid-Continent*, the official paper of Southwest Presbyterians. The degrees of D.D. and LL.D. have been conferred upon him by Wooster.

TAYLOR, BENJAMIN FRANKLIN, author and poet, was born in Lowville, N. Y., July 19, 1819, and died in Cleveland, Ohio, February 24, 1887. Graduating at Madison University in 1839, he soon after became the literary editor of the Chicago *Evening Journal*, and from 1860 to 1865 was its western war correspondent. Mr. Taylor was an exceedingly pithy writer, and many of his letters to the *Journal* were copied in foreign English papers, and some were translated and printed in other languages. Mr. Taylor was a great traveler and frequently delivered lectures. Among his well-known works is *The World on Wheels*.

TAYLOR, CHARLES, D.D., master of St. John's College, Cambridge, born in Middlesex, England, May 27, 1840; was educated at King's College School, London, and St. John's College, Cambridge. He proceeded to the degree of B.A. in 1862, and in the same year became the editor of the *Oxford, Cambridge, and Dublin Messenger of Mathematics*. In 1863 he pub-

lished his first work on *Geometrical Conics*. He was elected fellow of St. John's College in 1864, and master of the same, 1881, and shortly afterward received the degree of D.D., *jure dignitatis*. He is the author of numerous articles on Hebrew, geometrical, and other subjects.

TAYLOR, GEORGE, a signer of the Declaration of Independence, was born in Ireland in 1716, and emigrated to America in 1736, locating at Durham, Penn. He was a member of the provincial assemblies that convened in Philadelphia during 1774, 1775, and 1776, and served in congress until March, 1777. He died at Easton, Penn., February 23, 1781.

TAYLOR, ISAAC, M.A., Litt.D., LL.D., canon of York, born May 2, 1829, in England, is the eldest son of the late Isaac Taylor, author of the *Natural History of Enthusiasm*. Educated at Trinity College, Cambridge, he obtained the silver oration cup and graduated as a wrangler in 1853. In 1854 he edited a translation of Becker's *Charicles*. He was ordained in 1857 to a country curacy, and published in 1860 *The Liturgy and the Dissenters*. He afterward took charge of a London parish. During a visit to Italy in 1872 his attention was directed to the unsolved problem of the language and ethnological affinities of the Etruscans. In 1879 he received from the University of Edinburgh the degree of LL.D., *honoris causa*, in recognition of his discoveries and philological attainments. In 1883 Doctor Taylor published, in two large volumes, his important work, entitled *The Alphabet, an Account of the Origin and Development of Letters*, in which he endeavored to trace the origin of all known alphabets to one primitive script, developed by the Phoenicians from the hieratic Egyptian writing. In 1885 he was made canon of York. Died Oct. 18, 1901.

TAYLOR, ISAAC E., an author and native of Essex, England, was born in 1834, graduated at Trinity College, Cambridge, in 1853, taking orders in the church of England three years later. He is the author of works principally of a philological character, which have attained to a wide circulation both in England and throughout Great Britain.

TAYLOR, JAMES MONROE, D.D., a Baptist divine, born at Brooklyn, N. Y., August 5, 1848, and educated at the University of Rochester; subsequently graduated at the Rochester Theological Seminary, and completed his studies in Europe. From 1873 to 1881 he was stationed at South Norwalk in charge of a Baptist church, and at Providence, R. I., until June, 1886, when he became president of Vassar College.

TAYLOR, JOHN, successor to Brigham Young as president of the Mormon church, was born at Winthrop, England, November 1, 1808, and became converted to the Mormon faith during 1836, at Toronto, Canada. From that date up to his death, July 25, 1887, he was identified with the management of that church, being also editor of *The Mormon* and other church publications. He was an earnest advocate of polygamy, and was indicted for that crime in March, 1885, but escaped trial by flight, and remained in hiding until he died.

TAYLOR, JOHN W., an American jurist and speaker of the House of Representatives, was born at Charlton, in Saratoga county, N. Y., March 26, 1784, and died at Cleveland, Ohio, September 8, 1854. He served in congress continuously for a period of twenty years from May 14, 1813; was speaker of the House at the date of the passage of the Missouri Compromise and delivered the first speech in that body opposing the extension of slavery. He was one of the founders of the National Republican party, and a public speaker of extended reputation.



**TAYLOR, RICHARD**, a son of President Zachary Taylor, was born at New Orleans, January 27, 1826; and graduated at Yale College in 1845. He participated in the battles of Palo Alto and Resaca de la Palma, and when the Civil war broke out was a sugar planter in St. Charles Parish, La. He entered the Confederate army, as colonel of the 9th Louisiana regiment, and served through the campaign of Northern Virginia, during which he became a major-general. He defeated General Banks' Red River expedition in 1864. He surrendered during May, 1865, and after the war figured in politics as a prominent Democrat. He died in New York city, April 12, 1879.

**TAYLOR, SIR RICHARD CHAMBER HAYES**, K.C.B., born at Dublin, March 19, 1819; was educated at Hazelwood School, and at the Royal Military College, Sandhurst, and entered the army as ensign of the 79th Highlanders in 1835. He served in various colonies and in the Crimean war, including the battles of the Alma and Balaklava, siege and fall of Sebastopol. He was active also in the Indian mutiny. He was promoted colonel, May, 1858; major-general, March, 1868; lieutenant-general, October, 1877; general, April, 1883; and nominated C.B., 1857, and K.C.B., 1882.

**TAYLOR, WILLIAM**, a bishop of the Methodist Episcopal Church, was born in Rockbridge county, Va., May 2, 1821, and became an itinerant in 1843, since when his missionary labors in all parts of Europe, Egypt, Australia, Tasmania, New Zealand, Asia, Africa, and India have been constant and productive of great good. On May 22, 1882, he was consecrated missionary bishop of Africa, and, going to Central Africa, located thirty-six mission stations, also providing seventy missionaries for their management and conduct. He is the author of a number of religious works, also of works relating to missionary labors. Died May, 1902.

**TAYLOR, WILLIAM MACKERGO**, a prominent American clergyman, born in Kilmarnock, Scotland, October 23, 1829. He graduated at Glasgow University, also at the Presbyterian Seminary of Edinburgh, was licensed to preach in 1853, and in 1872 accepted charge of the Broadway Tabernacle Church in New York city. His writings upon religious and biblical subjects are numerous, and are accepted as authorities. He died in February, 1895.

**TAYLOR, WILLIAM ROGERS**, an American naval officer, was born at Newport, R. I., November 7, 1811, and entered the navy as a midshipman, April 1, 1828. From that date up to November 7, 1873, when he was retired, he was constantly in the service, in which he rose steadily in official rank from passed midshipman to that of rear-admiral, the latter promotion taking effect January 19, 1871. He died April 14, 1889.

**TAZEWELL, LITTLETON WALLER**, born in Williamsburg, Va., December 17, 1774; died in Norfolk, Va., March 6, 1860. He was graduated at William and Mary in 1792, read law, and in 1796 was admitted to the Richmond bar. In 1800 he was elected a member of Congress. In 1819 he was appointed one of the United States commissioners for the purchase of Florida from Spain, and in 1824 was elected to the United States Senate, where he served two terms. He opposed the nullification measures of South Carolina, but also dissented from the high Federal doctrines of President Andrew Jackson. In 1834 he became governor of Virginia, and after the expiration of his term of office retired from politics.

**TCHERNAIEFF, MICHAEL GREGOROVITCH**, a Russian general, born October 24, 1828; entered the Russian military service in 1847, distinguished himself greatly in the Crimean war, and attained the rank of a general of infantry. On the conclusion of the Crimean

war he was first appointed chief of the staff of a division in Poland, and in 1858 he was sent to Orenburg in the capacity of aide du chef de la ligne du Syr Daria. In 1859 he commanded an expedition on Lake Aral, to support the Khirgiss tribes, at war with the Khivans. After a period of service as quartermaster-general of the left flank of the line held by the army of the Caucasus, Tcherniaeff for some time acted as chief of the staff of the corps at Orenburg. After a time he retired from the army, and passed a legal examination qualifying him to adopt the profession of a notary, when the emperor begged him to reënter the army. He did so in compliance with the imperial request, and was reinstated in his rank. After vainly waiting a whole year for active employment, he again retired from the army, and purchased the *Ruski Mir*, a journal which boldly advocated Slav interests, and of which, after he had quitted the military service altogether, in July, 1874, he became the recognized editor. When, in 1875, the insurrection in Herzegovina broke out, he opened a subscription in its behalf, and afterward, in the summer of 1876, he went to Belgrade and took the command-in-chief of the Serbian army. The campaign was most disastrous to the Servians, although their army was largely reinforced by Russian volunteers. Tcherniaeff's proclamation of Prince Milan as king of Servia was much censured at the time as a rash and foolish act. General Tcherniaeff left St. Petersburg September 12, 1882, for Tashkend, to take up the reins of government there. Died Aug. 17, 1898.

**TECK, PRINCE AND DUKE OF (FRANCIS PAUL CHARLES LOUIS ALEXANDER)**, count of Hohenstein, only son of Duke Alexander of Würtemberg and the Countess Hohenstein, was born August 27, 1837. By the German law, the marriage of his mother to Duke Alexander was only recognized asmorganatic, and consequently Prince Teck and his two sisters bore the titles of count and countesses of Hohenstein until December 1, 1863, when a royal decree of the king of Würtemberg conferred upon them the title of Prince and Princess Teck. He served in the Austrian army, but resigned his commission in 1866. He married the Princess Mary Adelaide, of Cambridge, June 12th, and was created an Hon. G.C.B. (civil division), July 6, 1866.

**TECUMSEH**, a Shawnee chief, was born on the Scioto river, not far from the present site of Springfield, Ohio, about the year 1768. His father was a brave, and was killed in battle while Tecumseh was a child. The youth early began to show an antipathy to the whites, and, as he grew older, developed great abilities as an organizer and leader. When but twenty years of age he engaged in a fight with Kentucky troops at Mad river, and, it being his first engagement, it is said he turned and ran; though it is certain that a little later he became as brave as the bravest, and never flinched when under the hottest fire. Tecumseh claimed that the treaties by which large tracts of Indian land had been given to the settlers were illegal, and he set about forming a coalition with all the western and southern tribes. His brother, ELLSKWATAWA (*g. v.*), known as the "Prophet," joined with him in this endeavor, and together they obtained a very considerable following. Gen. William Henry Harrison was then governor of the Northwestern territory, and warned the two chiefs that their schemes would certainly react upon themselves.

In August, 1810, they were invited to a conference with the governor, and Tecumseh appeared with 400 fully-armed warriors, whom he encamped in a grove near Vincennes, Ind. The Indian chief refused to enter a house for the "quiet talk," saying, "houses were built for you to hold councils in; Indians hold theirs in



the open air." He made an eloquent speech and was invited to take a seat near General Harrison. In the discussion that followed, Tecumseh exhibited great violence and the council ended. The next day he expressed great contrition, and another attempt was made to come to an understanding, but it was futile, the conference ending without result. The Indian depredations continued and increased, and another conference was held.

Nothing was accomplished, and a few days later he set out to secure the Creeks, Choctaws, and Cherokees for his proposed combination of forces. It has been claimed that Tecumseh was defeated at the battle of Tippecanoe, but that is not so; he was not in command; his brother, the "Prophet," made the assault during the chief's absence and was badly beaten, though General Harrison had but 900 men, and the Indian forces were much larger. In 1812 Tecumseh joined the English and was given the rank of a brigadier-general. He refused to meet the Americans in council, and was in the action at Raisin river, though having been severely wounded just previously at Maguaga. He led 2,000 warriors at the siege of Fort Meigs, where he saved the American prisoners from massacre. He urged General Proctor to attack General Harrison when he landed, after the battle of Lake Erie, and took part in the British retreat, and was wounded while holding the passage of a stream. He was with Proctor at the battle of the Thames, Ontario, October 5, 1813, and having a presentiment of his death, took off his British uniform and clothed himself in his hunting dress. His Indians were driven back, but Tecumseh fought desperately, and though the report has never been truly verified, it is said he was killed in a hand-to-hand encounter with Col. Richard M. Johnston. The Americans did not know for several days that Tecumseh was dead.

TEFFT, BENJAMIN FRANKLIN, LL.D., a minister and author, was born at Floyd, Oneida county, N. Y., August 20, 1813, and graduated at Wesleyan University in 1835. He entered the Methodist ministry as pastor of the church at Bangor, Me., and thereafter, until 1861, was engaged as minister or teacher in various parts of the country. In 1861 he was appointed consul at Stockholm, and in 1864 immigration agent in the north of Europe for Maine. He took pastoral charge of a church at Portland, Me., in 1866, and in 1873 edited the *Northern Border*, a publication issued at Bangor. Besides numerous contributions to the literature of the day, Mr. Tefft was the author of many works of a religious and historical character. In 1846 Ohio Wesleyan University conferred the degree of D.D., and in 1852 Madison University, that of LL.D. He died at Brewer, Penobscot county, Me., September 16, 1885.

TEGETMEIER, WILLIAM B., F.Z.S., of German extraction, was born at Colnbrook, Bucks, England, in 1816, and educated for the medical profession at University College, London. Mr. Tegetmeier is well known as the author of *The Poultry Book*, *Pigeons*, *The Natural History of the Pheasants*, *Monograph of the Cranes*, etc., and as having republished many rare ornithological treatises. He has devoted much attention to the variation of species, and greatly assisted Mr. Charles Darwin in the preparation of his volumes on *The Variation of Animals and Plants under Domestication*, and other works. Mr. Tegetmeier is editor of several departments in the *Field* newspaper.

TEMPLE, FREDERICK, D.D., bishop of London, born November 30, 1821; was educated at the grammar school at Tiverton, and, proceeding to Oxford, became scholar of Balliol College, and took his degree of B.A. in 1843 as a double first class. He was elected fellow and mathematical tutor of his college, and, having been

ordained in 1846, was appointed principal of the Training College at Kneller Hall, near Twickenham, in 1848, and on the resignation of Doctor Goulburn, in 1858, head master of Rugby School. Doctor Temple, who was a chaplain to the queen, gained some notoriety in 1860 as the author of the first of the seven *Essays and Reviews*. At the general election of 1868 Doctor Temple took an active part in Warwickshire in support of Mr. Gladstone's measure for the disestablishment of the Irish church; and the premier nominated him to the bishopric of Exeter, in succession to the late Doctor Philpotts—an appointment which caused considerable commotion in clerical circles. Doctor Temple received episcopal consecration at Westminster, December 21, 1869, together with the bishops-elect of Bath and Wells, and of the Falkland Islands. Doctor Temple published *Sermons Preached in Rugby Chapel in 1858-60*, in 1861. In April, 1883, he was elected Bampton lecturer at Oxford for the ensuing year. On the death of Doctor Jackson in January, 1885, Doctor Temple was appointed bishop of London, and was succeeded at Exeter by Doctor Bickersteth.

TEMPLE, SIR RICHARD, BART., G.C.S.I., M.P., entered the third class of the Bengal civil service in 1846, and eventually was appointed political resident at Hyderabad. He was foreign secretary and a member of council to the governor-general of India from 1868 to 1874. His services, especially during the famine years 1874 and 1877, were remarkable. On his return home he offered himself as a Conservative candidate for East Worcestershire, but was defeated. He now sits, however, for the Evesham division; is vice-chairman of the London school board; and has been president of the social science congress. He is the author of *Men and Events of my Time in India*, 1882; *Oriental Experience: a selection of essays and addresses*, 1883; and *Cosmopolitan Essays*, 1886.

TEMPLE, WILLIAM GRENVILLE, an American naval officer, born in Rutland, Vt., March 23, 1824, and graduated at the United States Naval Academy in 1846. He participated in the capture of Vera Cruz, and in the naval operations against Mexico. He also assisted in the survey of the canal and railroad across the Isthmus of Tehuantepec, in 1852. During the Civil war he was attached to the eastern and western Gulf squadrons, and participated in the attack upon Fort Fisher, the capture of Wilmington, N. C., the bombardment of the James River forts, and the capture of Petersburg and Richmond. He was promoted through the various official grades to rear-admiral, February 22, 1884, and then retired from the service. He died June 28, 1894.

TENNEY, SANBORN, an eminent naturalist, was born at Stoddard, N. H., January 13, 1827, and died at Buchanan, Mich., July 9, 1877. He graduated at Amherst in 1853, and became professor of natural history at Vassar College, and later at Williams College. He owes his reputation chiefly to his works on geology and natural history.

TENNIEL, SIR JOHN, artist, son of John Baptist Tenniel, born in London, in 1820; was educated at Kensington. At a very early age he showed a taste for art, and while a boy his first picture was exhibited, and sold at the Gallery of British Artists, in Suffolk street. He studied art in his own way, and may be said to have been entirely self-taught. In 1851 he became a member of *Punch's* staff, and from that time has contributed to the illustrations of that periodical.

TENNYSON, ALFRED, LORD, D.C.L., F.R.S., poet laureate, was born in Somersby, Lincolnshire, England, August 6, 1809. He was the third son of the late Rev. G. C. Tennyson, by whom he was educated at the parsonage, and fully prepared for his entrance to



Trinity College, Cambridge. He early developed a genius for verse making, and while at Trinity in 1829 obtained the chancellor's medal for a poem in blank verse, the title being *Timbuctoo*. He had, however, two years previously, in conjunction with his brother Charles, published a small volume of poems, and in 1830, while still an undergraduate, he produced his *Poems*, chiefly lyrical. It was not until 1842 that Tennyson did anything to excite particular attention. In that year there were published two volumes, mainly a reproduction of earlier writings, but to which were added *Locksley Hall*, *The Talking Oaks*, *Dora*, *Morte d'Arthur* and other poems, since become famous. These volumes at once gave Mr. Tennyson a reputation and placed him in the first rank of English poets. His title to this position was further borne out by the publication a little later of *The Princess*, a medley, in 1847, and of *In Memoriam*, in 1849. This last work was issued anonymously, and was a tribute to the memory of a dear friend of his earlier days at Cambridge, Arthur H. Hallam, the son of the eminent historian. The death of Wordsworth in 1850 made it a matter of course, so popular had Mr. Tennyson become, that he was made poet-laureate in 1851. It was about this time, too, that Tennyson married, returning to Faringford, in the Isle of Wight, where he lived until 1869. Following his becoming poet-laureate, Mr. Tennyson published, in 1852, his *Ode on the Death of the Duke of Wellington*, which made its appearance on the day of the great soldier's funeral, and until his death few events of interest to an Englishman transpired without commemoration in the way of a poem from the laureate. In 1855 Mr. Tennyson produced *Maud*, and in 1859 the first four of his *Idyls of the King*, *Enid*, *Vivien*, *Elaine* and *Guinevere*. *Enoch Arden* was written in 1864, and in 1870 *The Holy Grail*. *Gareth and Lynette* was published in 1872, and the *Idyls of the King* completed in 1873. Tennyson wrote several dramas, *Queen Mary*, *Harold*, and *The Promise of May*, between the years 1875 and 1882. The latter was brought out at the Globe Theater, November 11, 1882. He also wrote *The Cup*, produced at the Lyceum theater, January 3, 1881, Mr. Henry Irving taking the leading rôle. *Queen Mary* was also produced there. *The Falcon*, play, was first put on the stage by Mr. and Mrs. Kendal in 1881, and it was published in 1884.

In 1855 the University of Oxford conferred on the laureate the degree of D.C.L., while the fellows of his own college at Cambridge elected him an honorary fellow in 1869. It was in this year the poet moved from the Isle of Wight and took up his residence in Petersfield, Hampshire. In December, 1883, Tennyson was created a lord, with the rank and title of Baron Tennyson of Aldworth, Sussex, and of Freshwater, Isle of Wight. His literary activity continued and he wrote these plays, *Becket*, in 1884 and *The Foresters*, in 1892, both of which have been produced on the stage, and the following volumes of poetry: *Tiresias*, *Locksley Hall Sixty Years After*, *Demeter*, *The Death of Enone*, *Akbar's Dream*, and other poems, published in 1892. He died a painless death from old age on October 6, 1892.

TERHUNE, MARY VIRGINIA, known as "Marion Harland," was born in Amelia county, Va., about 1830. Her father was Samuel P. Hawes, formerly of Massachusetts, but who afterward went to Virginia, and there established a mercantile business. Miss Hawes began writing at an early age; at fourteen she was a regular contributor to a weekly paper in Richmond, and two years later sent a sketch entitled *Marrying Through Prudential Motives* to a magazine. In 1856 Miss Hawes

married a minister named E. P. Terhune and moved north, making her home mainly in Newark, N. J., and in Springfield, Mass. She has been an untiring writer, and has contributed largely to magazines. She edited a monthly called *Babyhood* for two years, besides conducting departments in *Wide Awake* and *St. Nicholas*. In 1888 she established a magazine called *The Home-Maker*.

TERRY, ALFRED HOWE, a prominent officer of the Federal army during the Civil war, was born at Hartford, Conn., November 10, 1827. He studied law at Yale College, and practiced for a number of years. From 1854 to 1860 he was clerk of the Superior and Supreme Courts of Connecticut. Mr. Terry was at the beginning of the Rebellion a colonel of the second Connecticut militia regiment, which was mustered into the United States service at the first call for troops as the second Connecticut volunteers. Colonel Terry remained at its head until 1862, in April, when he was made a brigadier-general of volunteers and took a prominent part in the capture of Fort Wagner. General Terry was appointed commander of the northern district of the department of the South, including the islands from which the operations against Charleston had been carried on. General Terry's military career was one of great brilliancy and efficiency, but though in numerous hot engagements his most notable feat was in all probability the capture of Fort Fisher, which was accomplished in connection with Admiral Porter's naval forces. Fort Fisher commanded the sea approaches to Wilmington, N. C., and after the failure of a first attempt to capture it, General Terry was ordered by Grant to renew the attack, which he did with a force of about 8,000 men. After landing his troops he threw up entrenchments about two miles north of the fort. Admiral Porter then opened fire, and from 4:30 to 6 P. M. there were fired four shots per second, or 20,000 in all. This, it is claimed, was the heaviest bombardment of the war. This was on January 13, 1865. On the 14th the line of intrenchments was all completed, and Gen. Charles J. Paine was placed in command, with a division of infantry. General Terry had meanwhile made a reconnoissance of the fort, and, as it was readily seen that supplies for his troops could only be landed with difficulty, and that an open beach in midwinter was a poor place in which to establish a siege, he determined to carry the point by assault, and made arrangements to this effect with Porter as to the plan of attack. At 11 A. M., on the 15th, Admiral Porter opened fire with every gun in his fleet, and the fort was completely silenced. Regiments were then pushed forward to within 200 yards of the fort, taking shelter in shallow trenches. Porter landed some 2,000 sailors and marines, who took up a position 200 yards from the eastern extremity of the northern face of the fort. At 3:30 P. M., at a signal from General Terry, the fleet ceased firing and the troops rushed forward and gained a foothold upon the parapet. Then began a hot hand-to-hand fight, the opposing parties firing directly in each others' faces. The fort was more difficult to take by reason of the traverses, each one of which was stubbornly held by the enemy. By 10 o'clock the occupation of the works was complete. The garrison was originally 2,500 men, and 1,971 of them, with 112 officers, were made prisoners, the others being killed or wounded. The Union loss was 681 men, of whom only 88 were killed. General Grant, in speaking of this capture, said: "Thus was secured, by the combined efforts of the army and navy, one of the most important successes of the war." General Terry was promoted to be a brigadier general in the regular army, and a major-general of volunteers, and congress passed him a vote of thanks. He was



brevetted major-general in the regular army March 13, 1865; made a full major-general March 3, 1886, and in 1888 voluntarily retired. He died December 16, 1890.

TERRY, ELLEN ALICE, an English actress, born at Coventry, England, February 27, 1848, began her professional career in child's parts in 1856 at the Princess' theater, London, under the management of Mr. and Mrs. Charles Kean. She first played with Henry Irving at the Queen's theater in *Taming of the Shrew*; left the stage for seven years; in 1875 played "Portia" at the Prince of Wales' under Mr. Bancroft and returned to Mr. Irving when he leased the Lyceum theater. She has been very successful with him as "Portia," "Juliet," and "Rosalind," and in other rôles and has won great popularity on her visits to the United States.

TESLA, NIKOLA, electrician and inventor, born in Herzegovina in 1858, studied engineering in the École Polytechnique, Paris, was engineer of the Edison station, Paris, and was employed at Edison's laboratory near Orange, N. J., leaving after several years to open a laboratory of his own for independent research. He believed that by causing matter to pass to the stage of luminous vibration, without remaining for any appreciable time in the stage of heat vibration, it would produce light without heat, and in developing his theory he has made many striking experiments and discoveries, receiving a current of 200,000 volts in his body without harm, whereas a current of 2,000 volts is fatal. He hopes to set matter into vibration at a rate of three million vibrations a second, and in the meantime has shown that electric lamps and motors can be operated on one wire without a circuit and in 1888 invented the rotary field motor, the multiphase system of which is to be used in the 50,000 horse power plant being built to transmit the water power of Niagara Falls to Buffalo and other distant places.

TEWFIK PASHA (MOHAMMED TEWFIK), the late khedive of Egypt, was born November 10, 1852. He was the eldest son of the ex-khedive Ismail. He succeeded to the viceroyalty of Egypt by a decree of the Ottoman Empire, August 8, 1879. His succession was a roundabout matter, coming after numerous deaths in the Mohammed Ali family, and after the abdication of his father. He always acted in close harmony with the British authorities. He married the Princess Emineh, daughter of the late El Hany Pasha, in 1873, and died in January, 1892.

THACKERAY, ANNE ISABELLA (Mrs. Richmond Ritchie), daughter of the great novelist, William Makepeace Thackeray, was born in Albion street, London, in 1838. Some years of her childhood were spent in Paris, but she has passed the greater part of her life in Kensington. Her first published work was *The Story of Elizabeth*, 1863, which was at once successful; this has been followed by numerous other works of fiction.

THATCHER, HENRY KNOX, American naval officer, was born in Thomaston, Me., May 26, 1806, and died in Boston, Mass., April 5, 1880. His grandfather was Gen. Henry Knox. He was admitted to the United States military academy in 1822. He changed his cadetship for an appointment in the navy, and entered that service as a midshipman on March 4, 1823. He became passed midshipman in 1829, and was promoted to lieutenant in 1833, and by the action of the naval retiring board, September 14, 1855, he became a commander. On July 16th he was made a commodore. Commodore Thatcher served in various parts of the world during his early days in the navy, spending much time in the Mediterranean and the Pacific Ocean in command of stations. While in command of the North Pacific squadron he was presented with a

medal and made a knight of the Order of Kamehameha I., by the king of the Sandwich Islands, congress passing an act allowing him to accept the honors.

His continued service abroad prevented Commodore Thatcher from taking an active part in the early years of the Civil war. In July, 1863, he was ordered home from the Mediterranean and took charge of the steam-frigate *Colorado* on the North Atlantic blockade, and rendered Commodore Porter great assistance in his naval support of General Terry at the capture of Fort Fisher. He was appointed rear-admiral in advance of the regular promotion, and was ordered to succeed Vice-Admiral Farragut in command of the Western Gulf squadron at Mobile. It was in this command that Admiral Thatcher did the Union great service and caused the navy department to send him congratulations upon his success. He captured Mobile and the Confederate fleet after its flight up the Tombigbee river. On June 2, 1865, he occupied Galveston, Tex., and soon had the entire Gulf coast restored to the Union. In 1866 he received his regular commission as rear-admiral and was placed on the retired list, May 26, 1868. After his return home he was port admiral at Portsmouth, N. H., from 1869 to 1871, after which he was unemployed until his death.

THAXTER, CELIA, poet, was born in Portsmouth, N. H., June 29, 1836. She was the daughter of Thomas B. Lighton, an old resident of the Isle of Shoals, where, at Appledora, Celia spent most of her life. In 1851 she married Levi Lincoln Thaxter, of Watertown, Mass. She published *Among the Isle of Shoals*, *Driftweed*, *Poems for Children*, *The Cruise of the Mystery*, and other works. She died August 28, 1894.

THAYER, ABBOTT HENDERSON, an artist, was born in Boston, Mass., August 12, 1849. He studied in the Brooklyn Academy of Design and the National Academy, under Lemuel E. Wilmarth. He spent three years with Jean L. Gérôme in Paris, and also studied with Charles E. R. H. Lehman at the École des Beaux Arts. Thayer painted animals chiefly until his studies abroad, when he devoted his attention with much success to figure painting. At the Paris salon of 1877 he exhibited his *Sleep*, and the year following sent a portrait. *Child and Cats*, *Woman and the Swan*, and *An Angel* are some of his works.

THAYER, JOHN MILTON, soldier and statesman, was born at Bellingham, Mass., January 24, 1820. Graduating at Brown in 1841, he studied and practiced law. In 1854 he went to Nebraska. He was here made a brigadier-general of militia and organized several expeditions against the Indians. He was the colonel of the First Nebraska infantry, and led a brigade at Fort Donelson and at Shiloh. He resigned July 19, 1865, and served as United States senator, 1867-71. General Grant appointed him territorial governor of Wyoming. Returning to Nebraska, he was elected governor in 1886. Governor Thayer has been department commander of the Grand Army of the Republic in Nebraska.

THAYER, SYLVANUS, an American soldier and military engineer, was born at Baintree, Mass., June 9, 1785, and died in South Braintree, Mass., September 7, 1872. After graduating at Dartmouth in 1807, and at the United States military academy in 1808, Thayer was assigned to the corps of engineers. For four years he served as engineer and as instructor in mathematics at the academy, and was promoted first lieutenant July 1, 1812. During the war of 1812-14 he served with Gen. Henry Dearborn on the Niagara frontier and with Gen. Wade Hampton on Lake Champlain in 1813. In 1814 he was sent to Europe to study the operations of the allied armies before Paris, and to



examine military works. He was recalled, however, in 1817, and made superintendent of the academy at West Point. The present efficient condition of this military school is due in a great measure to the labors and abilities of Colonel Thayer, and his monument there bears the inscription, "Colonel Thayer, Father of the United States Military Academy." For thirty years he was engaged in the construction of defenses in and about Boston harbor. On June 1, 1863, he was retired from active service, and received the brevet of brigadier-general. General Thayer was also a writer, and his papers on practical engineering are considered valuable.

THEEBAW, ex-king of Ava (Burmah), was the eleventh king of the Alompra dynasty, founded in 1753 by the first Burmese king of that name. He was born in 1858, and succeeded his father, Mindong Min, in October, 1878. He was placed on the throne by the intrigues of the favorite queen of the late king, who assumed the position of dowager-queen, and caused Theebaw to be proclaimed. Theebaw sought to injure British trade and influence by placing the control of the whole commerce of his country and the taxation of the frontier in the hands of French agents, and took away the teak forests from British *concessionnaires* to give to French monopolists. In November, 1885, an ultimatum was dispatched by the English government to King Theebaw, but the proposals for an amicable settlement were refused. General Prendergast then sailed up the Irrawaddy to Theebaw's capital, and proclaimed his deposition and the annexation of Upper Burmah to England. Theebaw surrendered November 29th, and shortly afterward was sent, first to Rangoon, thence to British India, where he still remains.

THEED, WILLIAM, sculptor (son of William Theed, a well-known sculptor in his time, and an R.A.), was born at Trentham, Staffordshire, England, in 1804. For some years of his early life he was a pupil of Bailey, the sculptor of the Nelson monument in Trafalgar square. In 1826 Mr. Theed went to Rome, where he studied under the celebrated Thorwaldsen, Gibson, Wyatt, and Tenerani. In 1844 Mr. Gibson was commissioned by the late prince consort to send over designs by the best English artists in Rome for four marble statues to be placed in Osborne. Mr. Theed received a commission to execute two of them, his *Narcissus at the Fountain* and *Psyche Lamenting the Loss of Cupid*. Mr. Theed designed and executed the colossal marble group representing "Africa" on the Albert memorial in Hyde Park. His twelve bronze alto-reliefs from English history are in the princes' chamber, house of lords. Among other works are marble life-size statues of Mr. Gladstone, Mr. Bright, etc. Died in 1894.

THIBAUDIN, JEAN, a French general, was born at Moulins-Engilbert (Nièvre), November 13, 1822, and received his military education at Saint-Cyr. He first saw active service in Africa, and afterward went through the Italian campaign. On the outbreak of the Franco-Prussian war he was sent as lieutenant-colonel to serve under General Frossard, and took part in the battles of Forbach and Rezonville. He served as minister of war in 1883. On the visit of the late Alfonso XII, king of Spain, to Paris, in September, 1883, General Thibaudin was thought to be compromised in the hostile demonstrations that took place, and he was dismissed from the ministry (October 5, 1883). In 1885 he resumed his duties as a member of the committee of infantry.

THOMAS, CHARLES, a soldier of over forty-five years' service in the American army, was born in Pennsylvania about 1800, and died in Washington, D. C., February 1, 1878. After entering the army he was rapidly promoted, being made a brevet lieutenant-

colonel for meritorious service in Mexico, and brevet major-general for the same during the Civil war. General Thomas retired from active service in July, 1866.

THOMAS, CHARLES LOUIS AMBROISE, a French musical composer, born at Metz, August 5, 1811; is the son of a distinguished professor of music. He entered the Conservatoire in 1828, and there gained many prizes, including the grand prize of Rome at the competition of 1832. After his return from Italy he produced many works, including *Mignon*, *Le Carnaval de Venice*, and *Françoise de Rimini*. Died Feb., 1896.

THOMAS, CYRUS, a noted American entomologist and archaeologist, was born in Kingsport, Tenn., July 27, 1825. He practiced law until 1865, when he entered the ministry of the Evangelical Lutheran Church. He interested himself much in the study of geology and geography, and in 1869 joined Prof. F. V. Hayden in the survey of the Territories. He was elected professor of natural sciences in the year 1873, in the Southern Illinois Normal University, and in 1876 was appointed State entomologist of Illinois. A year later he became a member of the United States Entomological Commission, and since 1882 has been archaeologist to the United States bureau of ethnology. Professor Thomas has written many valuable works on these subjects.

THOMAS, ELISHA SMITH, D.D., Protestant Episcopal bishop, was born at Wickham, Mass., March 2, 1834; graduated at Yale in 1858 and at Berkley Divinity School in 1861, being ordained the same year. He passed 1869 in Europe, and upon his return became rector of St. Mark's church, Minneapolis, Minn., where he remained until July 1, 1876, when he accepted the rectorship of St. Paul's church, St. Paul, Minn. On May 1, 1887, he was consecrated assistant bishop of Kansas, and later was elevated to the bishopric. He died March 9, 1895.

THOMAS, FREDERICK W., was born at Providence, R. I., in 1808, and died September 30, 1866. He is noted in literature as the author of *Clinton Bradshaw*, *John Randolph of Roanoke*, and sketches of character, men and subjects prominent during the times in which he lived.

THOMAS, GEORGE H., American soldier, was born in Southampton county, Va., July 31, 1816, and died in San Francisco, Cal., March 28, 1870. At the age of twenty years he received an appointment to the West Point Military Academy, from which institution he graduated in 1840. He was commissioned lieutenant in the third artillery in the same year, and was first assigned to duty in New York, but was soon sent to Florida, to take part in the Indian war, where his gallantry gained him a brevet in 1841. After various transfers he was sent to Texas, and at the outbreak of the Mexican war he accompanied General Taylor's army, distinguishing himself at Monterey and Buena Vista, being brevetted captain for gallantry. In the latter battle the success of the American arms was, in great measure, due to the artillery under the command of Thomas, and the young officer was highly complimented by his superiors. He remained in Texas and Mexico till 1849, when he was again sent to Florida. In 1851 he was detailed as instructor of artillery and cavalry at the West Point Military Academy, remaining there four years. On the formation of the new cavalry regiments, Thomas was made junior major of one of them—the historic second. He was again ordered to Texas, and remained there till 1861, when he obtained leave of absence; before his leave had expired, his regiment, which had been surrendered in Texas, arrived in New York, and he was ordered to rejoin it and conduct it to



the barracks at Carlisle, Penn. While on this duty Fort Sumter was fired on, and the colonel, R. E. Lee, tendered his resignation, most of the other Southern officers having done so before. Thomas was solicited to go with his State, but remained loyal to the Union. He was given the command of a brigade, at the head of which he crossed the Potomac into Virginia, where he put to flight a militia force under T. J. (Stonewall) Jackson, on July 2d. He led Paterson's column in the Bull Run campaign, and in August, 1861, was made brigadier-general of volunteers, and assigned to duty in Kentucky. Here for a few months he was engaged in drilling raw recruits, his material afterward forming the first brigade of the army of the Cumberland. Early in January, 1862, he entered East Tennessee and fought the battle of Mill Springs, defeating the Confederates under Gen. Felix K. Zollicoffer, who was killed in the engagement. He took part in the Shiloh campaign, and in April, 1862, was made major-general. On September 29th the chief command of the army of the Ohio was tendered Thomas, but was declined by him, and in October he was placed in command of the five central divisions of the army. In December he took part in the battle of Stone River, and it was due to his fighting qualities that the national army was saved from defeat. At Chickamauga he bore the brunt of the attack, and though the result was a tactical defeat for the Union army, the victory was a barren one for the South. Immediately after this Thomas was placed in command of the army of the Cumberland, and, although his position was critical in the extreme, he held his own till the battle of Chattanooga released his army from its peril. In the spring of 1864 he entered the Atlanta campaign at the head of 65,000 men, and took the greater share of the continuous fighting of that memorable series of battles. After the Atlanta campaign Thomas was sent to Nashville, to guard the river during Sherman's march to the sea. Here he found himself confronted by Hood, whom he repulsed at Franklin, Tenn., inflicting heavy loss on the Confederates. The Union army was concentrated at Nashville, where the difficulties attending his position prevented Thomas' moving as promptly as it was thought he should do, and he was summarily removed from command by General Grant. This action of Grant's has caused much controversy, but Thomas was afterward restored to his command, although General Grant himself set out for the scene of operations. On December 16th Thomas again gave Hood battle, and succeeded in thoroughly annihilating his army. This battle of Nashville substantially ended the war in that quarter. On the first anniversary of the battle he received a gold medal from the State of Tennessee. After the campaign had closed Thomas remained in command of his department, and it was a raiding party which he had sent out that captured Jefferson Davis. After the war had ceased General Thomas was placed in command of the military district of the Tennessee, in which position he remained till 1867, when he was assigned to the third military district. While in this position he declined the promotion to lieutenant-general, which was tendered him. In 1869 he was removed to the military district of the Pacific, with headquarters at San Francisco, where his death occurred.

THOMAS, ISAIAH, born in Boston, Mass., January 19, 1749; died in Worcester, Mass., April 4, 1831. About the year 1770 he entered into partnership with his former employer in publishing the *Massachusetts Spy*. When the Tories at Boston loudly opposed Thomas' Whig principles he transplanted his types and press to Worcester, Mass., where the newspaper is still being published. In 1801 Mr. Thomas retired from the conduct of the paper. In 1812 he founded the

Worcester Antiquarian Society, donating to it his large and valuable library, besides giving land and building its hall, with a provision of about \$24,000 for its maintenance. Thomas also established the *New England Almanac*. In 1818 Alleghany College gave him the degree of LL.D. He was the author of a *History of Printing*, and was the first to introduce music type in America.

THOMAS, JOHN, founder of the sect known as "The Christadelphians," was born in London, England, April 12, 1805, and came to America in 1850. He made many converts to his religion, both in this country and Great Britain, also disseminated his views through the columns of various papers, of which he was the editor. He died in Jersey City, N. J., March 5, 1871, appointing Robert Roberts, of Birmingham, England, his successor.

THOMAS, LORENZO, general, was born at New Castle, Del., October 26, 1804, and graduated at West Point in 1823. He participated in the Florida and Mexican wars, and was brevetted lieutenant-colonel for gallantry at Monterey. He was chief of staff to Gen. Winfield Scott from 1853 to 1861, being made adjutant-general of the army, August 3d of the latter year, with the rank of brigadier-general. In 1863 he began the organization of the colored troops, so continuing until the close of the war. Upon the removal of Edwin M. Stanton as secretary of war by President Johnson, General Thomas was appointed secretary *ad interim*, but was unable to qualify. He was brevetted major-general March 13, 1865, retired February 22, 1869, and died at Washington, March 2, 1875.

THOMAS, PHILIP FRANCIS, was born at Easton, in Talbot county, Md., September 12, 1810; educated at Dickinson College, and was admitted to the bar in 1831. He served in the State legislature, and one term as member of congress, from 1839 to 1841, declining a re-nomination, and from 1848 to 1851 was governor of the State. In December, 1860, he became secretary of the treasury, vice Howell Cobb, resigned, and in 1866, being at that time a member of the Maryland House of Delegates, was chosen United States senator, but was refused his seat "because of having given aid and comfort to the Rebellion." In 1874 he was elected to congress, and in 1878 to the legislature, since when he has resided at Easton, where he is engaged in the practice of law. He died Oct. 2, 1890.

THOMAS, THEODORE, musician, was born at Esens, Hanover, Germany, October 11, 1835. He first played in public at the age of six. In 1845 his family removed to the United States, and for two years he played violin solos at concerts in New York. He then traveled for a time in the South, and, returning to New York in 1851 played at concerts and at the opera, at first as one of the principal violinists, and afterward as orchestral leader until 1861. In connection with others he began a series of chamber concerts in 1855, which were continued until 1869. His first symphony concerts were given in 1864-65, and extended (excepting from 1869 to 1872) until he left New York, in 1878, to take the direction of the College of Music at Cincinnati. He remained in Cincinnati until 1880, when he resigned this position and returned to New York. With brief intervals he was conductor of the Brooklyn Philharmonic Society from 1862, and of the New York Philharmonic Society from 1878 to 1891. From 1866 to 1878 he gave summer concerts nightly in various cities; and in 1869 he made his first concert tour in the eastern and western States, which he has repeated from time to time since. He has conducted five music festivals in Cincinnati (1873, 1875, 1878, 1880, and 1882), one in Chicago (1882), and one in New York (1882). In the winter of 1885-86 he organized a series of popular concerts

in New York, and in the same season he became the conductor of the newly established American opera. In June, 1890, he married a Miss Fay, of Chicago, a lady also endowed with great musical attainments, and in 1891 his orchestra was permanently established in Chicago, giving two concerts weekly at the Auditorium during each winter season.

THOMAS, THEODORE G., M.D., was born on the island of Edisto, S. C., November 21, 1821. He was professor of obstetrics and diseases of women in the College of Physicians and Surgeons, New York, and president of the American Gynecological Society in 1879. His medical works are regarded as standard authorities both in England and America.

THOMPSON, ALFRED W., artist, was born in Baltimore, Md., May 27, 1840; and studied art under Gieyere, Pasini, and others in Paris, but returned to the United States in 1868, locating in New York. He has been an extensive traveler in Europe, Asia, and Africa; is a member of the National Academy and of the American Artists' Society, and excels in landscapes and battle pictures.

THOMPSON, CEPHAS G., artist, born in Middleborough, Mass., August 3, 1809, died in New York city, January 5, 1888. His earlier efforts were made in Boston and New York, but in 1852 he visited Europe and studied in Rome for the next seven years. His most celebrated work was *Beatrice Cenci*. He returned to America in 1860, and settled in New York, where he became a member of the National Academy. He painted a large number of portraits, including Nathaniel Hawthorne, William Cullen Bryant and others.

THOMPSON, DANIEL P., born at Charlestown, Mass., October 1, 1793; was graduated at Middlebury College in 1820, studied law, and, in 1823, engaged in the practice of his profession at Montpelier, Vt., where he held numerous local offices. He was secretary of state from 1853 to 1855, also editor of the *Green Mountain Freeman* from 1849 to 1856, and contributed political and other literature to magazines and the press, besides publishing volumes of romance and poetry descriptive of New England life, many of which have been republished in England. He died at Montpelier, June 6, 1868.

THOMPSON, EDWARD MAUNDE, born May 4, 1840, in Jamaica; was educated at Rugby. He was appointed an assistant in the British Museum in May, 1861, became assistant-keeper of the MSS. in 1871, and was appointed keeper of the MSS. in succession to Mr. Bond, in 1878. He is joint editor of the publications of the Paleographical Society.

THOMPSON, ELIZABETH, a philanthropist, was born in Lyndon, Vt., February 21, 1821. She came from rather obscure parentage, her father being a farmer in a small way, and Elizabeth was, therefore, at an early age, obliged to "work out," which she did, taking places in different families as a domestic. This training gave her an insight into the needs of the working classes, and engendered a charitable disposition widely at variance with her means. The opportunity came to her, however, to do a great work. In 1843 she met Thomas Thompson, a wealthy Boston man, whom she married. Her husband readily acceded to her wishes to spend money liberally for charity's sake, and up to the time of his death, in 1869, many individuals and institutions had reason to thank this generous couple. After her husband's death Mrs. Thompson continued her beneficences. She became a warm supporter of the cause of temperance, and supported many public and private charities. She was one of the largest contributors to the Vassar College telescope, and gave to the Concord School the building where its summer

meetings are held. Mrs. Thompson founded the "Elizabeth Thompson Science Fund," by giving \$25,000 for the advancement of scientific research.

THOMPSON, HUGH MILLER, D.D., bishop, was born in county Derry, Ireland, June 5, 1830. Coming to the United States, he attended the Nashotah Seminary, from which he graduated D.D. in 1852. He entered the Episcopal ministry, and in 1883 was consecrated assistant bishop of Mississippi. Bishop Thompson has written a number of books.

THOMPSON, JACOB, was born in Caswell county, N. C., May 15, 1810; died in Memphis, Tenn., March 24, 1885. He was graduated at the University of North Carolina in 1831, and afterward practiced law in the Chickasaw country, Mississippi. He represented his district in congress from 1839 until 1857, when he was appointed secretary of the interior by President Buchanan. He resigned that office January 8, 1861, because, as he claimed, troops had been ordered to reinforce Fort Sumter without the consent of the cabinet. He was elected governor of Mississippi in 1862, and in 1864 was sent to Canada as a Confederate commissioner. He was chief promoter of the plot to release the Confederate prisoners at Camp Douglas, near Chicago, and to seize that city, and has been charged with attempts to organize other such movements in the North.

THOMPSON, JEFFERSON M., general, was born at Harper's Ferry, Va., January 22, 1826; was educated in the public schools, and at an early age removed to St. Joseph, Mo., where he became mayor in 1859. At the breaking out of the Civil war he entered the Confederate army and rose to the rank of major-general. After the war he settled in New Orleans, and was made chief engineer of the levee system. He died at St. Joseph, Mo., in the summer of 1876.

THOMPSON, JEROME, an American artist, born in Middleborough, Mass., January 30, 1814. He devoted his art largely to portrait painting and the painting of scenes suggestive of life in America. He became a resident of New York about 1832, and died in 1886.

THOMPSON, JOHN REUBEN, author, was born in Richmond, Va., October 23, 1823; died in New York city, April 30, 1873. He was graduated at the University of Virginia in 1844, and afterward began the practice of law in Richmond, but soon abandoned that profession for literature. In 1847 he became editor of the *Southern Literary Messenger*, and continued to conduct that magazine until 1859. In Augusta, Ga., he edited the *Southern Field and Fireside*, went to Europe in 1863, and became connected with the staff of the *London Index*, at the same time contributing to *Blackwood's Magazine*. He returned to America after several years, and became literary editor of the *New York Evening Post*.

THOMPSON, JOSEPH P., D.D., was born at Philadelphia in 1819, and died in Berlin, September 20, 1879. He was for many years pastor of the Broadway Tabernacle Church, New York, and aided in establishing the *Brooklyn Independent*, *New Englander*, and other journals, to which he was a frequent contributor. He was the author of biblical works, and wrote for the *North American Review* and several other secular periodicals.

THOMPSON, LAUNT, sculptor, was born in Abbeyleix, Queen's county, Ireland, February 8, 1833. He studied anatomy in Albany, N. Y., at the age of fourteen, and later entered a medical college, but abandoned medicine for art, and worked for nine years in the studio of Erastus D. Palmer, the sculptor. He removed to New York in 1858, and his talent for medalion portraits secured him remunerative employment. The following year he became an associate of the



Academy of Design, and in 1862 was elected an academician. He went to Italy in 1868, and again in 1875, and in 1874 he became vice-president of the National Academy. In the latter year Yale conferred on him the honorary degree of M.A. He died Sept. 26, 1894.

THOMPSON, RICHARD W., was born in Culpeper county, Virginia, June 9, 1809, and died February 9, 1900. He removed to southern Indiana, where he studied law and was admitted to the bar in 1834. He settled at Bedford, Ind., was elected to the lower house of the legislature in 1834, and to the upper house in 1836, served in congress from 1841 until 1843, and again from 1847 until 1849. He was offered the Austrian mission by President Taylor, the recordership of the land office by President Fillmore, and a seat on the bench of the Court of Claims by President Lincoln, but he declined all these offices. In 1867-69 he was judge of the eighteenth circuit of Indiana. Mr. Thompson entered President Hayes' cabinet as secretary of the navy, March 12, 1877, resigning in 1881 to become chairman of the American committee of the Panama canal company. He is the author of *The Papacy and the Civil Power*, and a *History of the Tariff*.

THOMPSON, ROBERT ELLIS, was born in Lurgan, Ireland, in 1844; was graduated at the University of Pennsylvania in 1865, and was licensed to preach by the Reformed presbytery of Philadelphia in 1867. In 1868 he became professor of Latin and mathematics in the University of Pennsylvania, was given the chair of social science in 1871, and that of history and English literature in 1881. He edited the *Penn Monthly* from 1870 until 1880, and subsequently became editor of *The American*, a weekly journal of literature, science, and the arts, published in Philadelphia. He received the degree of Ph. D. from Hamilton College in 1870, and that of S.T.D. from the University of Pennsylvania in 1887. He wrote a number of works on political economy and the tariff as a protection to home industry, and lectured on these subjects at Harvard and Yale.

THOMPSON, SIR HENRY, F.R.C.S., born at Framlingham, Suffolk, England, August 6, 1820, and educated at University College, London; was appointed assistant surgeon of University College Hospital, London, in 1853, surgeon in 1863, professor of clinical surgery in 1866, and consulting surgeon in 1874. In 1884 he held the post of professor of surgery and pathology to the Royal College of Surgeons, London. He gained the Jacksonian prize of the Royal College of Surgeons in 1852, with an essay on *The Pathology and Treatment of Stricture of the Urethra*; and the same prize in 1860, with an essay on *The Healthy and Morbid Anatomy of the Prostate Gland*. He was appointed surgeon-extraordinary to the late king of the Belgians in 1863, and to the present king in 1866. He was knighted in 1867. Since 1873 he has been a prominent advocate of cremation. Sir Henry Thompson studied painting under Mr. Elmore and Mr. Alma Tadema, and he has frequently exhibited pictures at the Royal Academy, in the Salon of Paris, and elsewhere.

THOMPSON, SIR JOHN, eminent Canadian lawyer and statesman, was born at Halifax, Nova Scotia, November 10, 1844. He was a member of the executive council, and attorney-general of Nova Scotia, 1878, premier of Nova Scotia, 1882, and judge of the Supreme Court of Nova Scotia, 1882-1885. He entered the Dominion Parliament, 1885, arranged the fishery treaty between England and the United States, and was knighted in 1888 for his services in that regard. He became premier of Canada in 1892, serving until his death, December 12, 1894.

THOMPSON, SMITH, jurist, was born in Stamford, Dutchess county, N. Y., January 17, 1768; died at

Poughkeepsie, N. Y., December 18, 1843. He was graduated at Princeton in 1788, and adopted the profession of a lawyer, practicing at Poughkeepsie. In 1800 he was elected to the legislature, and in the following year was a delegate to the State constitutional convention. He refused an appointment as attorney for the middle district of New York, and later declined the mayoralty of New York city. In 1802 he became associate justice of the State Supreme Court, and in 1814 was appointed chief justice, which post he held until he was appointed secretary of the navy by President Monroe in 1818. He was elevated to the bench of the United States Supreme Court in 1823, and remained there until his death.

THOMPSON, WADDY, was born in Pickensville, S. C., September 8, 1798; died in Tallahassee, Fla., November 23, 1868. He was graduated at South Carolina College in 1814, and five years later began the practice of law. He served four years in the legislature prior to 1830, and then became solicitor of the western circuit. From 1835 until 1841 he was one of the leaders of the Whig party in congress, and in 1842 he was appointed minister to Mexico, where he made two important treaties with the Mexican Government and procured the release of more than 200 Texan prisoners. He subsequently published *Recollections of Mexico*.

THOMPSON, ZADOC, naturalist, was born in Bridgewater, Vt., May 23, 1796; died in Burlington, Vt., January 19, 1856. He was a graduate of the University of Vermont, and became a tutor there in 1825. After some editorial experiences with literary papers in Vermont, he removed to Canada, studied theology at Sherbrooke, and in 1835 was made a deacon in the Protestant Episcopal Church. Returning to Burlington, Vt., he was for a time a professor in the Vermont Episcopal Seminary, and in 1845 he became State geologist, which office he held until 1848. He accepted the chair of chemistry and natural history in the University of Vermont in 1851, and in the same year was sent as a commissioner to the World's Fair in London to exhibit a collection of American woods, for which he received a bronze medal. Professor Thompson published several works on the natural, civil and statistical history of Vermont, and the geography and geology of that State. For thirty-four years he made the astronomical calculations for *Walton's Registers*.

THOMSEN, WILHELM L. P., an eminent Danish philologist, was born at Copenhagen, January 25, 1842; educated at the leading German and Danish universities, and in 1871 was appointed to the philological chair of the university in his native city. He has been a frequent contributor of articles upon the philology of ancient and modern languages.

THOMSON, CHARLES, born in Maghera, Ireland, November 29, 1729. He came to this country in 1740, studied at a seminary in New London, Penn., and, after his education, conducted a Quaker school at New-castle. Like many other born Irishmen, he favored resistance to the oppressive exactions of Great Britain, and in September, 1774, he went to Philadelphia with his bride, a sister of Benjamin Harrison, the signer, where he had been chosen secretary of the first Continental congress, and continued in that office until 1789. He died in Lower Merion, Penn., August 16, 1824.

THOMSON, JAMES, a Scottish poet, born at Port Greenock, November 23, 1834. Entering the army, he was for ten years a regimental schoolmaster. Thomson early showed capabilities as a poet, and his *City of Dreadful Night* has always been considered an exceedingly fine production. It was published in 1880. See



eral other of his works have been well received. Mr. Thomson died in London on June 8, 1882.

THOMSON, JOHN EDGAR, a civil engineer, was born at Springfield, Penn., February 10, 1808, and died in Philadelphia, May 27, 1874. His first professional work was the survey of the Philadelphia and Columbia railroad in 1827. Five years later he was appointed chief engineer of the Georgia railroad, becoming chief engineer of the Pennsylvania Central in 1847, and its president in 1852, in which position he was retained until his death.

THOMSON, MORTIMER, a journalist and humorous writer, well known under the pseudonym "Q. K. Philander Doesticks, P. B.," was born at Riga, Monroe county, N. Y., September 2, 1832, and entered the University of Michigan while yet a boy. After the trial of a number of vocations, Thomson became an attaché of the New York *Tribune*, in which his articles, both in prose and verse, attracted immediate attention, more particularly his descriptive writings relating to slavery, and incidents connected with the system. During the later years of his life he became a public lecturer, and was quite popular. He also wrote several well-known books, and made a collection of his fragmentary pieces, all of a humorous character. He died in New York, June 25, 1875.

THOMSON, SIR WILLIAM, F.R.S., LL.D., D.C.L., was born at Belfast in June, 1824. At the early age of eleven William entered the University of Glasgow, and shortly after completing his course he removed to Peterhouse, Cambridge, where he graduated in 1845 as second wrangler, being immediately afterward elected to a fellowship. In 1846 he was made professor of natural philosophy in the University of Glasgow, and still occupies that post. In the same year he accepted the editorship of the *Cambridge and Dublin Mathematical Journal*. It is in connection with submarine telegraphy that Mr. Thomson's labors in electrical science are best known, he being the inventor of the mirror galvanometer and the siphon-recorder, which, owing to their extreme delicacy, can be worked by very low battery power, a circumstance that tends greatly to the preservation of the cables. To the science of magnetism also Sir W. Thomson has made important additions; but it is in the investigation of the nature of heat that his extraordinary power of mathematical insight is seen to the greatest advantage. He was created Baron Kelvin in 1892.

THOMSON, WILLIAM, D.D., archbishop of York, born at Whitehaven, Cumberland, February 11, 1819; was educated at Shrewsbury School and the Queen's College, Oxford, of which he was successively scholar, fellow, tutor, and provost. He took the degree of B.A. in 1840, and was ordained deacon in 1842, and priest in 1843. He became tutor of his college, and was appointed select preacher at Oxford in 1848. He was chosen to preach the Bampton lectures in 1853. In 1861 he became bishop of Gloucester and Bristol. On the death of Archbishop Sumner, Doctor Longley was translated to Canterbury, the archiepiscopal see of York became vacant, and after some delay the appointment was, contrary to all precedent, conferred (November, 1862,) on Doctor Thomson, who had not been a twelvemonth bishop. The enthronization was celebrated in York Minster, February 24, 1863. He died December 25, 1890.

THORFINN, a Scandinavian navigator, was born in Norway, and died at Glömboland, Iceland, about 1016. In 1006 he went to Iceland with two vessels, and married Gudrida. She induced him to organize an expedition to Vineland, an unexplored country to the north of Greenland, whither he set sail in 1007. He

passed what is now known as Newfoundland, next coming to Nova Scotia and sailing along the New England coast to Cape Cod. His crew wintered at an island called by them "Stroumey," but supposed to be Martha's Vineyard, or Nantucket, and decided upon making a permanent settlement. This was not done, however, but a settlement was commenced at Mount Hope Bay, called Thorfinnsbudir, where a son was born to Thorfinn, the first white child born within the present limits of the United States. After encountering attacks from the Esquimaux, discontent among his men, and other troubles, Thorfinn returned to Iceland, thence to Norway, again to Iceland, and there remained until he died.

THORNTON, ANTHONY, a soldier of the Revolution, was born at Ormsby, Caroline county, Va., February 1, 1748, and served through the war, being also present as colonel of a regiment at the surrender of Cornwallis. His brothers were also in the war, one of them being a captain of cavalry and the other an officer connected with General Washington's military staff. Colonel Thornton died at Paris, Bourbon county, Ky., December 21, 1828.

THORNTON, MATTHEW, a signer of the Declaration of Independence, was a native of Ireland, but when three years of age came with his father to America. He was educated at Worcester, Mass., and as a physician attained to prominence and wealth. A resident of New Hampshire, he joined in the opposition then manifested toward the royal prerogatives, and upon being chosen a delegate to the Continental congress, affixed his name to the Declaration, though not present at the date of its passage. He died at Newburyport, Mass., June 24, 1803.

THORNTON, SIR EDWARD, G.C.B., is the son of the late Right Hon. Sir Edward Thornton, G.C.B., who was for some time envoy extraordinary and minister plenipotentiary in Portugal, and upon whom the title of Count de Cassilhas, in that kingdom, was conferred by King John VI. of Portugal. Sir Edward Thornton, who succeeded to the title of Count de Cassilhas (in the kingdom of Portugal) on the death of his father, about 1850, entered the diplomatic service in 1842, and was attached to various missions, in different parts of the world, Portugal, Mexico, South American states, and at Washington, D. C., taking the place of Sir Frederick Bruce.

THORNYCROFT, HAMO, A.R.A., sculptor, son of Thomas and MARY THORNYCROFT (*q.v.*), was born in London, March 9, 1850. He was brought up in Cheshire, and educated at Macclesfield Grammar School, and at University College, London. At the age of seventeen he began to work in his father's studio, and in 1866 was admitted a student at the schools of the Royal Academy. He became a noted sculptor, and the author of several excellent works.

THORNYCROFT, JOHN ISAAC, builder of torpedo boats, eldest son of Thomas and Mary Thornycroft, was born on February 1, 1843, in the Via Felice, Rome. His mechanical training was commenced at an early age by his father, who made a locomotive, on which his children rode round his studio. The cylinders of this locomotive were afterward adapted by his eldest son to form the engines of a very successful model steamer, which contained several of the most important elements to which the success of the modern torpedo boat is due—the closed stokehole and fan, by means of which air can be forced through the fire, and the relatively large size and low position of the propeller. In 1863 he designed the *Ariel*, which was built at Chiswick, where he started as an amateur boat-builder. After building the *Ariel* Mr. Thornycroft studied for nine months



as a draughtsman to Palmer's Shipbuilding Company, on the Tyne; he then went to Glasgow to go through the engineering course at that University. On leaving the University he spent nine months at Mr. John Elder's, of Govan, studying the method of shipbuilding on the Clyde. He then returned to Chiswick, and became a builder of torpedo boats. In this profession he rapidly took the first place; and he has constructed a very large number of such boats for the British and other governments.

**THORNYCROFT, MARY**, daughter of the late Mr. John Francis, sculptor, was born in 1814, at Thornham, in Norfolk. From an early age she was admitted to her father's studio, and soon became an exhibitor of heads and busts at the Royal Academy. The work which first attracted the attention of the public was a life-sized statue called the *Flower-Girl*. Miss Francis became the wife of Mr. Thornycroft, who had been a pupil of her father. In 1840 Mrs. Thornycroft was patronized by the Queen, and she executed a number of works for the royal family. She died February 2, 1895.

**THOROLD, REV. ANTHONY WILSON, D.D.**, bishop of Winchester, England, was born at Hougham, June 13, 1825, and educated at Queen's College, Oxford (B.A. 1847; M.A. 1850; D.D., by diploma, 1877). On the recommendation of Lord Beaconsfield, he was nominated by the crown to the bishopric of Rochester, in succession to Doctor Claughton, who had been translated to the newly constituted see of St. Albans. He was consecrated in Westminster Abbey, July 25, 1877. In 1890 he was translated to the see of Winchester. He is the author of several devotional works, including *The Presence of Christ*. Died July, 1895.

**THORPE, THOMAS BANGS**, born in Westfield, Mass., March 1, 1815; died in New York city in October, 1878. He studied three years at Wesleyan University, and made a tour through the Southwestern States, settling at Louisville, Ky., in 1836. For a time he edited a Whig newspaper in New Orleans; in 1844 he edited the *Concordia Intelligencer*, in 1846 established the *Baton Rouge Conservator*, and in 1859 published and edited in New York city the *Spirit of the Times*. In the Mexican war he attained the rank of colonel.

**THORPE, THOMAS EDWARD, F.R.S.**, was born near Manchester, England, December 8, 1845, being the son of a Manchester merchant. He was educated at the universities of Heidelberg and Bonn, and was appointed demonstrator of chemistry at Owen's College in 1869. Professor Thorpe is the author of fifty-two memoirs on chemistry and physical chemistry, and has likewise written various articles in Watt's *Dictionary of Chemistry*, and is a frequent contributor to *Nature* and other scientific periodicals. Professor Thorpe was a member of the solar eclipse expeditions of 1870 and 1878.

**THRING, EDWARD**, headmaster of Uppingham School, England, was born on November 29, 1821. In the autumn of 1832 he was sent to Eton, and passed from Eton to King's College, Cambridge, in 1841. He died October 22, 1887.

**THURMAN, ALLEN G.**, an American jurist and statesman, was born at Lynchburg, Va., November 13, 1813, a descendant of Joseph Hewes, one of the signers of the Declaration of Independence. When six years of age he accompanied his parents to Chillicothe, Ohio, and was educated at the academy in that city. He began life as a surveyor, but studied law in the office of Gov. William Allen, and was admitted to the bar in 1835. In 1844 he was elected a representative in congress, and served one term, declining a renomination. In 1851 he was elevated to the supreme bench of Ohio, and for two years was chief justice of that tribunal. He was the

Democratic candidate for governor of Ohio against Rutherford B. Hayes in 1866, but was defeated. He became United States senator March 4, 1869, and was reelected in 1874. As senator he formulated what is known as the "Thurman Act," to compel the execution by the Pacific roads of their contracts with the government, and secured its passage. At the national Democratic conventions of 1876, 1880, and 1884 he was a candidate for the presidential nomination, and, at the convention of his party in 1888, was made the candidate for vice-president. He made a vigorous campaign, but was defeated, and has since remained at his home in Columbus, Ohio. He died Dec. 12, 1895.

**THURSBY, EMMA C.**, an American singer, was born at Brooklyn, N. Y., February 21, 1857, and studied her art under the direction of Meyer, Rudesdorff, and others; also in Italy, whither she went in 1873. On her return she sang in the Broadway Tabernacle and other New York churches, and has since made repeated concert tours of the United States and Europe. She has steadily declined to appear in opera, and makes a specialty of sacred music.

**THURSTON, ROBERT HENRY**, was born at Providence, R. I., October 25, 1839, and upon his graduation at the scientific school of Brown University, in 1859, adopted the profession of mechanical engineering. He served in the navy during the Civil war, and participated in the attacks upon Port Royal and Charleston. In 1865 he became assistant professor of experimental philosophy at the naval academy, Annapolis, and in 1870 visited Europe. He has also been connected with the Stevens Institute of Technology and Cornell University, been a member of the United States Commission to the Vienna Exposition; of the commission constituted by the government to investigate the causes of boiler explosions; vice-president of the American Association for the Advancement of Science; also vice-president of the American Institute of Mining Engineers, and president of the American Society of Mechanical Engineers. He is the inventor of a number of mechanical devices, and the author of a large collection of works relating to mechanical art.

**TICKNOR, WILLIAM DAVIS**, one of the founders of the publishing house of Ticknor & Co., Boston, Mass., was born in Lebanon, N. H., August 6, 1810, and died at Philadelphia, Penn., April 10, 1864.

**TIDBALL, JOHN C.**, general, was born in Ohio county, Va., January 25, 1825, and graduated at West Point in 1848. During the Civil war he was attached to the army of the Potomac, and served in all the Virginia campaigns. After the war he served in Astoria, Alaska, California, North Carolina, and elsewhere, and on November 1, 1883, was assigned to the command of Fort Monroe. He was promoted from captain through the various grades to major-general of volunteers, for gallant services in the war, and was retired in 1889.

**TIEBOUT, CORNELIUS**, born in New York city in 1777; died in Kentucky in 1830. He was apprenticed to a silversmith, and made some attempts at engraving on copper. In 1795 he went to London and received instruction from James Heath, returning after two years, and locating at Philadelphia. He worked mostly in stipple, and among his folio engravings are portraits of leading Americans.

**TIETJENS, or TITIENS, TERESA**, one of the greatest of recent operatic singers, was born at Hamburg, of Hungarian parents, 1834; and made her appearance in that city in the character of "Lucretia Borgia" in 1849, taking at once a high position on the lyric stage; at Frankfurt, and Vienna she was even more warmly received; and her first appearance in London in 1858 was a triumph. She died October 3, 1877.

**TILGHMANN, WILLIAM**, born in Talbot county, Md., August 12, 1756; was admitted to the bar in 1783, and commenced practice at Philadelphia in 1793. In 1801 he became chief justice of the Circuit Court of the United States, but resumed practice one year later, and in 1806 was appointed chief justice of the Supreme Court of Pennsylvania. He died in Philadelphia, April 30, 1827.

**TILLEY, SIR SAMUEL LEONARD**, Canadian statesman, born in Gagetown, New Brunswick, May 8, 1818. He received an ordinary education, and at the age of twelve went to St. John. In June, 1850, he was chosen to a seat in the house of assembly, and in 1854 reelected. In November he entered the cabinet of the Liberal administration as provincial secretary, and later he rose to be premier. Subsequently, he was made a companion of the Bath, became a member of the Canadian privy council, and was appointed minister of customs in the first cabinet of the Dominion. On February 22, 1873, he was made minister of finance, and later became lieutenant-governor of New Brunswick. This office he held until Sept., 1893. Died June 25, 1896.

**TILTON, THEODORE**, an American writer and author, was born in New York city October 2, 1825; graduated at the College of New York in 1855, and after a year's service on the New York *Observer*, became editor of the *Independent*, and remained in that position for fifteen years. He has been connected editorially with the Brooklyn *Union* and other papers, and was prominent as a lecturer. In 1874 he prosecuted Henry Ward Beecher for alienating his wife's affections, and the trial which took place attracted universal attention. Since 1883 Tilton has resided abroad.

**TIMBY, THEODORE R.**, an American inventor, born at Dover, N. Y., April 5, 1822; received a common school education, and early in life evinced the possession of inventive talents of a high order. In 1841 he exhibited to army officers at Washington his plans for a revolving tower, and in 1862 procured letters patent upon the design, the same year contracting with the constructors of the *Monitor* for the use of his "revolving tower" upon that vessel, for a consideration of \$5,000 royalty. He also invented the American pattern of the turbine water-wheel, the system of firing guns by electricity, etc., also completing other designs and improvements of value. In 1866 Madison University conferred the degree of A.M. on him, and in 1882, Wooster (Ohio), College that of S.D.

**TIMROD, HENRY**, poet, born in Charleston, S. C., December 8, 1829; died in Columbia, S. C., October 6, 1867. He entered the University of Georgia, but did not finish the college course. From 1849 to 1853 he contributed poetry to several magazines, and in 1850 a small volume of his poems was published. At the beginning of the Civil war he wrote a number of impassioned war lyrics that spread his name among the Southern people. In 1863 he went to Columbia, S. C., where he became editor and part proprietor of *The South Carolinian* newspaper, but the burning of Columbia swept away all his possessions.

**TINGEY, THOMAS**, a distinguished naval officer, was born in England, September 11, 1750, and removed to America prior to the Revolutionary war. He assisted in the organization of the navy in 1798, and in July, 1799, captured a fleet of French war ships off the West Indies. During the war of 1812 he was in active service, and when Washington was captured by the British he set fire to the navy yard in obedience to orders. He died at Washington, D. C., February 23, 1829, after a service of more than fifty years in the United States navy.

**TISZA, KOLOMAN VON**, prime minister of Hungary,

was born at Geszt, December 16, 1830, and educated for the civil service, but his career was blocked at the outset by the revolution of 1848. In 1859 he first became known as an opponent of the government policy of religious intolerance. In 1860 his party gained some independence; he then obtained a seat in the Hungarian parliament, and succeeded Count Teleki as a leader of the Moderate Radicals. In 1875, carrying over this branch to the united Liberals under Deák, he became minister of the interior, and subsequently prime minister of the Hungarian cabinet. In the critical period of 1876-78 he opposed Russia and Pan Slavism, being less vacillating than Count Andrassy, who had kept hesitating between Russia and Germany in their views of the Eastern question. He resigned with his co-ministers when Austrian finances were insufficient to meet the expenses of the Bosnian occupation, but eventually returned to his position as premier, retaining it until 1890.

**TITCOMB, JONATHAN HOLT, D.D.**, born in London in 1819, and educated at Peterhouse, Cambridge (B.A. 1841; M.A. 1843.) Having been appointed by the crown to the bishopric of Rangoon, in British Burmah, he was consecrated in Westminster Abbey December 21, 1877. He resigned his bishopric at the beginning of the year 1882, and died April 2, 1887.

**TODD, DAVID PECK**, astronomer, born at Lake Ridge, N. Y., March 19, 1855, and was graduated at Amherst College in 1875. Since then he has been constantly engaged in scientific investigations. He had charge of the government expedition to Texas to observe the eclipse of the sun in 1878, and has since been connected with expeditions to all parts of the world for the purpose of making meteorological and astronomical observations, besides acting as professor of astronomy at Amherst, and of astronomy and higher mathematics at Smith's College. He is a member of a large number of scientific societies, and his published works are numerous.

**TODD, JOHN**, born in Rutland county, Vt., October 9, 1800, and graduated at Yale College in 1822, after which he attended the theological seminary at Andover and was ordained a minister of the Congregational Church. His services as pastor were employed at Northampton, Pittsfield, Philadelphia and elsewhere. He was an eloquent and polished writer, and many of his publications have been translated into German, French, Italian, Turkish, Greek, etc. In 1845 Williams College conferred on him the degree of D.D. He died at Pittsfield, Mass., August 24, 1873.

**TOLLENS, HENDRIK**, a popular Dutch poet of modern times, was born at Rotterdam, September 24, 1780. In his seventeenth year he began to study English, German, and Latin. At nineteen he published translations from the French poets, and three years later appeared his *New Songs and Idyls* in which he first appeared as an original poet. Shortly afterward followed another collection of miscellaneous poems; in 1885 his tragedy of *Lucretia*; and in 1806 that of the *Hoekschen and Kabeljaauwschen*, or the contest between the nobility and the towns in Holland in the olden time, both original pieces of great merit. He died at Rijswijk, October 21, 1856.

**TOLSTOI, LYEFF N., COUNT**, a Russian author, was born at Tuba, August 28, 1828, and educated partly at home and partly at the Kazan University. He served in the army from 1851 until the close of the Crimean war, when he turned his attention to literature, having written a number of books while in the field, two of which, *The Cossacks* and *Childhood and Youth*, were subsequently printed in Europe. After the publication, in 1860, of *War and Peace*, Tolstoi



devoted a larger portion of his time to the education and improvement of the peasantry, and during recent years has, in dress, customs, and occupation, adapted himself to the association of that class of people in Russia. His writings and peculiarities are made the subject of frequent discussion both in America and Europe, where his novel, *Anna Karenina*, is said to be more generally read than any other of his productions. By many his sanity is doubted, while an equal number regard him with profound veneration. The patronage of his works in the United States is of comparatively recent date, and here he has come to be regarded as the leading Russian author. He published *The Kreutzer Sonata* in 1890, and *War* in 1892.

**TOMOCHICHI**, Indian chief, born in Georgia, about 1642; died there October 5, 1739. In 1733 he met General Oglethorpe, and arranged with him to cede to the white settlers the territory between the Savannah and Altamaha rivers. In 1734 Tomochichi and his wife visited England, in company with the General and five Indians. After remaining in London four months they were conveyed on shipboard in royal carriages and embarked for Savannah, after being assured of the friendship of the British monarch.

**TOMPKINS, DANIEL D.**, vice-president of the United States, was born in Westchester county, N. Y., June 21, 1774; was graduated at Columbia College in 1795, and admitted to the bar in 1797. He began to take part in politics at an early age, and after filling minor offices was in 1804 elected to congress, but resigned to accept a seat on the supreme bench of New York. In 1807 he was elected governor of the State, and reelected in 1809, 1811, 1813, and 1815. During the war with Great Britain, he contributed his time, money, and credit to the promotion of a successful issue, and declined the position of secretary of state, tendered him by President Madison, because his services as governor of New York might be of greater value to the country. In 1816 he was elected vice-president of the United States, and reelected in 1820. He was also a regent of the State University, assisted in the establishment of the public school system, and was generally identified with the development of internal improvements in the State throughout his life. He died on Staten Island, June 11, 1825.

**TONE, THEOBALD WOLFE**, Irish patriot, was born in Dublin, Ireland, in 1763. He was the founder of the Society of United Irishmen. In 1796 he applied to the French directory to send an expedition against England. His application was received with favor, and a fleet, commanded by General Hoche, soon after set sail. But the expedition encountered a hurricane, which disabled and scattered the vessels, and caused the undertaking to be abandoned. Subsequently Tone led a small armament against England, but was taken prisoner in a battle, was tried and condemned to death. He committed suicide in prison in 1798.

**TONER, JOSEPH MEREDITH**, born in Pittsburg, Penn., April 3, 1825, educated at the Western Pennsylvania University and Mount St. Mary's College, and completed his medical studies at the Vermont Medical College and Jefferson Medical College, and in 1855 he settled in Washington D. C. He originated the library of the American Medical Association in 1868, and in 1871 founded the Toner lectures. In 1873 Doctor Toner was president of the American Medical Association, and in 1882 gave his entire library of 26,000 books and 18,000 pamphlets, to the United States Government. He has published more than fifty pamphlets on medical subjects.

**TONTI, CHEVALIER HENRY DE**, Italian explorer, born in Gaeta, Italy, about 1650; died in Mobile, Ala.,

in September, 1704. In company with the Sieur de La Salle he came to Quebec in 1678. Soon afterward he completed the fort at Niagara, designed by La Salle. In 1680, learning that Fort Crevecoeur was threatened by the Iroquois Indians, he marched to its aid, and in 1681 he sailed up the Illinois river and wintered in Green Bay. In the following year Tonti descended the Mississippi river with La Salle, and in 1686 he visited the mouth of the Mississippi, by way of Fort Louis and Chicago, to ascertain the fate of La Salle. Disheartened on learning the death of his friend, he retired to live among the Illinois tribe, where he was discovered in 1700 by Iberville.

**TOOLE, JOHN LAURENCE**, comedian, born in London, England, March 12, 1830; was educated at the City of London School, and became a clerk to a wine-merchant, but soon quitted this occupation to join the City Histrionic Club, where his qualifications for the dramatic profession were soon recognized, and he found a favorable opportunity to appear before a public audience at a benefit to Mr. F. Webster, at the Haymarket theater, July 22, 1852. He has for more than thirty years been a popular favorite, whether it be in the broad region of farce, or in those more important parts in which tears and laughter equally predominate; such as "Caleb Plummer," in the version of Mr. Dickens' *Cricket on the Hearth*, or the honest fireman, "Joe Bright," in the drama *Through Fire and Water*. On November 17, 1880, he undertook the management of the Folly theater, which he had reconstructed in accordance with all the requirements of the authorities, and renamed, calling it after his own name—Toole's theater. Mr. Toole has played in the United States with great success.

**TOOMBS, ROBERT**, statesman, born in Wilkes county, Ga., July 2, 1810; died in Washington, Ga., December 15, 1885. He studied at the University of Georgia, was graduated at Union College in 1828, attended lectures in the law department of the University of Virginia, and in 1830 was admitted to practice. He then settled in Wilkes county, and soon became a leader among the State-rights Whigs. In 1844 he was sent to congress, where, in 1850, he contributed to the passage of the compromise measures. From 1853 to 1861 he was a member of the United States Senate, and as such belonged to the Southern extremists; at the end he ardently favored disunion, and in March, 1861, was formally expelled from the senate. At the beginning of national disruption he was a member of the Confederate congress, and its second choice for the presidency. On the election of Jefferson Davis he became secretary of state, but soon resigned to accept the commission of brigadier-general. After fighting at the second Bull Run battle and Antietam, he retired. After the close of the war he spent several years in Cuba, France, and Great Britain, returned to the United States in 1867, resumed practice, and accumulated an estate valued at \$500,000. As he refused to take the oath of allegiance to the United States Government, he was debarred from the rights of citizenship. In 1872 he was a member of the Georgia Democratic State convention, and in 1874 he conducted a warfare against railroads on behalf of his State, and collected from them \$300,000.

**TORBERT, ALFRED THOMAS ARCHIMEDES**, was born in Georgetown, Del., July 1, 1833; died at sea September 3, 1880. He was graduated at the United States Military Academy in 1855, and, after several years' service in the South and West, entered the Civil war in 1861 as captain in the 5th United States infantry and colonel of a New Jersey regiment. He was wounded at the battle of Crampton's Gap, September



14, 1862, and in the following November was commissioned brigadier-general of volunteers. He was brevetted lieutenant-colonel in the regular army in May, 1864, and colonel in September of the same year, and was also brevetted major-general of volunteers. As chief of cavalry he commanded three divisions of the army of the Shenandoah under General Sheridan, distinguishing himself at several hard-fought battles. On March 13, 1865, he was brevetted brigadier-general of the United States army. He resigned October 31, 1866, was appointed minister to San Salvador in 1869, was afterward consul-general at Havana, and still later at Paris, resigning in 1878. He lost his life by the foundering of the steamer *Vera Cruz* off the coast of Florida, while on his way to Mexico as president of a mining company.

TORRENS, WILLIAM TORRENS McCULLAGH, born in October, 1813; was educated at Trinity College, Dublin (B.A. 1834; LL.B. 1840), and became a member of Lincoln's Inn, and practiced at the common law bar. He was appointed a commissioner of the poor law inquiry in Ireland in 1835, private secretary to Lord Taunton (then Mr. Labouchere) in 1846. In 1869 he obtained the adoption of the system for London of boarding out children by poor law guardians. When purchase in the army was abolished, he carried an address to the crown against sending soldiers under age to serve in hot climates. To him also is due the enactment removing the principal prisons from the metropolis, in order to provide sites for workmen's dwellings and public gardens. He died April 26, 1894.

TORREY, JOHN, botanist, was born in New York city, August 15, 1796; died there March 10, 1873. After a public school education he was graduated at the College of Physicians and Surgeons, and began the practice of medicine, devoting his leisure time to botany and other scientific pursuits. From August 5, 1824, until August 31, 1828, he was assistant surgeon in the United States army, serving at the United States Military Academy as acting professor of chemistry, mineralogy, and geology. From 1827 until 1855 he was professor of chemistry and botany in the College of Physicians and Surgeons in New York city, and was then made professor emeritus. He was also professor of chemistry at Princeton from 1830 until 1854. He was appointed assayer in the United States assay office in New York city in 1853, and continued to fill that office until his death. In 1860 he became emeritus professor in Columbia College, of which he was a trustee. Doctor Torrey's works on natural history and botany attracted universal attention. The degree of A.M. was conferred on him by Yale in 1823, and that of LL.D. by Amherst in 1845.

TORREY, JOSEPH, a Congregational clergyman, born at Rowley, Mass., February 2, 1797; was a graduate of Dartmouth College in 1816, and of the Theological Seminary at Andover in 1819. He was appointed to the chair of Greek and Latin in the University of Vermont in 1827, and filled the same until 1842, becoming professor of intellectual philosophy in the latter year, and president of the institution in 1862. He was made a D.D. by Harvard in 1850, and left a number of works of a miscellaneous and religious character. He died at Burlington, Vt., November 26, 1867.

TOTTEN, GEORGE MUERSON, civil engineer, was born in New Haven, Conn., May 28, 1809; died in New York city, June 8, 1884. His work as a civil engineer began on the Farmington canal in 1827. He was subsequently employed on the Juniata canal in Pennsylvania, the Delaware and Raritan canal in New Jersey, and the building of the railroad from Reading to Port Clinton. After several years of railroad work he was appointed engineer-in-chief of the Canal del Dique in 1843, and in 1850 he became engineer-in-chief of the Panama

railroad, to which he gave twenty-five years of service. He was with Ferdinand de Lesseps in 1879 on the commission to decide on the canal project across the isthmus, and afterward engaged in the survey of a railroad in Venezuela. On his return he was made consulting engineer of the Panama railroad.

TOTTEN, JOSEPH GILBERT, soldier, born in New Haven, Conn., August 23, 1788; died in Washington, D. C., April 22, 1864. He was graduated at the United States Military Academy in 1805, and commissioned second lieutenant of engineers. He began his work with the construction of Castle Williams and Fort Clinton in New York harbor, where he was occupied from 1808 to 1812. Meanwhile he was promoted to first lieutenant, and later made chief engineer of the army on the Niagara frontier, where he participated in the battle of Queenstown. In 1813 he served as chief engineer of the army under General Dearborn. He also was intrusted with the inspectorship and supervision of the United States Military Academy at West Point. During the Mexican war he directed the siege of Vera Cruz, for which he was brevetted brigadier-general. After serving in other capacities, he became brigadier-general, and on April 21, 1864, was brevetted major-general.

TOUCEY, ISAAC, an American statesman, born in Newton, Conn., November 5, 1796, and admitted to the bar in 1818. In 1835 he was elected to congress, where he served two terms, and in 1846, in default of an election by the people, was chosen governor of Connecticut by the State legislature. He became attorney-general of the United States in 1848, and afterward served in the legislature of his native State until 1852, when he was elected United States senator by the Democrats for the term expiring March 3, 1857. During the administration of President James Buchanan, Senator Toucey was secretary of the navy, afterward returning to Hartford, Conn., where he died July 30, 1869.

TOURGEE, ALBION WINEGAR, author, born in Williamsfield, Ohio, May 2, 1838; studied at Kingsville Academy, and was graduated at Rochester University in 1861. Thereafter he served in the national army from 1861 to 1865, and when the war closed settled in Greensboro, N. C., as lawyer and editor. From 1868 to 1874 he served as judge of the Superior Court, and in 1875 was a member of the State constitutional convention. He was the author of *A Fool's Errand*, a work dealing with the condition of North Carolina during the reconstruction period. In 1866-67 he published in Greensboro the *Union Register*, and in 1882 published in Philadelphia *Our Continent*, a literary weekly, which was discontinued in 1885, after a serious loss in money to its projector. He has frequently given lectures, and now resides in Mayville, N. Y., engaged in literature.

TOWLE, GEORGE M., was born in Washington, D. C., August 27, 1841. He was graduated at Yale and at the Harvard law school, and, after practicing law for three years in Boston, was appointed United States consul at Nantes, France, in 1866. In 1868 he was transferred to the consulate at Bradford, England, and after two years returned to Boston, and became managing editor of the *Boston Commercial Bulletin*. In 1871 he was foreign editor of the *Boston Post*, a position which he held until 1876, besides being a contributor to a number of periodicals both in Europe and America. He wrote *American Society*, *Beaconsfield*, *Heroes of History*, *Literature of the English Language*, and other works. He died August 8, 1893.

TOWNE, EDWARD C., American scientific writer, born in Goshen, Mass., in 1834, graduated at Yale in 1856 with first honors, and entered the ministry in 1860,



but retired in 1868 to devote himself to special studies and literary work. In 1895, on the establishment, by The Werner Company, publishers, of Chicago, of the Home University League, and its magazine, *Self Culture*, Mr. Towne was appointed secretary of the League and editor of the magazine. He has written *The Question of Hell* (1873), *Electricity and Life, or The Electro-Vital Theory of Nature* (1887), and other works of a scientific character.

TOWNSEND, GEORGE ALFRED, journalist, born in Georgetown, Del., January 30, 1841, became a war correspondent of the New York *Herald* in 1862, reporting the operations of the army of the Potomac in the Peninsula, and Pope's campaign in northern Virginia, delivered lectures in Europe on the Civil war in the same year, was engaged by the New York *World* as war correspondent in 1864, and speedily gained a high reputation as a descriptive writer. He has since written much for the press over the signature of "Gath," and has written *The Entailed Hat* and *Katy of Catoclin*, novels, *Washington Outside and Inside*, and other works.

TOWNSEND, LUTHER TRACY, born in Orono, Me., September 27, 1838, became a Methodist preacher, took part in the Civil war as adjutant of the 16th New Hampshire volunteers, and in 1873 became professor of practical theology at Boston University.

TOWSON, NATHAN, was born near Baltimore, Md., January 22, 1784; died in Washington, D. C., July 20, 1854. At the beginning of the war of 1812 he was appointed captain in the 2d United States artillery, and made a record for gallantry in a number of engagements, particularly in the capture of the brig *Caledonia* from under the guns of Fort Erie, October 8, 1812, for which he was brevetted major. He was transferred to the corps of artillery in May, 1814, and to the light artillery May 17, 1815. For bravery at the battle of Chippewa, July 5, 1814, he was brevetted lieutenant-colonel, and after again distinguishing himself in the assault upon Fort Erie, in August of the same year, he was made a brevet colonel. In 1819 he was appointed paymaster-general of the army, and in 1821 the president nominated him colonel of the 2d artillery, but the Senate failed to confirm the nomination, and Colonel Towson was reappointed paymaster-general in May, 1822. He was brevetted brigadier-general June 30, 1834, and for gallant service during the war with Mexico he was brevetted major-general, May 30, 1848.

TOY, CRAWFORD H., was born in Norfolk, Va., March 23, 1836, was graduated at the University of Virginia in 1856, and ten years later entered upon a two years' course of study at the University of Berlin. In 1869 he became professor of Hebrew in the Southern Baptist Theological Seminary, at Greenville, S. C., and Louisville, Ky. There he remained until 1879, and since 1880 he has been professor of Hebrew at Harvard. He has written articles on Semitic philology and biblical criticism, and is the author of *History of the Religion of Israel* and *Quotations in the New Testament*.

TRACY, ALBERT H., was born at Norwich, Conn., June 17, 1793; educated at home, and upon his admission to the bar in 1815 located at Buffalo, N. Y., where he attained to professional and political eminence. He was barely of the required age when elected as a representative in the sixteenth congress, and his career while there was such as to secure his reelection to the two congresses next succeeding. In 1830 he was elected to the Connecticut State Senate, where he served for eight years. He was a candidate for United States senator in 1839, and after his defeat retired to private life. He died at Buffalo, September 12, 1859.

TRACY, BENJAMIN F., is a native of Tioga county, N. Y., and was born about 1830. He was admitted to the

bar in 1851, and elected district attorney of the county three years later. Subsequently he became a member of the State assembly, and during his term of service led in the efforts made to secure the defeat of a bill providing for the construction of a surface railway on Broadway, New York city. This was in June, 1862, and the same year he raised, at the request of Governor Morgan, two regiments of infantry, the 107th and the 109th New York, commanding the latter, and retiring from the army at the close of the war as brigadier-general. He was district attorney from 1866 to 1873, acted as counsel in the Beecher-Tilton case in 1875, and was appointed secretary of the navy by President Harrison, March 5, 1889.

TRAILL, HENRY DUFF, D.C.L., was born at Blackheath, England, August 14, 1842, and educated at Merchant Taylors' School, whence he proceeded, as probationary fellow, to St. John's College, Oxford, where he graduated B.A. in 1864. He was called to the bar by the Society of the Inner Temple in 1868. He adopted the journalistic and literary profession in 1871, and has been an extensive contributor to the *Pall Mall Gazette* (under the original management), the *St. James' Gazette*, the *Daily Telegraph*, the *Saturday Review*, etc. He published, in 1881, *Central Government*; in 1882, *Sterne and Recaptured Rhymes*; in 1884, *The New Lucian*, a series of dialogues of the dead, and *Coleridge*; and in 1886, *Shaftesbury*, a monograph contributed to the *English Worthies*. Died Feb., 1901.

TRAUTWINE, JOHN CRESSON, a surveyor and civil engineer, was born at Philadelphia, Penn., March 30, 1810. He served in the office of City Engineer William Strickland, of Philadelphia, and was employed with Mr. Strickland in the erection of the mint and other structures, in Philadelphia. Between 1831 and 1844 he served in the several capacities of assistant engineer of the Philadelphia, Wilmington and Baltimore road, chief engineer of the Philadelphia and Trenton, and in a similar capacity on the Hiawasse, later known as the Tennessee and Georgia road. In 1858 he was in the service of the leading railway systems of the country, and in that year arranged the dock system which is now employed at Montreal, Canada. He retired from active work in 1864, but up to his death, September 14, 1883, his services and counsel were in constant requisition.

TREAT, ROBERT, one of the colonial governors, was born in England during 1622, and when a boy came with his father to Mathersfield, Conn. In 1639 he removed to Milford. Treat removed to Newark, N. J., and lived there until 1672, when he returned to Milford and took a prominent part in the wars against the Indians, participating in the massacre of the Narragansets, December 19, 1675, and in other engagements. In 1676 he was chosen deputy governor of Connecticut, succeeding to the governorship in 1683, and serving as such until 1698, excepting two years, during which he was under Sir Edmund Andros. Governor Treat died at Milford, Conn., July 12, 1710.

TRELAWNY, SIR JOHN SALISBURY, was born in England, June 2, 1816, and educated at Westminster and Trinity College, Cambridge, where he became B.A.; he was called to the bar at Lincoln's Inn in 1841, and succeeded his father as ninth baronet, November 15, 1856. He was one of the members for Tavistock in the Liberal interest from March, 1843, till April, 1852, when he retired. Subsequently standing in 1852, he was unsuccessful, but was again elected in March, 1857, and retired at the general election in July, 1865. He was well known in the House of Commons as one of the leaders of the anti-church rate movement, and for several years proposed a motion on that subject. He



was elected for East Cornwall in 1868, and held that seat till February, 1874. He died in 1885.

TRENCHARD, STEPHEN D., an officer of the United States navy, was born at Brooklyn, N. Y., July 10, 1818, and entered the service as midshipman, October 10, 1834. He was made lieutenant, February 27, 1847, and in that year was attached to the *Saratoga*, blockading the Mexican ports. Between 1853 and 1857 he was engaged upon the coast survey, and during the latter year was with the *Powhatan*, on a diplomatic mission to China, as aide to Com. Josiah Tatnall. At the engagement on Peiho river, Trenchard was slightly wounded. Upon the breaking out of the Civil war, he was assigned to the command of the *Keystone State*, and subsequently to the command of the *Rhode Island*. He served in the West India waters on the lookout for the *Alabama* and *Florida*, also making a number of valuable captures and taking an active part in the assault and bombardment of Fort Fisher. He was promoted captain in July, 1866, and commodore on May 7, 1871. He was in command of the North Atlantic squadron, consisting of twenty-one vessels, in 1876, as rear-admiral, to which position he had been advanced August 10, 1875, and died Nov. 15, 1883.

TRENHOLM, GEORGE A., secretary of the Confederate States treasury, was born in South Carolina, and for years prior to the Civil war was head of a large cotton house, with headquarters at Charleston. During the progress of hostilities he was engaged in "running the blockade," but in 1864 was appointed secretary of the treasury of the Confederacy, remaining in that position until the war closed, after which he was taken prisoner and imprisoned until pardoned by President Andrew Johnson in October, 1865. He died in Charleston, S. C., December 10, 1876.

TREVELYAN, SIR GEORGE OTTO, M. P., was born July 20, 1838, at Rothley Temple, Leicestershire, England. He was educated at Harrow School and Trinity College, Cambridge. He was elected member for Tyne-mouth in the Liberal interest in 1865, and for the Border burghs in 1868. He was appointed civil lord of the Admiralty, in Mr. Gladstone's government, in December, 1868, but resigned office in July, 1870. He succeeded Mr. Shaw-Lefevre as parliamentary secretary to the admiralty in November, 1880, and held that office until his appointment, after the murder of Lord Frederick Cavendish, as chief secretary to the lord-lieutenant of Ireland (May 9, 1882). This arduous post he held through two most trying years, and in October, 1884, he joined the cabinet as chancellor of the Duchy of Lancaster. He was secretary for Scotland in Mr. Gladstone's third and fourth governments, and remained in Lord Rosebery's cabinet in 1894, when he was member for Glasgow. He has written a *Life of Lord Macaulay* and other works.

TRIMBLE, ISAAC RIDGEWAY, born in Culpeper county, Va., May 15, 1802; died in Baltimore, Md., January 2, 1888. He was graduated at the United States Military Academy in 1822, and, after serving in the army until 1833, he resigned to pursue civil engineering. As chief engineer of the Baltimore and Susquehanna railroad he completed that line to York, Penn., in 1837. He was chief engineer of the Philadelphia, Wilmington and Baltimore railroad, and of the Boston and Providence railroad, and subsequently was engaged in railroad operations in the West Indies. In May, 1861, he became colonel of engineers in the military service of the State of Virginia, and, by order of Gen. Robert E. Lee, took charge of the construction of the forts and field works for the defense of Norfolk. He was promoted to the rank of brigadier, after which he blockaded the Potomac river by constructing bat-

teries at Evansport. In November, 1861, he was assigned to the command of the seventh division of Ewell's command, was at the battles of Cross Keys, Gaines' Mills, and Slaughter's Mountain in the summer of 1862, and with two regiments captured Manassas Junction, August 27, 1862. He was wounded the next day at the second battle of Bull Run, and on the recommendation of Gen. Thomas J. Jackson, he was appointed major-general, April 23, 1863. General Trimble did good service at Chancellorsville and Gettysburg, and in the latter battle he lost a leg and was captured. He was a prisoner twenty-one months at Johnson's Island, and when exchanged, in April, 1865, the war was practically over. He returned to Baltimore, where he continued to reside until his death.

TRIMBLE, ROBERT, jurist, was born in Berkeley county, Va., in 1777; died August 25, 1828. His parents removed to Kentucky when he was a child, and in 1803 he settled in Paris, Ky., and began the practice of law. He served one term in the legislature, but after that never would accept a nomination for any political office. He became second judge of the Court of Appeals in 1808, chief justice of Kentucky in 1810, United States district attorney in 1813, and district judge of Kentucky in 1816. He held the latter office until 1826, when he was appointed a justice of the United States Supreme Court, filling that post until his death.

TRISTRAM, HENRY BAKER, D. D., was born in England, May 11, 1822, and educated at the grammar school of Durham, and at Lincoln College, Oxford. In 1845 he was ordained. He resided at Bermuda three years, and accepted, in 1849, the rectory of Castle Eden, Durham. There he remained till 1855. The winter of 1855 he spent in the city and neighborhood of Algiers, making several excursions into the northern Sahara. The second winter of his stay was altogether occupied in traversing the Sahara beyond the range of the Atlas Mountains. The third winter spent in the Mediterranean afforded him his first opportunity of visiting Palestine. On the conclusion of his tour through Palestine he returned to England, being appointed in 1860 master of Greatham Hospital and vicar of Greatham, Durham. In 1863 he again visited the Holy Land, directing his attention particularly to the basin of the Dead Sea and to the districts east of the Jordan. In 1872 he made a tour in Moab; in 1881 in Mesopotamia and Armenia; in 1874 he was made a canon of Durham; and in 1879 the earl of Beaconsfield offered him the bishopric of Jerusalem, which he declined. Doctor Tristram wrote a number of books descriptive of the Holy Land and of his travels in the East.

TROBRIAND, PHILIP DE, was born at Tours, France, June 4, 1816. He was educated at Orleans, and in 1841 he removed to New York and entered the field of journalism, in which he achieved success. In 1861 he enlisted in the United States volunteer army, and during the Civil war rose to the command of a division. At the close of the war he became a colonel in the regular army, and continued in the service until 1879, when he retired. His principal published work is *Quatre Ans de Campagnes à l'Armée du Potomac*, which appeared in 1867.

TROCHU, LOUIS JULES, a French general, was born in Bretagne, March 12, 1815, and received his education in the Military Academy of St. Cyr. In 1837 he entered an artillery regiment as lieutenant. His talents soon attracted attention, and in particular that of Marshal Bugeaud, who, in recognition of his bravery displayed in the battles of Sidi-Yussuf and Isly, made him his adjutant. His services in the Crimean war gained for him the rank of a general of division. In this



capacity he received a command in the Italian campaign of 1859. On the conclusion of peace he was relegated to the ministry of war, and received the grand cross of the Legion of Honor. Niel had intended him for his successor as minister of war, but the latter's celebrated *brochure* on French military affairs had drawn down upon him the displeasure of the imperial court. Before the war of 1870-71, General Trochu held command of the army division in Toulouse, which Niel and Leboeuf had held before him. In the crisis which followed the battle of Sedan he was made governor of Paris and commander-in-chief of all the forces destined for the defense of the capital, which he held until the city surrendered to the German hosts. In October, 1871, he was elected president of the council-general for Morbihan; but he afterward resigned this post. In 1873 he published a work entitled *Pour la Vérité et pour la Justice*, in justification of the government of the national defense. Died Oct. 7, 1896.

TROLLOPE, EDWARD, D.D., F.S.A., bishop of Nottingham, born April 15, 1817; was educated at Eton and at Christ Church, Oxford. He was presented to the rectory of Leasingham, Lincolnshire, in 1843, was collated to a prebend in the Cathedral church of Lincoln in 1861, was elected proctor in convocation for the diocese of Lincoln in 1866, and appointed archdeacon of Stow and prebendary of Liddington in 1867. Having been appointed bishop suffragan of the see of Nottingham in the room of Dr. Henry Mackenzie, resigned, he was consecrated December 21, 1877. He wrote extensively on historical topics of ancient and mediæval times, and upon church matters, his works including a *Life of Adrian IV.* He died Dec. 10, 1893.

TROLLOPE, SIR HENRY, born in Norwich, England in 1756, entered the navy in 1770, fought at Lexington and Bunker Hill, and in the siege of Boston, assisted at the taking of Rhode Island and the attacks on Forts Montgomery and Clinton, and afterward served at Philadelphia. He became a full admiral in 1812, and died November 2, 1839.

TROOST, GERHARD, mineralogist, was born in Bois le Duc, Holland, March 15, 1776; and died in Nashville, Tenn., August 14, 1850. His special studies were chemistry, geology, and natural history, and in 1801 he received the degree of master in pharmacy from the University of Amsterdam. In 1809, while studying in Paris, he was appointed by Louis Bonaparte, then king of Holland, scientific attaché of a naval expedition to Java, but he fell into the hands of the English, and, after being held a prisoner at Dunkirk for a short time, sailed for America, hoping to reach Java by that route. Soon after his arrival Java was surrendered to the English, and Troost decided to remain in the United States. He assisted in founding the Academy of Natural Sciences in Philadelphia in 1812, and was president of that institution until 1817. In 1821 he became professor of mineralogy in the Philadelphia Museum, and in 1827 he went to Nashville, where, in the following year, he was appointed professor of chemistry, geology, and mineralogy, a chair which he held until his death. He was also State geologist of Tennessee from 1831 until 1849.

TROWBRIDGE, EDMUND, was born in Newton, Mass., in 1709; died in Cambridge, Mass., April 2, 1792. He was graduated at Harvard in 1728, and became attorney-general of Massachusetts in 1749. He was for a long time known by the name of Goff, after an uncle. He was a member of the council several years, but his apparent indifference to British aggressions caused him to be retired by his party in 1766. The next year, however, he was appointed to the supreme bench of Massachusetts, and gained a wide repu-

tation as a profound lawyer and an able and upright judge. His stern sense of justice threatened to become embarrassing to him in view of his attachment to the royal government, and in 1772 he resigned his office and retired to private life. As an executor of John Alfred, he founded in Harvard the Alfred professorship of natural religion, moral philosophy, and civil polity.

TROWBRIDGE, JOHN, was born in Boston, Mass., August 5, 1843. He was graduated at Harvard in 1866, and in 1870 he established in that university a laboratory course of instruction in physics, of which the Jefferson physical laboratory is the outgrowth. In 1873 Harvard conferred upon him the degree of S.D., and in 1880 he was appointed professor of experimental physics. He held this chair until 1888, when he was advanced to the Rumford professorship of the application of science to the useful arts. The scientific work of Professor Trowbridge has consisted largely of original investigations, and his later papers have had much to do with electricity. Among the instruments devised by him are a new form of galvanometer, a new induction coil, and a new form of mirror galvanometer. He has written more than fifty papers on scientific subjects. Since 1879 he has been an associate editor of the *American Journal of Science*, with charge of the notices on physics. He is a member of many societies, including the National Academy of Science, and was one of the editors of the *Annals of Scientific Discovery for 1869*, published in 1870.

TROWBRIDGE, JOHN TOWNSEND, was born in Ogden, N. Y., September 18, 1827. He began literary work in New York. In 1848 he settled in Boston, and has since been connected with many magazines and newspapers. From 1870 until 1873 he was managing editor of *Our Young Folks*. He has written numerous books of adventure, travel, and fiction, his stories for boys being especially successful. He has also written a number of poems, of which *The Vagabonas* is perhaps the best known. Mr. Trowbridge was one of the original contributors to the *Atlantic Monthly*.

TROWBRIDGE, WILLIAM P., engineer, was born in Oakland county, Michigan, May 25, 1828. He was graduated at the United States Military Academy in 1848; was made second lieutenant in the corps of engineers, and assigned to duty in the United States coast survey at his own request. He was engaged in the primary triangulation of the coast of Maine, and subsequently executed surveys of Appomattox river and James river in Virginia, with a view to the improvement of their navigation. In 1853 he went to the Pacific coast under orders to make a series of tidal and magnetic observations, and while engaged in this work he became first lieutenant, December 18, 1854. Returning from the West in 1856, he resigned from the corps of engineers to accept the professorship of mathematics in the University of Michigan; but a year later he returned to service on the coast survey. After the beginning of the Civil war he was placed in charge of the engineer office in New York city, and while there superintended the construction of the fort at Willett's Point, N. Y., and other important works. From 1865 until 1869 he was vice-president of the Novelty Iron Works of New York city, and then became professor of dynamical engineering in the Sheffield Scientific School of Yale. In 1876 he took charge of the engineering department of the School of Mines of Columbia. The degree of A.M. was conferred on him by Rochester in 1856, and by Yale in 1870, that of Ph. D. by Princeton in 1879, and that of LL.D. by Trinity in 1880. He published *Heat as a Source of Power*, and other works. He died August 12, 1892.



TRUMBULL, JAMES H., LL.D., a noted philologist, is a native of Stonington, Conn., and he was born December 20, 1821. He entered Yale College in 1838, and in 1842-43 assisted in the compilation of a catalogue of the mammalia, reptiles, fishes and shells of the State. He settled in Hartford in 1847, and until 1861 was assistant secretary of state, becoming secretary in the latter year, and so continuing until 1864. During the same period he was a member of the Connecticut Historical Society, trustee of the Watkins Free Library of Hartford, also its librarian, an officer of the Wadsworth Athenaeum, and prominently connected with other societies of a scientific and miscellaneous character. In 1858 he began to devote his attention to the Indian languages of North America, and has since prepared a dictionary and vocabulary to John Eliot's Indian Bible. In 1873 he was appointed to lecture on Indian languages in Yale College, but loss of health and other causes compelled him to resign. For years he has been a contributor of articles on various subjects to societies and periodicals. The catalogue of Americanisms made by him for George Brinley secured for Mr. Trumbull a pronounced and widely extended reputation. In 1871 Yale College, and in 1887 Harvard University, conferred the title of LL.D. upon Trumbull, and in that latter year Columbia College conferred that of L.L.D. He died Aug. 5, 1897.

TRUMBULL, LYMAN, jurist, was born at Colchester, Conn., October 12, 1813, and began his public career when he was twenty years of age, as head master of an academy of learning in Georgia. He studied law in that State, where he was also admitted to practice, in 1837, and during the same year he removed to Belleville, Ill. In 1841 he became secretary of state, and in 1848 was elevated to the supreme bench of the state. He was elected to congress as a Democrat in 1854, and while serving as representative was chosen United States Senator for the term commencing March 4, 1855. In 1860, having meanwhile acted with the Republican party and against his colleague, Stephen A. Douglas, on the question of slavery, Senator Trumbull was prominently mentioned in connection with the Republican nomination for the presidency, but he heartily coincided with the action of the Chicago convention, and labored earnestly for the election of Abraham Lincoln. In 1861 he was reelected to the Senate, where he took an active part in securing the passage of the constitutional amendment providing for the abolition of slavery, and was one of the Republicans who voted against the impeachment of President Johnson. He returned to the Democratic party, and was its candidate for Governor of Illinois in 1880. For many years he practiced law in Chicago, and in 1895 appeared before the U. S. Supreme Court as counsel for Eugene V. Debs. Died June 25, 1896.

TRUXTUN, THOMAS, was born in Jamaica, Long Island, February 17, 1755; died in Philadelphia, May 5, 1822. He served for a short time on a British war ship, and afterward became captain of a vessel in the merchant marine. In 1775 he brought quantities of powder to Philadelphia, and at the end of the year his vessel was seized by the British frigate *Argo*. He was next lieutenant on the privateer *Congress*, and later commanded the *Independence*, with which he took a number of prizes off the Azore Islands. Returning, he fitted out the ship *Mars* with twenty guns, and captured several vessels in the English channel. In 1781 he was in charge of the *St. James*, with which he disabled a British ship of thirty-two guns. In 1794 he commanded the frigate *Constellation*, and was made captain of the West India squadron. After several victories, he was appointed in 1802 to command a squadron in a war with Tripoli, but, taking offense because he was

refused a captain to his flag ship, he declined the appointment. President Jefferson afterward ordered Truxtun's name struck off the list, and his naval career ended there. Commodore Truxtun was noted for never having been defeated in battle.

TRUXTUN, WILLIAM TALBOT, a rear-admiral in the United States navy, was born in Philadelphia, March 11, 1824, and graduated at the Naval Academy as a passed midshipman, August 10, 1847. His service since then was almost continuous on the Pacific station; at the laying of the Atlantic cable; with the Strain expedition across the Isthmus; in the Paraguay war, and in the North American squadron, where he was continued during the Civil war. On July 16, 1862, he was promoted to lieutenant-commander, and participated in the capture of Plymouth, N. C., the assaults upon Fort Fisher, and in all the engagements along the North Carolina coast. After the war his promotion was quite rapid, he having been successively advanced to the rank of commander July 25, 1866; captain, September 25, 1873; commodore, May 11, 1882, and rear-admiral, February 18, 1886. His service during the same period was in the Pacific squadron and North Atlantic squadron, as commander at the Norfolk navy yard, and in other fields of usefulness. He was retired by law as a commodore, March 11, 1886, and died Feb. 27, 1887.

TRYON, WILLIAM, was born in Ireland about 1725, and for a brief period served in the British army. He was appointed lieutenant-governor of North Carolina through the influence of the earl of Hillsborough, a relative by marriage, and secretary of state for the colonies, becoming governor of New York through the same agency in July, 1771. His administration of affairs was characterized by extravagance, and became so rigorous as to estrange him from the people, while his expeditions against Danbury, Fairfield and Norwalk, Conn., were attended by inhumanities that made him an object of detestation to American patriots, and after his resignation, March 21, 1778, he returned to England, and died in London, February 27, 1788.

TSCHUDI, FRIEDRICH VON, a Swiss author, brother of John J. von Tschudi, was born at Glarus in 1820, and began life as a clergyman, a profession which he abandoned in 1846 for that of politics. His most important literary work was that devoted to an exposition of Alpine zoology, issued in 1852, which has passed through a large number of editions. He also issued a book on the relations of birds and insects to agriculture, and in 1884 became a member of the council of the Polytechnique School of Switzerland. He died January 25, 1886.

TSCHUDI, JOHANN JACOB VON, a Swiss traveler and author, was born at Glarus, July 25, 1818. He attended the universities of Leyden and Paris, and in 1838 visited Peru, where he remained for five years engaged in exploring the country and making collections of leaves, grasses, etc. From Peru he went to Vienna, in 1843, thence sailing to Brazil and other countries in South America, and accepting, in 1860, the position of minister from Switzerland to Brazil, in which capacity he served eight years, when he was promoted to a similar post at the court of Vienna. His collections of plants, etc., for the museums of the German universities, are valuable, and his works on the fauna of Peru, the topography of the Andes, and on other subjects, are numerous and of great importance. He died October 8, 1889.

TSENG, MARQUIS, envoy extraordinary and minister plenipotentiary from China to the courts of London, Paris, and St. Petersburg, was the eldest son of Tseng Kwo-fan, the first marquis, and the most distinguished statesman who had appeared in China for many years. He



was a native of Hunan, and was born about 1848. He succeeded his kinsman, Two Ta-Jen, as minister of China to the courts of London and Paris in 1878, and afterward, when the question of the retrocession of Kulджа threatened to produce a rupture of friendly relations between Russia and China, he was also accredited to St. Petersburg. It was by him that the treaty of St. Petersburg, replacing that of Livadia, was negotiated; and in 1883 he endeavored to come to an arrangement with France on the subject of Tonquin. He died April 12, 1890.

TUCK, JOSEPH HENRY, an inventor, was born at Dorchester, Mass., March 12, 1812; graduated at the Boston High School, and, while employed in a candle factory, perfected his first invention, known as the "endless wick." In 1837 he removed to England, and during his residence of twenty-five years in London, where he was employed as an engineer, he was continually developing and improving mechanical equipments and appliances. His discoveries embraced gas and water pipes, ventilating and dredging machines, a rotary-engine, and many other articles of utility and value. It is claimed for him that he was the originator of the plan for an electric submarine cable between Dover and Calais, laid in 1848, and the author of the designs upon which the Suez canal was afterward constructed, but that he was defrauded of the benefits that accrued from the application of principles he discovered in both instances. He returned to the United States in 1865, and has since resided at Brooklyn, N. Y.

TUCKER, BEVERLY, was born in Arncchester, Va., in 1820; died July 4, 1890. He first came prominently into notice in 1853, when, as editor of the *Washington Sentinel*, he was a fearless advocate of the doctrine of State rights. President Buchanan appointed him consul to Liverpool in 1857, and upon his return in 1861 he entered the service of the Confederate government, and was twice entrusted with important missions to England and Canada. After the war he went to England, and was subsequently an exile in Canada, but as soon as his disabilities were removed he again took up his residence in Washington, spending his summers at Berkeley Springs, Va. In 1889 he was named by President Harrison as one of the commissioners on the Samoan claims, but the objections that were raised on account of his Confederate record caused the appointment to be withdrawn.

TUCKER, HENRY ST. GEORGE, LL.D., was born at Williamsburg, Va., December 29, 1780, and educated at William and Mary College. Upon his admission to the bar he settled at Winchester, Va., in 1802, where he remained in the active practice of his profession until the war of 1812, in which he participated. From 1815 to 1818 he was a member of congress, afterward a member of the State Senate until 1824, when he was appointed chancellor of Virginia, succeeding to the chief justiceship of the Court of Appeals in 1831, and to the law professorship of the University of Virginia in 1841. He resigned that position in 1845, on account of his failing health, and died at Winchester, Va., August 28, 1848. Judge Tucker declined the attorney-generalship of the United States tendered him by President Jackson, and was the author of *Commentaries on the Law of Virginia* and other works bearing upon the administration of the laws. In 1837 he received the degree of LL.D. from William and Mary College.

TUCKER, JOHN RANDOLPH, a naval officer, was born at Alexandria, Va., January 31, 1812, and entered the navy as a midshipman June 1, 1826. He participated in the capture of Tabasco and in other engagements of the Mexican war, and from 1855 to the breaking out of the war between the States, was in charge of the

receiving ship *Pennsylvania*, at Norfolk, also serving as ordnance officer at the Norfolk navy yard. Upon the secession of Virginia he resigned his position in the United States navy, and became commander in the Virginia navy. He was afterward transferred to the Confederate navy, and served until the evacuation of Richmond, when he became a soldier in Ewell's corps of the army of Northern Virginia, and with that command covered the retreat of the Confederate army. In 1866 he was appointed a rear-admiral in the Peruvian navy, and during the war between Chili, Peru and Spain commanded the forces of the two republics. He returned to Virginia at the close of hostilities, and died at Petersburg, June 12, 1883.

TUCKER, LUTHER, was born in Brandon, Vt., May 7, 1802; died in Albany, N. Y., January 26, 1873. After serving an apprenticeship at the printer's trade he traveled as a journeyman through the New England and Middle States, and in 1825 formed a partnership with Henry C. Sleight in Jamaica, Long Island, where they published standard works for New York houses. He went to Rochester in 1826, and began the publication of the *Daily Advertiser*, the first daily newspaper published west of Albany. He founded the *Genesee Farmer*, an agricultural paper, January 1, 1831, and it met with such success that he sold the *Advertiser* in 1839, and in 1840 combined his agricultural journal with the *Cultivator* of Albany. The combination was issued from Albany under the name of the *Cultivator*. In 1853 he established *The Country Gentleman*, a weekly, but in 1866 consolidated it with the *Cultivator*, which is still published by his sons.

TUCKER, ST. GEORGE, LL.D., was born in the island of Bermuda, July 10, 1752, and, when a boy, accompanied his father to America, settling in Virginia. He was graduated at William and Mary College in 1772, studied law, and was admitted to practice, but in 1775 returned to Bermuda. Two years later he again became a resident of Virginia, and, having joined the Continental army, undertook an expedition to Bermuda. The expedition proved successful, resulting in the capture of a large amount of munitions of war. He rose to the rank of lieutenant-colonel, and was present at the surrender of Yorktown, where he was wounded by the explosion of a shell. At the close of the war he was appointed judge of the general court of Virginia, succeeding, in 1803, to a justiceship of the Court of Appeals, and later to the judgeship of the United States Circuit Court for the Eastern District of Virginia. During this period he was also professor of law at William and Mary College. He died at Warminster, Va., November 10, 1828.

TUCKER, SAMUEL, was born in Marblehead, Mass., November 1, 1747; died in Bremen, Me., March 10, 1833. At the age of eleven he ran away to sea, and in 1768 acquired command of a merchantman, making many voyages as a captain. General Washington commissioned him a captain of the navy January 20, 1776, and soon afterward, while cruising in a small schooner, he captured, after a desperate fight, a British transport with troops and stores. He was first given command of the schooner *Franklin*, but was transferred to the *Hancock* in March, 1776, and with these two schooners he captured more than thirty British vessels during that year, some of them very valuable prizes. He commanded the frigate *Boston*, in which John Adams went as minister to France in February, 1778, and captured five prizes on his return voyage. In the following year he captured the British frigate *Pole*, and several privateers, and while sailing with the *Deane*, under Commodore Samuel Nicholson, his vessel, the *Boston*, took the sloop-of-war *Thorn*, un-



aided. Tucker was with the American squadron when it was taken by the British fleet on the surrender of Charleston, S. C., in 1779, was paroled May 20, 1780, and, returning to Boston, assumed command of his former prize, the *Thorn*, with which he did effective work. In July, 1781, he was captured by the British frigate *Hind*, off the mouth of the St. Lawrence river, and after being held for a time at Prince Edward Island, was paroled. After the war Tucker received a vote of thanks from congress for his services. He was elected to the Massachusetts Legislature in 1814, serving four years, and was a member of the Maine Legislature in 1820-21. In his old age he was in reduced circumstances, through being defrauded of his prizes, and deprived of full compensation for his services as a captain in the navy.

TUCKER, THOMAS TUDOR, treasurer of the United States during the early history of the republic; was a native of the island of Bermuda, having been born at Port Royal during 1745. He studied medicine, was admitted to practice, and emigrated to South Carolina, whence he was a delegate to the Continental congress. After the adoption of the constitution, he was a member of congress for two terms, and in 1801 was appointed treasurer of the United States, serving in that capacity until his death, which occurred at Washington, D. C., May 2, 1828.

TUCKERMAN, HENRY THEODORE, a well-known writer of prose and verse, was born at Boston, Mass., April 20, 1813, and died in New York city, December 17, 1871. Upon completing his education he visited Europe, and upon his return, in 1835, published the *Italian Sketch Book*. Two years later he again went to Europe, remaining there until 1839, when he came back to America, and during the same year published *Isabel, or Sicily, a Pilgrimage*. In 1845 he removed to New York city, where he resided until his death, engaged in literary pursuits. His most important works are *Thoughts on the Poets* (1846); *Artist Life* (1847), and *The Optimist* (1850).

TUCKERMAN, JOSEPH, was born in Boston, Mass., January 18, 1778; died in Havana, Cuba, April 20, 1840. He was graduated at Harvard in 1798, entered the Unitarian ministry in 1801, and in 1826 was appointed by the American Unitarian association minister at large in Boston. He afterward made a scientific study of pauperism and the administration of charity, and, by introducing practical methods of dealing with the poor, rose to a prominent rank among the benefactors of mankind. His principles were adopted in France and England, resulting in the Tuckerman Institute of Liverpool and many other associations. The degree of D.D. was conferred upon him by Harvard in 1824. His principal writings have been collected under the title of *Elevation of the Poor*.

TUKE, D. HACK, M.D., F.R.C.P., LL.D., London, was born at York, England, in 1827. Dr. Tuke was the editor of the *Journal of Mental Science*. In 1881 he was elected president of the Medico-Psychological Association of Great Britain. In addition to a treatise on *Sleep-walking and Hypnotism*, Dr. Tuke published the results of a visit which he paid to asylums in Canada and the United States. The exposure of the bad condition of certain asylums in Canada has already born fruit. He died March 5, 1895.

TULANE, PAUL, founder of the Tulane University of Louisiana, was born at Cherry Valley, N. J., in May, 1801. During the winter of 1822, Mr. Tulane settled in New Orleans, where he was continuously engaged in business until 1873, when he returned to New Jersey. His attachment to the city wherein he had acquired an immense fortune, remained undisturbed by his

removal, and on May 2, 1882, he conveyed property located in New Orleans; valued at over one million dollars, to a board of seventeen administrators, directing that the same, or its proceeds, be applied to the higher education of the white youth of Louisiana. Upon this endowment the Tulane University was established during 1884, and has met with very pronounced success. It now has twenty professors, assistant professors and instructors, with a curriculum embracing every department of knowledge, and a steadily increasing number of matriculants. Mr. Tulane died at Princeton, N. J., March 27, 1887.

TULLOCH, JOHN, a noted clergyman of the Established Church of Scotland, was born in Perthshire, in 1823, and died in 1886. He was for years prominent in theological and educational affairs, and the author of a number of literary works which have become famous. Among the latter, *The Being and Attributes of God*, published in 1855, obtained for its author a prize of \$3,000.

TUPPER, MARTIN FARQUHAR, F.R.S., born in London, in 1810, was educated at the Charterhouse and at Christ Church, Oxford, where he took the degrees of B.A., M.A., and D.C.L. He was called to the bar, but never practiced, and published *Geraldine and Other Poems* (1838); *Proverbial Philosophy* (1839-44), a book which went through countless editions in Europe and America, and many other productions, including a variety of articles, reviews, and fugitive pieces in prose and verse. He died November 29, 1889.

TUPPER, SIR CHARLES, K.C.M.G., born July 2, 1821; is the son of the Rev. Charles Tupper, D.D., of Kingston, Nova Scotia. He is an M.A. and D.C.L., of Acadia College, Nova Scotia, took the degree of M.D. at Edinburgh, and obtained the diploma of the Royal College of Surgeons in that city in 1843. From 1857 to 1860 he was a member of the executive council, and provincial secretary of Nova Scotia; and prime minister of that province from 1864, until he retired from office with his government on the Union Act coming into force, July 1, 1867. He became a member of the Privy Council in 1870, and was president of that body until July, 1872, when he was appointed minister of inland revenue. In 1873 he was nominated minister of customs; minister of public works in 1878, and minister of railways and canals in 1879. He resigned his seat in the cabinet in 1884, and in May of that year was appointed high commissioner for Canada in London. In 1887-88 he was one of the negotiators of the fisheries treaty with the United States, and was knighted for his services.

TUPPER, SIR CHARLES HIBBERT, lawyer, son of the above, born in Amherst, Nova Scotia, August 3, 1855, became Canadian minister of marine and fisheries in 1888, and minister of justice, 1894.

TURNER, CHARLES TENNYSON, English clergyman, born in 1808 at Somersby. Was a brother of Alfred Tennyson, with whom he published *Poems by Two Brothers*, in 1827. He adopted his grandmother's name of Turner. He died April 28, 1879.

TURNER, CHARLES YARDLEY, born at Baltimore, November 25, 1850, studied art in New York, and in 1878-81, in Europe, under Munkacsy, Leon, Bonnat and other celebrated artists; returned to America in 1881, and in 1883 gained the Hallgarten prize by his *Courtship of Miles Standish*, which, with *John Alden's Letter*, *Pride of the Farm*, *Washing Day*, *Afternoon Tea Gossips*, and other of his paintings, attracted marked attention at the World's Fair, in Chicago, in 1893.

TURNER, GODFREY WORDSWORTH, born in London, 1825, studied art, and entered on newspaper work with Mr. Thornton Hunt, on the *Spectator*. At the



same time he wrote for the *Morning Chronicle* and the *Leader*. Afterward, from being fine art critic of the *John Bull*, he transferred his services to the *Daily News*, during the editorship of Mr. Thomas Walker. In December, 1860, he joined the staff of the *Daily Telegraph*, and, on the outbreak in Jamaica, he was dispatched with the royal commission to that island. He has been an industrious contributor to the magazines and periodicals, and he is the author of *Jest and Earnest*, *Homely Scenes from Great Painters*, *Art Studies*, and other books. Died June, 1896.

TURNER, NAT, a Virginia slave, and leader of the Southampton insurrection of 1831, was born about 1800, and hanged at Jerusalem, Va., November 11, 1831. He assumed to be inspired by heaven to procure the freedom of his race, and in the autumn of 1831, accompanied by half-a-dozen men, began his efforts in that behalf. He proceeded from house to house, his force steadily augmenting in numbers, and at the end of forty-eight hours had killed fifty-five white persons without any of his followers having sustained injury, but, as they approached Jerusalem, they encountered an army of white men, by whom they were put to flight. Turner escaped to the woods, where he remained hidden for some weeks, but was finally captured, tried, convicted of murder, and hanged. His companions to the number of fifty-three were eventually captured, and seventeen of them met with a fate similar to that which had been meted out to their chief. The occurrence caused a feeling of apprehension to sweep over the Slave States, but there was no evidence ever adduced that Turner's movement was anticipated by the negroes, or that the latter expected to take part in it.

TURNER, THOMAS, an American naval officer, born at Washington, D. C., December 23, 1808; became a midshipman April 21, 1825, past midshipman six years later, and a lieutenant December 22, 1835. From 1837 to the Civil war he served in the frigates *Macedonia* and *Columbia*, commanded the store-ship *Fredonia* in 1847, also the *Reef* and *Albany*, and the sloop *Saratoga* from 1858 to 1860, having been, meanwhile, promoted to be commander. On March 6th of the latter year he captured the *Miramon* and *Marquis de Havana* off Vera Cruz, to blockade which port in the interest of the revolutionary party of Mexico, they had been purchased by General Miramon. During the Civil war he commanded the *New Ironsides*, an armored ship attached to the South Atlantic squadron, and was present at the attacks made upon the forts off Charleston in 1863. He was made commodore in 1862; rear-admiral June 24, 1868; and retired April 21, 1870, after nearly forty-five years of active service. He died at Glen Mills, Penn., March 24, 1883.

TÜRR, STEPHEN, GEN., born at Baja, in Hungary, in 1825; became a lieutenant in the Austrian army in 1848. The revolutionary government of Hungary having called upon all Hungarians serving under the Austrian flag in Italy to desert to the Piedmontese, he went over to the latter from Buffalora, in January, 1849, and was appointed colonel of the Hungarian legion in the Sardinian service. After the disaster of Novara, Colonel Türr lived for four years on a small pension granted to him by the Sardinian Government. On the outbreak of the Russian war, he vainly endeavored to serve under Omar Pasha, but succeeded in taking part as a volunteer in several of the battles of the Crimea, and received a commission from Colonel McMurdo, the officer in command of the British transport service. While engaged in the performance of his duty, and in connection with this employment, in the autumn of 1855, he was arrested at Bucharest by the Austrians as a deserter, and sent under escort to Cronstadt to be tried there. His ille-

gal arrest caused great excitement throughout Europe, and, after a long incarceration, he was tried by court-martial, and sentenced to death; which sentence was, however, commuted to perpetual banishment. In the Italian war in 1859, he was appointed a member of Garibaldi's staff, with the rank of colonel. In the spring of 1860, when Garibaldi planned his Sicilian expedition, Colonel Türr again served under him in the capacity of aide-de-camp, and before Palermo was promoted to the rank of general of division. The part he played in the War of Liberation was acknowledged by the government of Victor Emmanuel, who promoted him to the rank of general of division in the army of Italy in 1861, and confided to him the military command of the town and province of Naples. Since his marriage he has made two journeys to Roumania, with a view to creating difficulties for Austria in the East of Europe. These political journeys were, however, thought to be compromising to the Italian Government, and, accordingly, Colonel Türr resigned his commission in 1864.

TUTTLE, DANIEL SYLVESTER, D.D., a bishop of the Protestant Episcopal church, was born at Windham, Greene county, N. Y., January 26, 1837; graduated at Columbia College in 1857, and five years later at the General Theological Seminary, New York. He became deacon, January 29, 1862, and was ordained priest, July 19, 1863, taking charge of Zion Church at Morris, Otsego county, N. Y. In 1866 Columbia College conferred the degree of S.T.D. upon him, and on the first of May of the following year he was consecrated missionary bishop of Utah, Montana, and Idaho, Utah and Idaho remaining in his charge when Montana was disconnected from them, and so continuing until 1886, when he was elected bishop of Missouri, to fill the vacancy caused by the death of Bishop Robertson.

TUTTLE, HERBERT, a prominent educator, was born in Bennington, Vt., November 29, 1846, and graduated at the State University in 1869. He began his career as a journalist, so continuing until 1880, when he was appointed a lecturer at the University of Michigan, becoming, in 1881, assistant professor of politics and international law at Cornell. He is the author of *German Political Leaders*, *History of Prussia to the Accession of Frederick the Great* and *History of Prussia Under Frederick the Great*. Died June, 1894.

TWIGGS, DAVID EMANUEL, was born in Richmond county, Ga., in 1790, and became a captain in the 8th United States infantry, March 12, 1812. He was engaged in the war with Great Britain, also in the Mexican war, in which he participated in all the leading battles, and was promoted from a subordinate rank to major-general by brevet for gallant conduct at Palo Alto, Resaca de la Palma, and Monterey, being also the recipient of a sword, presented him by congress. At the breaking out of the Civil war he was stationed in Texas, and surrendered his army, together with its stores and equipments, to the Confederates, for which he was dishonorably dismissed from the United States army. In May, 1861, he was appointed a major-general in the Confederate army, and given the command of Louisiana. He resigned this command in 1862, and died September 15th of the same year at Augusta, Ga.

TWISS, SIR TRAVERS, Q.C., D.C.L., F.R.S., was born in Westminster, March 19, 1809, and died January 14, 1897. At Oxford he graduated in 1830, and became fellow and tutor of his college. From 1835 till 1839 he was one of the public examiners at Oxford, in 1838 he was elected a fellow of the Royal Society; from 1842 till 1847 was professor of political economy in the University of Oxford; from 1842 till



1855 professor of international law in King's College, London, and was appointed regius professor of civil law in the University of Oxford. In 1840 he was called to the bar at Lincoln's Inn, and in 1849 he was appointed commissary-general of the city; in 1852 vicar-general of the archbishop of Canterbury, and in 1858, on the advancement of the Right Hon. Dr. Lushington to the office of judge of the Arches Court of Canterbury, was appointed chancellor of the diocese of London. In 1862 he was appointed advocate general of the Admiralty. On the transfer of the testamentary and matrimonial jurisdiction from the ecclesiastical to the civil courts, Doctor Twiss was created a queen's counsel, elected a bencher of Lincoln's Inn, became queen's advocate-general in August, and was knighted in November, 1867. In 1872 Sir Travers Twiss resigned all his appointments, and has since devoted himself to literary and scientific pursuits, being a frequent contributor to the *Nautical Magazine*, the *Law Magazine and Review*, the *Encyclopædia Britannica*, and *La Revue de Droit International*, being also a vice-president of L'Institut de Droit International, established in 1872, and of the association for the reform and codification of the law of nations, established in 1873.

TYLER, DANIEL, was born in Brooklyn, Windham county, Conn., January 7, 1799; died in New York city, November 30, 1882. He graduated at the United States Military Academy in 1819, and in January, 1828, while first lieutenant of artillery, he was sent to Europe to obtain data for a work on the French system of artillery. The result was a translation of the French authorities on the subject, and 300 lithographed copies in three volumes were sent to the war department in Washington, D. C. He also obtained a large collection of drawings and memoirs, relating to artillery practice in France. In 1834 he resigned from the army to become president of an iron and coal company in Lycoming county, Penn., and in 1840 he became president of the Norwich and Worcester railroad, which he completed. He was engaged in railroad operations until the beginning of the Civil war, when he was appointed colonel of the first Connecticut volunteers, April 23, 1861. After the battle of Blackburn's Ford and Bull Run, in which he commanded a division, he was mustered out August 11, 1861, but was reappointed in the United States volunteer service with the rank of brigadier-general, March 13, 1862. He served with the army of the Mississippi at the siege of Corinth, served on the military commission that investigated General Buell's campaign in Kentucky and Tennessee, guarded the upper Potomac, and was in command of Harper's Ferry and Maryland Heights in June, 1863. He resigned his commission April 6, 1864, and after traveling extensively in the South and in Europe, he established large cotton and iron manufactories in Alabama in 1872, and built the town of Anniston, Ala. He was president of the Mobile and Montgomery railroad from 1873 to 1879.

TYLER, ERASTUS B., was born in West Bloomington, Ontario county, N. Y., April 24, 1822. He was educated at Granville (Ohio) College, and was engaged in business until the beginning of the Civil war, when he was commissioned colonel of the 7th Ohio volunteers. He commanded a brigade at the battles of Cross Lanes, W. Va., August 26, 1861; Winchester, Va., March 23, 1862; Port Republic, Va., June 9, 1862, and Fredericksburg, December 13, 1862. At the last named battle he was wounded. He was made brigadier-general May 14, 1862, and was mustered out of service August 24, 1865.

TYLER, LYON GARDINER, son of the tenth president of the United States, was born in Charles City

county, Virginia, in August, 1853. He was graduated at the University of Virginia in 1875, after which he studied law. From January, 1877, until November, 1878, he was professor of belles-lettres in William and Mary College, and was afterward principal of a high school in Memphis, Tenn. In 1882 he established himself in Richmond, where he devoted himself for a number of years to politics and the practice of law. As a member of the house of delegates, to which he was elected in 1887, he advocated the bills to establish a labor bureau, to regulate child labor, and to aid William and Mary College. He was elected president of William and Mary College in 1888. He has published *The Letters and Times of the Tylers*.

TYLER, MOSES COIT, LL.D., was born in Griswold, Conn., August 2, 1835; graduated at Yale College in the class of 1857, and studied theology at the Andover Seminary. In 1860 he became pastor of the First Congregational church of Poughkeepsie, N. Y. subsequently professor of English literature at the University of Michigan, where he remained until 1881, since when he has been professor of American history at Cornell University. In 1875 he was given the degree of LL.D. by Wooster University, and in 1888 Columbia College conferred that of LL.D. He has published a number of miscellaneous works, and, besides filling the position of literary editor of the New York *Christian Union*, has been a frequent contributor to reviews and magazines. Died Dec. 28, 1900.

TYLER, ROYALL, was born at Boston, Mass., July 18, 1757; read law in the office of John Adams, and in 1790 settled at Guilford, Vt., where he engaged in the practice of his profession. Early in 1794 he became associate justice of the Supreme Court of the State, and six years later was elected chief justice of that tribunal. During his professional and judicial career he was a frequent contributor of songs, odes, prologues, etc., to the New England papers, being also the author of *The Contrast*, a play produced in New York city in 1786, and editor of the Reports of the Supreme Court of Vermont. He died at Brattleboro, Vt., August 16, 1826.

TYLOR, EDWARD BURNETT, F.R.S., was born at Camberwell, October 2, 1832, and educated at the school of the Society of Friends, Grove House, Tottenham. He was elected a fellow of the Royal Society in 1871; received the honorary degree of LL.D. from the University of St. Andrews in 1873, and of D.C.L. from the University of Oxford in 1875. In March, 1883, he was appointed keeper of the Oxford University museum. Later in the same year (October) he was appointed to a readership in anthropology, and the degree of M.A. was conferred upon him by decree of the House of Convocation. Mr. Tylor is president of the Anthropological Society, and the author of *Anahuac, or Mexico and the Mexicans*, and other works on philosophy, art, science, and customs.

TYNDALE, HECTOR, was born at Philadelphia, March 24, 1821, and first became prominent as the volunteer escort of Mrs. John Brown, on her journey to Harper's Ferry, to bid her husband farewell, and recover his body after execution. When the war broke out Tyndale was appointed major of the 28th Pennsylvania infantry, and remained in active service until May, 1864, when he was disabled by wounds and resigned his commission. He was promoted to be lieutenant-colonel in April, 1862, and to be brigadier-general of volunteers November 29th, following, for "conspicuous gallantry, self-possession, and good judgment at Antietam." In March, 1865, he was brevetted major-general of volunteers for gallant conduct during the war. In 1868 he was the Republican candidate for mayor of Philadelphia, but was defeated. He died in that city, March 19, 1880.



TYNDALL, JOHN, LL.D., F.R.S., was born about 1820, in the village of Leighlin-bridge, near Carlow, in Ireland. In 1844 he was engaged by a firm in Manchester, and in 1847 he accepted an appointment as teacher in Queenwood College, in Hampshire. Here he became acquainted with Mr. (now Doctor) Frankland, who was resident chemist to the college, and in 1848 the two friends quitted England together, and repaired to the University of Marburg, in Hesse-Cassel, where they studied under Bunsen and other eminent professors. Afterward Mr. Tyndall prosecuted his researches in the laboratory of Magnus, at Berlin. In 1853 he was chosen professor of natural philosophy in the Royal Institution of Great Britain, and succeeded the celebrated Faraday as superintendent. The publication of an essay on the cleavage of slate rocks was the proximate cause of his joining his friend, Professor Huxley, in a visit to the glaciers of Switzerland in 1856; and they afterward published a joint paper on the structure and motion of glaciers. He returned to Switzerland in 1857, 1858, and 1859, and during the latter year commenced his researches on radiant heat, which disclosed relations previously unthought of between this agent and the gaseous form of matter. Mr. Tyndall was a Rumford Medalist of the Royal Society, and a member of various foreign scientific societies; he was made LL.D. of Cambridge, in 1855, and LL.D. of Edinburgh, in 1866. In 1872 Professor Tyndall went on a lecturing tour in the United States, in the course of which he delivered thirty-five lectures, which returned him \$23,100. After paying expenses, a fund of over \$13,000 remained, and this, before leaving for Europe, the professor placed in the hands of a committee, who were authorized "to expend the interest in aid of students who devote themselves to original research." Professor Tyndall presided at the annual meeting of the British association held at Belfast, in August, 1874. He accepted the presidency of the Birmingham and Midland Institute for the year 1877. For some years Professor Tyndall was scientific adviser to the board of trade and to the lighthouse authorities, but he resigned those offices in May, 1883. He was a zealous materialist.

Among his works are *Essays on the Imagination in Science*; *Six Lectures on Light*; *Fermentation*; *Fragments of Science* (1882); and *New Fragments* (1892). He died December 4, 1893.

TYNER, JAMES NOBLE, ex-postmaster-general of the United States, was born at Brookville, Ind., January 17, 1826, and graduated at the Brookville Academy in 1844. He was admitted to the bar during 1857, and engaged in the practice of his profession at Peru, at the same time paying considerable attention to politics. After serving in positions of minor importance, he was elected to congress as the Republican successor of Daniel D. Pratt, who had been made United States senator, remaining in the lower house until 1875, when he was appointed second assistant postmaster-general by President Grant, and became postmaster-general July 12, 1876, upon the resignation of Marshall Jewell. In April, 1877, he was made first assistant postmaster-general, and served until the fall of 1881. He has since engaged in the practice of law.

TYNG, STEPHEN H., clergyman, was born in Philadelphia, June 28, 1839. He was graduated at Williams in 1858, and after studying theology at the Alexandria Seminary, Virginia, he was ordained deacon May 8, 1861. Two years later he was made a priest, and appointed rector of the Church of the Mediator in New York city. In 1865, after serving for a time in the United States army as chaplain of the 12th New York volunteers, he established the Church of the Holy Trinity in New York, and remained in charge of that parish until his resignation in April, 1881. He then went to Paris, and, forming a connection with a large insurance company, remained a resident of that city. In 1867 he was arraigned before an Episcopal tribunal on the charge of preaching in a Methodist church, an offense against the canon law of his church, and, being found guilty, was censured by the bishop of New York. Williams gave him the degree of D.D. in 1872. He was editor of *The Working Church* and *The Christian at Work* from 1864 to 1870, and published several volumes of sermons and other religious works. He died Nov. 17, 1898.

## U.

ULLMANN, DANIEL, LL.D., was born at Wilmington, Del., April 28, 1810; graduated at Yale College in 1829; was admitted to the bar and began practice in New York in 1854. He was the defeated candidate of the Know-Nothing party for governor of New York, and when the war broke out became colonel of the 78th regiment of New York infantry. He became brigadier-general January 13, 1863, and brevet major-general March 13, 1865. He retired from the army to scientific study, and died September 20, 1892.

ULRICH, CHARLES FREDERICK, an American painter, born in New York city, March 18, 1858, where he also studied art, going thence to Munich, where he won a bronze medal in 1876. He has won other prizes, and his *An Italian Idyl*, *Glass Blowers*, and *In the Land of Promise*, were exhibited at the World's Fair in Chicago, in 1893.

UNCAS, an Indian chief, was born in Connecticut, about 1588, and for some years was identified with the Pequot tribe. Internal dissensions, however, caused his expulsion, and, gathering together a number of his followers, he settled near Lyme, Conn., where he founded the tribe known as Mohegans. During subsequent years he acquired additional territory as the

result of victories over neighboring tribes, and in 1637 he combined with the colonists for the destruction of the Pequots and the Indians generally distributed throughout that portion of New England. These arrangements becoming known, Miantonomo, chief of the Narragansetts, invaded the land of the Mohegans with a thousand of his followers, and a desperate engagement resulted, in which the Narragansetts were defeated, and their chief was taken prisoner. He was tried before the colonial authorities, and, upon being sentenced to death, was taken to Norwich, where he was brained by a tomahawk in the hands of a brother of Uncas. This occurrence was the signal for a coalition of the Mohawks, Potomotoes, Narragansetts, and other tribes against the Mohegans, and for the next few years Uncas was almost continuously engaged in defending his country from their invasion. He died near Norwich, Conn., in 1682.

UNDERWOOD, FRANCIS H., LL.D., author, was born at Enfield, Mass., January 12, 1825, and educated at Amherst. He was for many years the literary adviser of the publishing house of Phillips, Sampson & Co., and for two years assisted in the management of the *Atlantic Monthly*. His works, chiefly of a mis-

cellaneous character, are numerous. He died April 21, 1894.

UNDERWOOD, JOHN WILLIAM HENRY, jurist, was born in Elbert county, Ga., November 20, 1816; died in Rome, Ga., July 18, 1888. After practicing law for a number of years in Habersham county, he removed to Rome, Ga., in 1851. In 1843 he was elected solicitor-general for the western circuit, but resigned in 1846, and in the same year declined an appointment as chief justice of the Supreme Court of Nebraska. He served in the Georgia Legislature in 1857-58, and was speaker of the House of Representatives. From December 5, 1859, until January 23, 1861, he was a member of congress, resigning when Georgia seceded from the union. From 1867 until the reconstruction act in 1868, he was judge of the Rome circuit, being restored to that office in 1874, and reappointed in 1878. He resigned in 1882 to become a member of the tariff commission, appointed by President Arthur.

UNDERWOOD, JOSEPH R., an American jurist and statesman, born in 1791 in Goochland county, Va., and became a citizen of Kentucky in 1823. He was a representative in congress from the Bowling Green district for ten years, and was elected United States senator in 1847. He died August 26, 1876.

UNDERWOOD, LUCIUS M., Ph.D., is a native of New Woodstock, N. Y., where he was born October 26, 1853, and is a graduate of Syracuse University. From 1880 to 1883 he occupied the chair of botany and geology in the Wesleyan University of Illinois, accepting that of assistant professor of botany at Syracuse University in the latter year. He is the author of a number of works on botany.

UPCHURCH, JOHN JORDEN, was born in Franklin county, N. C., March 26, 1822; died in Steelville, Mo., January 18, 1887. He was brought up on a farm, failed in the hotel business at Raleigh, was for thirteen years master mechanic on the Mine Hill and Schuylkill Haven railroad, and lost all his savings in an oil investment in 1864. In 1868, while employed in the machine shops of the Atlantic and Great Western railroad, at Meadville, Penn., he founded the Ancient Order of United Workmen, and organized the first lodge October 27, 1868. The order has since spread to every State and Territory in the Union, has a membership of more than 200,000, and pays out fully \$2,000,000 annually in benefits to the families of deceased members. Upchurch afterward traveled much in the interest of the society established by him, and during the later years of his life resided at Steelville, Mo.

UPFIELD, GEORGE, bishop of the Protestant Episcopal Church, was born in Surrey, England, May 7, 1796; came to the United States at an early age, was graduated at Union College, New York, in 1820, became an elder in the Episcopal Church ten years later, and in 1849 bishop of Indiana. He died at Indianapolis, August 26, 1872.

UPHAM, CHAS. WENTWORTH, a minister of the Unitarian Church, was born at Saint John, N. B., in 1802, and first occupied a pulpit in 1824, at Salem, Mass. In 1844 he abandoned the ministry, and in 1854 was elected to congress. He was a frequent contributor to religious and secular periodicals, and the author of the *Life of Sir Henry Vane*. He died June 15, 1875, at Salem.

UPHAM, SAMUEL FOSTER, D.D., was born at Duxbury, Mass., May 19, 1834, and graduated at Wesleyan University in 1856. Up to 1881 he officiated as pastor of various congregations, and in that year was appointed to the chair of practical theology in Drew Theological Seminary.

UPHAM, THOMAS COGSWELL, D.D., was born at Deerfield, N. H., in 1799; graduated at Dartmouth College, and was for some years a Congregational clergyman. In 1825 he was appointed professor of philosophy in Bowdoin College. He was the author of numerous works of a religious and philosophical character. He died in 1872.

UPSHUR, ABEL PARKER, was a native of Northampton county, Va.; became secretary of the navy in 1841 by appointment from President Tyler, and secretary of State, vice Daniel Webster, in May, 1843. He was killed, February, 1844, by the explosion of a cannon on board the gunboat *Princeton*.

UPSHUR, JOHN HENRY, an American naval officer, was born in Northampton county, Va., December 5, 1823, and entered the navy November 4, 1841, becoming a past-midshipman in 1847, after the fall of Vera Cruz, in the bombardment of which he participated. He was promoted to be master July 18, 1855, and became lieutenant on September 14th following. At the breaking out of the Civil war he was ordered to the North Atlantic squadron, and was present at the capture of the forts along Hatteras inlet and the coast of North Carolina. In 1862 and 1863 he participated in the operations of the South Atlantic squadron off South Carolina, and on July 16th of the former year was promoted to be lieutenant-commander, becoming commander July 25, 1866; captain, July 31, 1872, and rear-admiral October 1, 1884. He was placed on the retired list June 1, 1885.

## V.

VAIL, ALFRED, an American inventor; born in Morristown, N. J., September 23, 1807, and a graduate of New York University in the class of 1836. Soon after completing his collegiate course, Vail became a partner of Prof. S. F. B. Morse in the latter's system of telegraphy, and it was agreed between them that in consideration of Vail's constructing at his own expense a telegraph after "the plan and invention of Morse," and exhibiting the same before a congressional committee, also procuring a patent therefor, he was to receive one-fourth of the rights to the invention in the United States. Vail was successful in completing the apparatus, and was the inventor of many of the attachments and mechanical appliances which have since become part of the system, though at the time his rights in the

premises were ignored by Morse, and the claim has since been authoritatively made that the merit of the present system is due to Alfred Vail and Joseph Henry. He died at Morristown, N. J., January 18, 1859.

VAIL, THOMAS HUBBARD, was born in Richmond, Va., October 21, 1812, and educated at Trinity College, Hartford, Conn., and at the General Theological Seminary. He became an elder in the church in 1835, and from 1837 to 1864 officiated as rector in New England and Iowa parishes. He was consecrated bishop of Kansas during the latter year. He died October 6, 1889.

VALENTINE, EDWARD V., a sculptor, was born in Richmond, Va., November 12, 1838, and began his art studies at the Virginia Medical College in Richmond. Thereafter he pursued a course of elementary drawing,



also learning the rudiments of modeling, and in 1859 visited Europe and passed five years among the art studios of Florence, Paris, and Berlin. Later, he returned to America and exhibited at Richmond ideal heads of *The Samaritan Woman*, *The Penitent Thief*, etc.; also portrait busts of General Beauregard, Gen. J. E. B. Stuart, "Stonewall" Jackson, Albert Sidney Johnston and other Southern leaders, which elicited expressions of marked admiration.

VALLANDIGHAM, CLEMENT L., an American lawyer and politician, was born at New Lisbon, Ohio, in 1822, and for a number of years represented the third Ohio district in congress. During the Civil war he was arrested by order of General Burnside, charged with the expression of disloyal sentiments, tried before a court martial, and in 1863 sent beyond the Union lines. He was the same year nominated for governor by the Democrats, but defeated. He was accidentally killed while handling a pistol, at Lebanon, Ohio, in 1871.

VAMBERY, ARMINIUS, born in Hungary in 1832, was at an early age expelled by the Austrian authorities from Pesth. He took up his residence at Constantinople, visited many parts of the East, and traveled in the disguise of a dervish, by routes unknown to Europeans, through the deserts of the Oxus to Khiva, and thence by Bokhara to Samarcand, in 1861-64. His *Travels and Adventures in Central Asia* appeared in London in 1864. He has been appointed professor of Oriental languages at the University of Pesth. His writings are numerous and cover various topics, philological, descriptive, historical and political.

VAN ARSDALE, JOHN, was born at Goshen, in Orange county, N. Y., January 5, 1756, and participated in the Revolutionary war, during which he was promoted to the rank of captain. He accompanied the expedition to Quebec under Benedict Arnold, and was wounded and taken prisoner at Forts Montgomery and Collins. After the British evacuated New York, he ascended the flag-staff at the battery and cut down the English flag, which the enemy had placed there before their retreat. He died at New York city, August 14, 1836.

VAN BUREN, JOHN, was born at Hudson, N. Y., February 18, 1810, the son of Martin Van Buren, the eighth president of the United States. He was graduated at Yale College in 1828, and entered the office of Benjamin F. Butler, where he became a student at law, and was admitted to the bar in 1830. After a trip to Europe he engaged in the practice of his profession in New York, and in 1845 was elected attorney-general of the State. He took an active part in politics, and was counsel in the Edwin Forrest case, as also in other celebrated litigation. He died on ship-board, en route from Liverpool to New York, October 13, 1866.

VANCE, ZEBULON B., United States senator from North Carolina, was born in Buncombe county, that State, May 13, 1830; educated at the State University, and admitted to the bar in 1852. He was a member of the legislature, also of congress, previous to the war; a colonel in the Confederate army; governor of North Carolina in 1862, also in 1864 and 1876; and was elected United States senator, first in 1872, when he was refused admission, again in 1878, for the third time in 1884, and again in 1890. He died April 14, 1894.

VAN CLEVE, HORATIO P., GEN., was born at Princeton, N. J., in 1810, and educated at West Point, where he graduated in 1831, but in 1836 resigned from the army and located in Ohio. During the Civil war he served in the Union army, and was conspicuous for gallantry at Mill Springs, Stone River, Chickamauga, and elsewhere, for which he was promoted to the rank

of brigadier-general. He was adjutant-general of Minnesota 1866-70 and 1876-82, and died April 24, 1891.

VAN CORTLAND, ORLOFF S., was born at Utrecht, Holland, in 1600, and arrived at New Netherlands, March 28, 1638, in the service of the Holland West India Company. Thereafter he was prominently identified with public affairs of New Netherlands, serving as an officer of the customs, a keeper of the public stores, and in other positions of trust. In 1648 he engaged in commercial enterprises, but later became a colonel in the militia, and finally, in 1665, burgomaster of New Amsterdam, remaining in that office until the capture of the province by the British in 1664, when he was one of the commissioners appointed to arrange the terms of capitulation. He died in New York city, April 4, 1684.

VANCOUVER, GEORGE, the well-known English navigator, whose name has been given to an island off the coast of British Columbia, was born in 1755, and served as midshipman under Captain Cook, upon the latter's leading voyage. During 1791 Vancouver commanded the *Discovery*, sent by the English to the northwest coast of America, and made a survey of the coast in a northerly direction from latitude 30°. He returned to England in 1795, and died in 1798.

VAN DAM, RIP, one of the governors of New York during colonial days, was born at Albany in 1662, where for many years he was a prominent merchant. He became a member of the assembly in 1699, and upon the death of John Montgomery, governor, acted as the Colonial executive, from July 1, 1731, until August 1, 1732, when Montgomery's successor took charge. Upon the death of Governor Cosby, George Clarke, next in length of service to Van Dam as member of the council, qualified as Cosby's successor, but Van Dam disputed his title, and bloodshed was only avoided by the arrival of dispatches from England recognizing the justice of Clarke's claims. Van Dam died at New York city in 1736.

VANDERBILT, CORNELIUS, an American financier, was born near Stapleton, Staten Island, May 27, 1794, and died in New York city, January 4, 1877. He began life as a ferryman, and in 1817 became captain of a steamer plying between New York and New Brunswick, at the same time engaging in ventures that not only brought him wealth, but the reputation of a daring and successful operator. Some years later his investments in railway properties were very large, and at the time of his death his holdings represented upward of one hundred and fifty millions of dollars. Upon his death, his vast fortune, save a number of bequests which aggregated about fifteen million, was inherited by his son, William H. Vanderbilt. During his lifetime he donated one million of dollars to the founding of the Vanderbilt University at Nashville, Tenn., also other large sums for public and private benefits.

VANDERBILT, WILLIAM H., son of the preceding, was born at New Brunswick, N. J., May 8, 1821, educated at the Columbia Grammar School, and until he was twenty-one years of age, served as clerk in various establishments in the vicinity of New York. In 1842 he took charge of a farm at New Dorp, Staten Island, and later was associated in his father's railroad operations; his life thereafter being passed in railway enterprises. The possessor of immense wealth, Vanderbilt, during the latter period of his residence in New York, expended large sums in the erection and equipment of buildings for residence purposes, for the promotion of educational and humanitarian objects and in the purchase of paintings, sculpture, and other works of art. His donations to benevolent and charitable institutions were also liberal and well placed. He was found



dead on the library floor of his Fifth avenue residence in New York city, on the morning of December 8, 1885.

VANDERLYN, JOHN, an American artist of widely extended reputation, was born at Kingston, N. Y., October 15, 1775. He studied under Gilbert Stuart at Philadelphia, also abroad. His chief productions embrace *The Murder of Jane McCrea*, *Marius Amid the Ruins of Carthage*, *Ariadne*, the portraits of Aaron Burr and Theodosia Burr, his daughter; Andrew Jackson, James Monroe, John C. Calhoun, and Zachary Taylor. Vanderlyn died at Kingston, September 24, 1852.

VAN DORN, EARL, GEN., was born in Mississippi in 1823, and graduated at West Point in 1842. He entered the Confederate army in 1861, and commanded at the battle of Pea Ridge, Arkansas, March 7 and 8, 1862. He was repulsed before Corinth in October of the same year by General Rosecrans, and met his death at the hands of Doctor Lowry in Maury county, Tenn., in May, 1863.

VAN ELTEN, HENDRIK D. K., a German-American painter, born November 14, 1829, at Alkmar, North Holland, and located in New York at the close of the Civil war. He studied his art under C. Sieste and other German painters, and has acquired an extended reputation. He was made a member of the National Academy of Design in 1883.

VAN NESS, CORNELIUS P., LL.D., a distinguished American statesman, was born in Vermont about 1781, and was thrice elected governor of that State. He also represented the United States at the court of Spain during the administration of President Andrew Jackson, and died at Philadelphia in 1852.

VAN RENSELLAER, PHILIP S., was born at Albany, N. Y., April 15, 1768, and died there September 25, 1824. He was the founder of the Albany Academy, and held the office of mayor of that city continuously for nearly a quarter of a century. He was an enterprising, public-spirited citizen, devoted to the best interests of the city of his nativity.

VAN RENSSSLAER, HENRY K., a soldier who commanded a regiment during the Revolution, was born near Albany in 1744, and died at Greenbush, N. Y., September 9, 1816.

VAN RENSSSLAER, HENRY KILLIAN K., born in 1763, served in congress from 1800 to 1812, and died at Albany, June 18, 1845.

VAN RENSSSLAER, STEPHEN, LL.D., was born in New York in 1764, and died in 1839. He was known as the "Patroon," and as the founder at Troy, N. Y., of the institution now known as the "Polytechnic School." He was, during his career, lieutenant-governor of the State, president of the Erie canal commissioners, commander of the New York troops in the war with Great Britain during 1812, and chancellor of the University of New York.

VAN TWILLER, WORTER, a colonial governor, born at Nieukirk, Holland, about 1580, was appointed governor of New Netherlands in 1633. A man inexperienced in the affairs of government, Van Twiller became involved in disputes with the colonies of Connecticut and Massachusetts, which finally resulted in the Hollanders being driven out of Connecticut. Van Twiller's administration, however, was characterized by the projection and completion of valuable improvements, and the acquisition of important territory, including Governor's Island, also Blackwell's Island, both of which he held in fee. In 1637 he was removed for incompetency, William Kieft succeeding him, and returned to Amsterdam, Holland, where he died about 1646.

VAN VLECK, HENRY JACOB, a bishop of the Moravian Church in America, was born at Philadelphia, June 29, 1822, and in 1841 was graduated at the Moravian Theological Seminary, in Pennsylvania. In 1867 he was ordained a Moravian elder, and in 1881 consecrated bishop.

VAPEREAU, LOUIS GUSTAVE, author, born at Orleans, April 4, 1819, and, in 1838 carried off, at a competition between all the colleges of France, the prize for philosophy, established by M. de Salvandy. In consequence of the restrictions with which the teaching of philosophy was fettered, in 1852 M. Vapereau repaired to Paris, completed his law studies, and became "avocat" in 1854. About this time Messrs. Hachett intrusted to him the direction of the *Dictionnaire des Contemporaines*, which occupied his whole attention for four years. M. Vapereau subsequently brought out another important work, a *Dictionnaire Universel des Littératures*. He was nominated prefect of the Cantal by the Government of the National Defense in September, 1870, was prefect of the department of Tarn-et-Garonne from March 26, 1871, till March 31, 1873, and was decorated with the Legion of Honor, February 7, 1878.

VARICK, RICHARD, a soldier of the Revolutionary war, was born at Hackensack, N. J., March 25, 1753, and entered the Colonial army as a captain of militia. He participated in the battles of Stillwater and Saratoga, obtaining frequent promotion, and in 1780 became inspector-general. He also acted as private secretary to General Washington, and as aide to Benedict Arnold. From 1783 to 1789 he was city recorder in New York, attorney-general of the State for two years, and from 1791 until 1801 mayor of New York city. At the date of his death, July 30, 1831, he resided in Jersey City, and was president of the American Bible Society.

VASSAR, MATHEW, the founder of Vassar College, was a native of Norfolk, England, born April 29, 1792, and accompanied his father to America in 1796, settling on a farm near Poughkeepsie, N. Y. Five years later the family removed to Poughkeepsie, where Vassar, Sr., established the business of brewing ale, to which MatheW Vassar subsequently succeeded and from which he derived large profits. In 1845 he decided to apply a portion of his fortune to the endowment of a school for the higher education of women. Such decision took shape in 1861, when Mr. Vassar donated \$400,000 to that object, and what has since become widely known as "Vassar College," located at Poughkeepsie, was incorporated. Its success became at once instant and pronounced, and its reputation as an educational institution widespread and deservedly high. Its growth has since been rapid but permanent, and its offer of superior advantages for the acquisition of sound scholarship and a practical education is accepted by matriculants, annually increasing in number. Mr. Vassar died at Poughkeepsie, June 23, 1868, providing in his will for the further donation of \$400,000, the same to be appropriated to the support of the institution.

VAUGHAN, BENJAMIN, a political economist, born in the island of Jamaica, West Indies, April 19, 1753; educated at Cambridge University and at the Medical College of Edinburgh, and in 1792 became a member of parliament. Later he visited France and Switzerland, and later still permanently removed to the United States, where he settled upon land occupied by the present city of Hallowell, Me. While there he published *Klyoss, or the Rural Socrates*, and a number of political papers. In 1807 he received the degree of LL.D. from Harvard University, an honor duplicated in 1812 by Bowdoin College. He died at Hallowell, April 19, 1835.



VAUGHAN, CHARLES JOHN, D.D., was born in 1816, educated at Rugby and at Trinity College, Cambridge, where he closed a brilliant career by taking his B. A. degree in 1838. He was elected to a fellowship at Trinity College in 1839, and became head master of Harrow School in 1844; held that post till the close of 1859, when he resigned. Early in 1860 he was offered, but refused, the bishopric of Rochester, and shortly afterward was appointed to the vicarage of Doncaster, which he held until 1869, when he was appointed to the mastership of the Temple. In 1879 he was appointed dean of Llandaff. He has published *Memorials of Harrow Sundays*, a selection of sermons, preached before the Universities of Oxford and Cambridge, 1876-78; and several other collections of sermons, besides a number of works of a religious character. He died Oct. 16, 1897.

VAUGHAN, HERBERT, D.D., Roman Catholic Cardinal, born at Gloucester, April 15, 1832; received his education at Stonyhurst College, Lancashire, and in Rome. He founded and is still president-general of St. Joseph's Foreign Missionary College, Mill Hill, Middlesex, and toward the close of the year 1871 accompanied to Maryland the first detachment of priests who were sent from that institution on a special mission to a colored population of the United States. Desiring to remain a priest, he was appointed Bishop of Salford in 1872, and Archbishop of Westminster and head of the Roman Catholic Church in England, to succeed Cardinal Manning, March 29, 1892, being created Cardinal in January, 1893.

VAUX, WILLIAM S., an American mineralogist, was born at Philadelphia, May 19, 1811, where he died May 5, 1882. He became president of the Philadelphia Zoölogical Society in 1864, and was vice-president of the Academy of Natural Sciences of the same city, also a leading organizer of the Numismatic Society, and prominently connected with other scientific associations. The "William S. Vaux collection" in the Philadelphia Academy was donated by Mr. Vaux.

VAUX, WILLIAM S. W., an English author, was born at Ramsey in 1818, and graduated at Oxford in 1840. After this he was connected with the administration of the British Museum, and wrote a series of books having reference to the antiquities of Nineveh, Persepolis, Persia, and the Greek cities. He died in 1885.

VEDDER, ELIHU, an American artist, was born at New York in 1836, and has since become a resident of Florence, Italy. His works include *The Death of Abel*, *A Venetian Dancing Girl*, and other subjects, all of which are prominent and have won favorable criticism.

VEITCH, JOHN, M.A., born at Peebles, Scotland, October 24, 1829; received his early education at the grammar school, and in 1845 entered the University of Edinburgh, where he gained honors, especially in logic and moral philosophy. In 1850 he published a translation of the *Discourse on Methods*, of Descartes, and in 1853 a translation from the *Meditations*, and selections from the *Principles of Philosophy*, of Descartes, with notes. In 1855-56 he acted as assistant to the late Sir W. Hamilton, professor of logic and metaphysics in the University of Edinburgh, and to his successor, Professor Fraser, until 1860, when he was appointed to the professorship of logic, metaphysics, and rhetoric in the University of St. Andrews. In 1864 Mr. Veitch was appointed to the professorship of logic and rhetoric in the University of Glasgow, and in 1872 he received the honorary degree of LL.D. from the University of Edinburgh. He was the author of *The Tweed and other Poems* (1875); *Lucretius and the Atomic Theory*

(1875); and *The History and Poetry of the Scottish Border* (1877). He died September 3, 1894.

VENABLE, CHARLES S., LL.D., a native of Prince Edward county, Va., having been born there April 19, 1827, was educated at Hampden-Sidney College, and the University of Virginia, completing his studies at the Universities of Berlin and Bonn. He filled the chair of physics and chemistry in the University of Georgia during 1856, and that of mathematics and astronomy in the University of South Carolina from 1858 to 1861. In 1860 he viewed the solar eclipse in Labrador. During the Civil war he was lieutenant-colonel on the staff of Gen. R. E. Lee, and in 1865 became professor of mathematics at the University of Virginia, which made him an LL.D. in 1868.

VENNOR, HENRY GEORGE, meteorologist, was born at Montreal, Canada, December 30, 1840, and was a graduate of McGill University. He began the study of the weather at an early period in his life, subsequently engaging in geological surveys, explorations etc., and first attracting notice as a meteorologist in the autumn of 1876, when he predicted a green Christmas and a rainy New Year, both of which were verified. He also began the publication of *Vennor's Almanac*, and contributed a number of articles to scientific publications. He died at Montreal, July 8, 1884.

VERA, AUGUSTO, an eminent Italian philosopher, born at Amelia in 1817, and died in 1885. He was educated at Paris, and upon his return to Italy accepted the chair of philosophy in the University of Milan, afterward at the University of Naples. He published a number of philosophical works, and was the leader of the Italian followers of Dr. Hegel's system of philosophy.

VERDI, GIUSEPPI, composer, born at Rancola, in the Duchy of Parma, October 9, 1814; received his first lessons from an organist in Milan, where he resided from 1833 till 1836, and in 1839 published his earliest work, a musical drama, entitled *Oberto di San Bonifazio*. His principal compositions are serious operas, and the *Lombardi*, one of his first productions, made a strong impression throughout Italy, and laid the foundation of his fame. His best known operas are *Nabucodonosor*, *Ernani* (founded on Victor Hugo's tragedy), the *Due Foscari*, *Attila*, *Macbeth*, the *Masnadieri* (founded on the *Robbers* of Schiller), *Louisa Miller*, *Rigoletto*, *Il Trovatore*, *La Traviata*, *Un Ballo in Maschera* (performed in London in 1861), and *Don Carlos* (performed at the Royal Italian Opera, Covent Garden, in 1867). Signor Verdi's more recent operas are *Giovanno d'Arco*, in 1868; *La Forza del Destino*, in 1869; *Aida*, in 1872; *Otello*, in 1887, and *Falstaff*, in 1893. He was elected a member of the Italian parliament in 1861, and is a member of the Legion of Honor, of the Académie des Beaux Arts, and grand officer of the Order of the Crown of Italy. He died January 27, 1901.

VERDON, SIR GEORGE FREDERIC, born January 21, 1834, and educated at Rossall College, went to Melbourne, Australia, in 1851, and engaged in commercial pursuits. He was one of the first members of the volunteer force established in 1854 for the defense of the colony, and in 1859 was elected member for Williamstown, and in the following year became a minister of the crown. As honorary secretary to the Astronomical Observatory, and as a member of the government, he was enabled to secure the satisfactory establishment of the Observatory on a permanent footing. In 1866 the government and legislature of Victoria resolved upon sending a minister of the crown to England for the purpose of bringing the subject of the defense of the colony before the home government, and Mr. Verdon was



selected for the mission. Shortly after his return to Victoria, Mr. Verdon was appointed the permanent representative of that colony in England as agent-general. He died Sept. 13, 1896.

VERGENNES, CHARLES GRAVIER, COUNT DE, statesman, born at Dijon, France, December 28, 1717; was educated at the Jesuit College, and from 1740 to 1774 engaged in the diplomatic service. When Louis XVI. ascended the throne, Vergennes became his minister of foreign affairs, in which capacity he favored the cause of American liberty, and in 1777 secured the use of money and war materials for the colonial armies, also the coöperation of the French army and navy. His efforts on behalf of the Americans during the Revolutionary war, at a time, too, when success seemed improbable, and in opposition to the views of the prime minister and secretary of the treasury of France, has caused him to be quoted as, incidentally, the author of American independence. He died at Versailles, February 13, 1787.

VERNE, JULES, a popular French writer, born at Nantes, February 8, 1828, was educated in his native town, and afterward studied law in Paris. Turning his attention to dramatic literature, he wrote several pieces for the stage. But his fame rests chiefly on his scientific romances, the first of which appeared in 1863, under the title of *Cinq Semaines en Ballon*. Its success led the author to produce a number of similar works, of which most have been translated into English. He is regarded as the best living writer of juvenile books, and his writings are not devoid of interest for older heads.

VERNEY, SIR HARRY, born in 1801; was educated at Harrow, and at the Royal Military College, succeeded his father in 1826, and assumed the name of Verney in 1827 on inheriting the estates of Mary Verney, Baroness Fermanagh. He entered the army in 1819, served in the 7th Fusiliers, and in the Grenadier Guards, and retired, in 1830, with the rank of major. From 1832 to 1841 he represented Buckingham in parliament; Bedford from 1847 to 1852, and Buckingham again, 1857-74 and 1880-85. He died February 12, 1894.

VERPLANCK, GULIAN C., American author, was born in New York city, August 6, 1786; graduated at Columbia College in 1801, and was admitted to the bar, but practiced only a short time. After traveling in Europe, he returned to New York city, where he became the center of a coterie of authors, and during the remaining years of his life divided his attention and labors between literature and politics. He was a member of congress for eight years, from 1825, and for a continued period president of the board of emigration commissioners. Died March 18, 1870.

VEST, GEORGE GRAHAM, was born at Frankfort, Ky., December 6, 1830; graduated at Center College and at the law department of Transylvania University, Lexington, and removed to Missouri in 1853. He was elected to the United States Senate in 1879, to fill out the unexpired term of Lewis V. Bogy, deceased; reelected in 1885 and again in 1891.

VETCH, SAMUEL, colonial governor, born in Edinburgh, Scotland, December 9, 1668; died in London, England, April 30, 1732. On November 5, 1688, he accompanied William, prince of Orange, to England, whence he came to America, returning to England in 1708 with a proposal from the colonists of New York to wrest Canada from the French. On his return to Boston an expedition was organized for the capture of Annapolis, Nova Scotia. This was successful, and Vetch became governor of Nova Scotia. His rule of the province was characterized by great severity, and he was removed from office. Vetch then went to Boston,

where he persistently insisted on back pay, and petitioned the British Government for some office.

VERRAZANO, GIOVANNI DE, navigator, born near Florence, Italy, in 1470; died in 1527. In 1523 he sailed from Dieppe, in the French frigate *La Dauphine*, to explore the coast of North America. He landed near Cape Fear, in North Carolina, in February, 1524, and found the natives friendly. His crew captured an Indian boy and took him away with them. Sailing northward the ship entered New York harbor, in which they saw about thirty canoes manned by natives. From there they came to Narragansett Bay, and eventually landed on Newfoundland. Early in July, 1524, the explorers returned to Dieppe, where Verrazano gave a vague account of his discoveries. Nothing is known with certainty about the remainder of his life.

VEZIN, HERMANN, actor, born in Philadelphia, in 1829, took the degrees of B.A. and M.A. at the University of Pennsylvania. Having a passion for the stage, he went to England, and obtained an engagement in the Theater Royal, York. He made his London debut at the Princess' theater under Charles Kean's management, 1852. Two years later he "starred" through the provinces. Since that date Vezin has acted throughout the United States, in London, and the provinces.

VIARDOT-GARCIA, MADAME MICHELLE PAULINE, vocalist, daughter of the great tenor, Emanuel Garcia, and sister of Madame Malibran, was born at Paris, July 18, 1821. She made her first appearance in London at the Opera House in 1839, in the character of "Desdemona." At the close of the season she joined the Italian operatic company, then acting at the Odéon, in Paris, and was equally successful, and in 1841 she reappeared in England. Her next engagement was at Vienna, and she afterward appeared at Berlin. Her name is associated with the first performances of *Les Huguenots*, in which she took the part of "Valentine," and of *Le Prophète*, in which she performed the part of "Fidès."

VIBERT, JEHAN GEORGES, a popular portrait painter of France, was born at Paris, September 30, 1840, and pursued his art studies under the direction of François Picot, the eminent historical painter. Vibert was, in 1870, decorated with the cross of the Legion of Honor, and enjoys an international reputation. Among his most celebrated works, *The Christian Martyrs among the Lions* is preëminent. Died July 1902.

VICTORIA-ALEXANDRINA (QUEEN OF GREAT BRITAIN AND IRELAND, AND EMPRESS OF INDIA), only child of the late Duke of Kent and of the Princess Louisa-Victoria of Saxe-Coburg, was born at Kensington Palace, May 24, 1819; her parents, who had been for some time residing abroad, having hastened to England, in order that their child might "be born a Briton." The Duke of Kent died January 23, 1820, and the general education of the young princess was directed, under her mother's care, by the Duchess of Northumberland, wife of the third duke. Until within a few weeks of her elevation to the throne her life was spent in comparative retirement, varied by tours through different parts of the United Kingdom. Queen Victoria succeeded her uncle, William IV., June 20, 1837, as Victoria I., and her coronation was celebrated in Westminster Abbey, June 28, 1838. Her Majesty was married, February 10, 1840, to his late Royal Highness Prince Albert of Saxe-Coburg Gotha, by whom she had issue: 1. H.R.H. Victoria Adelaide Mary Louisa, Princess Royal, born November 21, 1840, married January 25, 1858, to H.R.H. the Crown Prince Frederick William of Prussia. 2. H.R.H. Albert Edward, Prince of Wales, born November 9, 1841, married March 10, 1863, the Princess Alexandra



of Denmark. 3. H.R.H. Princess Alice Maud Mary, born April 15, 1843, married July 1, 1862, to Prince Louis of Hesse-Darmstadt (she died December 14, 1878). 4. H.R.H. Prince Alfred Ernest Albert, born August 6, 1844, created Duke of Edinburgh, May 24, 1866, married January 23, 1874, the Grand Duchess Marie Alexandrovna, only daughter of the Emperor of Russia. 5. H.R.H. Princess Helena Augusta Victoria, born May 26, 1846, married July 5, 1866, to Prince Christian of Schleswig-Holstein. 6. H.R.H. Princess Louise Caroline Alberta, born March 18, 1848, married to the Marquis of Lorne, March 21, 1871. 7. H.R.H. Prince Arthur William Patrick Albert, Duke of Connaught, born May 1, 1850, married March 17, 1879, the Princess Louise Margaret Alexandra Victoria Agnes, third daughter of Prince Frederick Charles of Prussia. 8. H.R.H. Prince Leopold George Duncan Albert, Duke of Albany, born April 7, 1853, married April 2, 1882, the Princess Helen Frederica Augusta, daughter of the Prince of Waldeck and Pyrmont (he died March 28, 1884); and 9. H.R.H. Princess Beatrice Mary Victoria Feodore, born April 14, 1857, married July 23, 1885, to Prince Henry Maurice of Battenberg. The first domestic grief which Victoria suffered was the loss of her mother, the Duchess of Kent, after a short illness, March 16, 1861, followed by the sudden death of the Prince Consort, December 14th in the same year. The leading events of a political, legislative, and administrative character that have occurred during her reign will be found under their appropriate heads in the article on GREAT BRITAIN.

By virtue of the power conferred by an Act of parliament passed in the previous session, her majesty was, on January 1, 1877, proclaimed empress of India, by the governor-general, at the camp of Delhi. In April, 1882, an attempt on the queen's life was made at Windsor by one Roderick Maclean, who, after trial, was ordered to be confined during her majesty's pleasure. *The Early Days of His Royal Highness the Prince Consort*, compiled under the direction of her majesty, by Lieut.-Gen. the Hon. C. Grey, was published in July, 1867, and was followed, in 1869, by *Leaves from the Journal of our Life in the Highlands*; and in 1874, by the first volume of Mr. (now Sir) Theodore Martin's *Life of H.R.H. the Prince Consort*, which she supervised. In 1885 her majesty published a second volume entitled *More Leaves from the Journal of our Life in the Highlands*. She died Jan. 22, 1901, and was succeeded by Edward VII.

VICTORIA, GUADALUPE, once president of Mexico, was born in Durango in 1780, and upon entering the army substituted the name "Guadalupe Victoria" for Manuel Felix Fernandez, his legitimate patronymic. The scene of his military operations was for some years limited to the province of Vera Cruz and vicinity. In 1821, however, he joined Iturbide, and when the latter became head of affairs, Victoria was imprisoned. He subsequently escaped, and, joining Santa Anna, became commander of Vera Cruz. The republic having meanwhile been established, he was on October 10, 1824, elected president, and later he secured recognition from England. The most notable feature of his administration was the abolition of slavery, September 16, 1825. Upon the conclusion of his official term, Victoria retired to private life and died at Perote, March 21, 1843.

VIDAURRI, SANTIAGO, a soldier and statesman of Mexico, was born in New Leon about 1807, and was convicted of treason and shot at the city of Mexico during 1867. Upon the flight of Santa Anna in 1855, Vidaurri sought to become his successor, and in February, 1856, claimed the governorship of New Leon,

VIEL-CASTEL, COMTE DE (LOUIS), statesman and author, born in France, October 14, 1800, was an attaché at the French embassy in Spain in 1821, became secretary of legation, and acted in the same capacity at Vienna in 1828. He was promoted grand cross of the Legion of Honor in 1849. He died in 1887.

VIGFUSSON, GUDERAND, was born in 1830 in the west of Iceland. His first literary essay was *Timatal*, or an essay on the chronology of the Icelandic Sagas, written in Icelandic, 1854-55. In the autumn of 1864 Mr. Vigfusson went to England, and died January 31, 1889.

VIGNAU, NICHOLAS, soldier, born in Saintonge, France, about 1587; died in Canada about 1630. He came to North America in 1606, and took part in Champlain's second voyage of discovery.

VILAS, WILLIAM F., ex-postmaster-general of the United States, was born at Chelsea, Vt., July 9, 1840. The family removed to Madison, Wis., in 1851, and he graduated from the Wisconsin State University in 1858, and from the Albany (N. Y.) law school in 1860. He entered the Federal army at the outbreak of the Civil war, and soon rose to the rank of colonel. After the close of the war, he was a successful and prominent lawyer in Wisconsin. He was a member of the State Legislature in 1884-85, and chairman of the national Democratic convention which nominated Mr. Cleveland to the presidency in 1884. On March 5, 1885, he was appointed postmaster-general, and served until January 16, 1888, when he became secretary of the interior, remaining such until the inauguration of President Harrison, when he returned to Madison. In January, 1891, he was elected U. S. Senator from Wisconsin.

VILLARD, HENRY, financier, was born in Spire, Bavaria, April 11, 1835. After receiving his education at the universities of Munich and Würzburg he came to this country in 1853, and engaged in the study of law at Peoria and Belleville, Illinois, thence removing to Chicago, where he became a newspaper writer. He married a daughter of William Lloyd Garrison in 1866, and for two years afterward was European correspondent of the *New York Tribune*. He first became interested in railroad securities in 1870 at Wiesbaden, where he acted as agent for some German bond-holders, returning to the United States in 1874 to look after their interests. In 1875 Mr. Villard became president of both the Oregon and California railroad, and the Oregon Steamship Company. The European investors becoming discouraged, Mr. Villard formed an American syndicate and purchased the steamship property in 1879, and formed the Oregon Railway and Navigation Company. He was elected president of the Northern Pacific railway in 1881, but sacrificed his fortune in trying to support the property, and resigned in 1884. He afterward purchased heavily of the stock for German capitalists, and in 1888 was elected a director of the Northern Pacific company, and president of the Oregon Railway and Navigation Company. Mr. Villard has given largely to educational institutions. Died Nov. 12, 1900.

VILLENEUVE, PIERRE CHARLES JOHN BAPTISTE DE, was born at Valensales, France, in 1763, and entered the French navy at an early age. During the American Revolution, Villeneuve, in conjunction with D'Estaing, prevented the embarkation at Yorktown of Cornwallis' army, and compelled their surrender, October 19, 1791. In 1796 Villeneuve was made rear-admiral, and later vice-admiral. He participated in the battles of the Nile and Trafalgar, being taken prisoner at the latter, and one year later (1806) took



his own life, owing to Napoleon's criticism on the French defeat at Trafalgar.

VILLIERS, CHARLES PELHAM, M.P., brother of the late earl of Clarendon, born January 19, 1802, and educated at St. John's College, Cambridge; was called to the bar at Lincoln's Inn in 1827. He has been one of the members in the House of Commons for Wolverhampton since 1835. He joined the Liberal government, and was appointed judge-advocate-general in 1853, was president of the poor-law board, and became a member of Lord Palmerston's second administration in 1859. Mr. Villiers, as an independent Liberal member, was one of the most able and eloquent leaders of the anti-corn-law agitation, and to the triumph of the cause his earnest speeches and persistent motions in parliament contributed. In the session of 1865 he introduced a very important measure in connection with the poor-law administration, the Union Chargeability Bill, which was carried through parliament, and has become law. At the last three general elections Mr. Villiers has been returned unopposed for Wolverhampton. He died January 16, 1898.

VILLIERS, FREDERIC, born in London in 1850; was educated in the north of France. Studied in the Schools of Art at South Kensington, and became a student of the Royal Academy in 1870. In 1876, as special artist and correspondent to the *Graphic*, he went through the Servian campaign with Mr. Archibald Forbes, and returned to England in February, 1877. The day war was declared between Turkey and Russia, he started for Bucharest, where he joined Mr. Forbes, and was present at all the chief engagements. In June, 1878, he went to Malta, and in November he left England for Afghanistan. He went through the first part of that campaign till the signing of the treaty of Gandamak; then left for Australia, traveled through New Zealand, and returned to England via San Francisco and New York, thus making a journey round the world. Mr. Villiers left England for Egypt immediately on receipt of the massacres at Alexandria; was on H.M.S. *Condor* during the bombardment of that city, and landed with the marines. In February, 1884, Mr. Villiers left for Suakin to join General Graham, who had gone to avenge the defeat of General Baker at the first battle of Teb, and was present at the Arab defeat at the second battle of Teb. On March 13th he was at the battle of Tamai, and subsequently accompanied Admiral Sir W. Hewett on his mission to the court of King John of Abyssinia. In the autumn of 1884 and the spring of 1885, Mr. Villiers was with the Nile expedition for the relief of Khartoum, being present at the battles of Abuklea and the advance upon Metemmeh, and in November, 1885, started for Servia, and was with the Servian forces at all the chief encounters with the Bulgarians. He accompanied Lord Dufferin on his journey up the Irrawaddy to Mandalay, and when Lord Dufferin returned to India, Mr. Villiers left for Constantinople to await the development of events in the Balkan Peninsula.

VINCENNES, JEAN BAPTISTE BISSOT, SIEUR DE, explorer, born in Quebec, Canada, in January, 1688; died in Illinois in 1736. As a boy, he was present at a battle between the French and Indians at Mackinaw, and in 1701 entered the French army as an ensign. In 1712 he preserved Detroit from an Indian invasion, and later was occupied in the affairs in Ohio and Michigan, locating about 1725 on the present site of the city of Vincennes, where he built an earth fort and established a trading post. In 1736 he engaged in an unsuccessful expedition against the Chickasaw Indians, in which nearly all the invaders were either killed or captured. Vincennes was burned at the stake.

VINCENT, CHARLES EDWARD HOWARD, was born May 31, 1849, at Slinfold, Sussex, Eng., entered at the Inner Temple in 1873; was called to the bar in 1876. He was appointed on March 4, 1878, to reorganize the detective system of the metropolitan police. This post he resigned in 1884, and was returned as conservative member for Sheffield, in 1885, 1886 and 1892.

VINCENT, JOHN H., born in Tuscaloosa, Ala., in 1832, studied for the Methodist ministry and became an itinerant preacher. He edited the *New York Sunday School Journal* and in 1874 founded the Chautauqua Assembly. Mr. Vincent was intimately connected with educational work at Chautauqua and elsewhere until he became in 1888 a Bishop of the Methodist Episcopal church.

VINTON, ALEXANDER H., D.D., a prominent minister of the Episcopal Church, was born at Providence, R. I., in 1809; graduated at Yale College in 1828, and for three years was a medical practitioner at Pomfret, Conn. Subsequently he studied for the ministry, graduating at the general theological seminary of the Episcopal Church in 1835, the same year becoming rector of St. Paul's church at Portland, Me., and afterward serving in the same capacity at Boston, Philadelphia, and New York churches. He died in 1881.

VINTON, FRANCIS, D.D., brother of Alexander H. Vinton, D.D., was born at Providence, R. I., in 1809, and graduated at West Point in 1830, entering the army as lieutenant of artillery. He remained in the service until 1836, when he resigned and matriculated at the General Theological Seminary of the Protestant Episcopal Church. He entered the ministry and served as rector of leading Episcopal congregations in Brooklyn and New York, until his death in 1872.

VINTON, FRANCIS LAURENS, an American army officer, nephew of the preceding, was a native of Portland, Me., born in 1835. He graduated at West Point in 1856, but resigned without entering the service, and went abroad. During the Civil war he served in the Peninsular campaign, and was promoted to be brigadier-general. He was disabled at Fredericksburg, and resigned, subsequently becoming professor of mining engineering at the Columbia School of Mines, and later a consulting mining engineer at Leadville, Colo., where he died October 6, 1876.

VINTON, SAMUEL F., was a native of South Hadley, Mass., born September 25, 1792; graduated at Williams College in 1814, and, upon his admission to the bar in 1816, removed to Gallipolis, Ohio, where he began the practice of his profession. He served in congress from 1823 to 1837, and again from 1843 to 1851. He died at Washington, D. C., in 1862.

VIOLLET-LEDUC, EUGENE E., was born in Paris in 1814 and there became a student in the studio of Leclerc, an eminent designer and architect. Le Duc made a specialty of church architecture, after Gothic and mediæval designs, and superintended the reconstruction and ornamentation of Notre Dame cathedral, Paris, the cathedral at Amiens, and other church edifices. He was also a writer on the subject and published several works. His death occurred September 18, 1879.

VIOMÉNIL, ANTHONY CHARLES DU HOUX, Baron de, soldier, born in Fauconcourt, France, November 30, 1728; died in Paris, November 9, 1792. He entered the French army at a very early age, and was promoted captain in 1747. In the Prussian Seven Years war he was colonel of volunteers. In 1762 he was promoted brigadier-general, in 1768 commanded in Corsica, in 1770 he became major-general, and captured the fortress of Cracow, Poland. In 1780 he was appointed next in command to Count de Rochambeau in the



army sent to support the American colonies, and on June 13, 1781, advanced to lieutenant-general for gallantry at the siege of Yorktown. Returning home, he became governor of La Rochelle from 1783 to 1789, and was appointed to accompany the intended flight of Louis XVI. and his family from Paris. In an attack on the Tuilleries palace, while defending the king, he was so severely wounded that he died soon after.

VIRCHOW, RUDOLF, a celebrated German anatomist and anthropologist, was born at Schivelbein in Pomerania, October 13, 1821, and studied medicine at Berlin. In 1849 he was appointed professor of anatomy at Würzburg, and soon became one of the foremost exponents of the so-called Würzburg school. In 1856 he returned to Berlin as professor. At the naturalist's conference at Innsbruck in 1869, he was one of the founders of the German Anthropological Society. In 1873 he became a member of the Academy of Sciences. He has also taken a great interest in the spreading of scientific knowledge among the people, and has been since 1866 part editor of a series of popular lectures, to which he has contributed. He is a member of the German Reichstag. Died Sept. 5, 1902.

VIRTUE, JOHN, D.D., Roman Catholic bishop of Portsmouth, was born in London, April 28, 1826, and ordained priest in Rome by Cardinal Patrizi in 1851. Poplar was the scene of his first missionary labors, and in 1853 he went, with the apostolic nuncio (afterward cardinal) Bedini as his secretary, to the United States and Canada. On his return, in acknowledgment of his services, he was made chamberlain of honor to Pope Pius IX. Father Virtue went to Aldershot camp on temporary duty in 1855; but he was appointed chaplain to the forces June 24, 1855, a post he held for exactly twenty-seven years. He was appointed chamberlain of honor to Pope Leo XIII., April 5, 1878; the first bishop of Portsmouth, June 13, 1882; and was consecrated by the cardinal archbishop on July 25th. He has edited a number of books and contributed various articles to the *Dublin Review* and the *Month*.

VIZCAINO, SEBASTIAN, navigator, born in Huelva, Spain, about 1550; died in Acapulco, Mexico, in 1615. In 1596 he conducted an expedition of three vessels from Acapulco to California, to explore the rumored riches of that country, and in 1602 he was appointed captain-general of a new expedition to explore the Pacific coast north of Cape Mendocino. He sailed from Acapulco with three vessels May 5th, landed in the Bay of Monterey, carefully surveyed the coast northward, reaching the mouth of what is supposed to have been the Columbia river, and in March, 1603, returned to Acapulco. Several of his reports have been published in Madrid and Paris. He died while preparing a third expedition to the Pacific coast.

VOGT, KARL, M.D., philosopher and author; born at Giessen, July 5, 1817; was educated there under Liebig, and removing to Berne in 1835, studied physiology and graduated M.D. He devoted his attention to geology and zoölogy under Agassiz, and became professor of zoölogy in the university of his native town. Having distinguished himself in the Frankfort Parliament of 1848, he retired into Switzerland, and delivered in the canton of Neuchâtel some able lectures *On*

*Man, His Place in Creation, and in the History of the Earth*, which made his name known far and wide on the Continent. He is professor of natural history in the University of Geneva, a foreign associate of the Anthropological Society of Paris, and an honorary fellow of the Anthropological Society of London; has published several works and delivered various lectures on animals and travel. Died May 6, 1895.

VOLK, LEONARD W., an American sculptor, was born in Hamilton county, N. Y., November 7, 1828. After engaging in various occupations, he was, in 1855, enabled to visit Italy, where he studied modeling for two years, when he returned to the United States and located in Chicago. In 1858 he executed a life-size statue of Stephen A. Douglas, who had assisted him in making his trip to Italy, and in 1860 completed a bust of Abraham Lincoln. The latter was destroyed in the great fire of 1871. He was the designer of the Douglas monument at Chicago, and of the statues of Douglas and Lincoln, in the Illinois State capitol, at Springfield. Besides these, he has designed a number of soldiers' monuments in various parts of the country, and executed portrait-busts of prominent citizens of Illinois and the Northwest.

VOORHEES, DANIEL W., an American jurist and statesman, was born in Butler county, Ohio, September 26, 1827, and in 1849 was graduated at what has during later years been known as "DePauw University." Upon his admission to the bar in 1851 he began the practice of law at Covington, Ind., and soon established a reputation as a public speaker. In 1858 he was appointed United States attorney of Indiana, and during his official career proceeded to Harper's Ferry, and appeared as counsel for John E. Cook, one of the John Brown band. He was a member of congress from 1861 to 1866, and again from 1869 to 1872, serving as a member of the more important committees. In November, 1877, he became United States senator from Indiana, vice Oliver P. Morton, deceased, and was elected to that body in 1879, and again in 1885, and in 1891 for the term ending March, 1897. Died April 10, 1897.

VOYSEY, REV. CHARLES, B.A., was born in London, March 18, 1828; educated at St. Edmund Hall, Oxford, where he took his B.A. degree in 1851. After serving as curate in various parishes, he began his career as a religious reformer by the publication of a sermon entitled *Is every Statement in the Bible about our Heavenly Father strictly true?* This was soon followed, in 1865, by *The Sting and the Stone*, which appeared in monthly parts, and was continued through six years. The opinions expressed were denounced as heretical, and eventually, in the spring of 1866, legal proceedings were instituted by the Archbishop of York's secretary against Mr. Voysey. The case was heard in the Chancery Court, York Minster, December 1, 1869, when judgment was pronounced against Mr. Voysey, and, on appeal, confirmed by the judicial committee of the privy council, which sentenced the appellant to be deprived of his living, and to pay the costs, February 11, 1871. Since that period Mr. Voysey has delivered sermons and lectures chiefly in St. George's Hall, London, explanatory of his theological views, also preaching at the Theistic Church, Swallow street, Piccadilly.

## W.

**WACE, REV. HENRY, D.D.**, principal of King's College, London, was born in London, December 10, 1836, and educated at Marlborough and Brasenose College, Oxford, where he graduated B.A. in 1860. He was ordained in 1861; served as curate at St. Luke's, Berwick street, from 1861 to 1863; at St. James', Piccadilly, from 1863 to 1869; and was lecturer at Grosvenor Chapel, South Audley street, from 1870 to 1872. In 1879 he preached the Bampton lectures at Oxford on the *Foundations of Faith*, and was select preacher at Cambridge in 1878, and at Oxford from 1880 to 1882. In 1875 he was appointed professor of ecclesiastical history in King's College, London; and, in 1881, he was nominated by the bishop of London a prebendary of St. Paul's. He is the author of lectures preached in 1881 at the St. James', Piccadilly, and of a number of religious works.

**WADDEL, JOHN NEWTON, LL.D.**, an eminent Presbyterian minister who was born in Wellington, S.C., April 2, 1812, and graduated at the Georgia University in 1829. He occupied the pulpit of various Presbyterian churches in the South for some years, then becoming professor of Latin and Greek at the University of Mississippi. He was elected to a similar position at La Grange College, in 1857, and became president of that institution about 1860. From 1865 to 1874 he was chancellor of the Mississippi University, being appointed in the latter year secretary of the board of education for the Southern Presbyterian Church, and so continuing until 1879, when he was appointed chancellor of the Presbyterian University of the Southwest. He was given the degree of D.D. in 1851, by the Nashville University, and that of LL.D. by the University of Georgia in 1873.

**WADDELL, JAMES IREDELL**, was born in Pittsboro, Chatham county, N. C., in 1824, and died in Annapolis, Md., March 15, 1886. He became a midshipman in the United States navy September 10, 1841, and in the following year was lamed for life by a wound received in a duel. He served in the Mexican war, was made second lieutenant and navigator of the *Germantown* in 1855. In January, 1862, he refused the command of a United States bomb-fleet, and in February entered the Confederate navy at Richmond, Va., being commissioned lieutenant. He served on the ram *Louisiana* at New Orleans, and was subsequently ordered to the command of the *Shenandoah* for a cruise in the Pacific Ocean. This ship carried the Confederate flag around the world, and captured thirty-eight vessels, of which she released six on bond and destroyed thirty-two. This destructive work was continued until August 2, 1865, more than three months after the surrender of General Lee, when Commander Waddell learned for the first time that the war was over. He surrendered the *Shenandoah* to the British Government, and resided in Paris for several years before returning to the United States.

**WADDINGTON, WILLIAM HENRY**, a French statesman and diplomatist, was born in Paris, December 11, 1826. He went to Rugby school in February, 1841, and remained there till June, 1845, when he went to Trinity College, Cambridge, and graduated in 1849 as second in the first class of the classical tripos. Soon after leaving the university he settled in France, having become a member of the Society of Antiquaries of France, and, in 1865, a member of the Academy of Inscriptions and Belles Lettres. In February, 1871, he

was sent as a representative to the National Assembly, from the department of the Aisne. At first he sat in the left center, but at the close of the year he withdrew from the constitutional monarchical party, and allied himself to the Republicans, giving a hearty support to the policy of M. Thiers. Appointed minister of public instruction, in the place of M. Jules Simon, May 19, 1873, M. Waddington retired, five days later, with M. Thiers, and resumed his seat on the benches of the left center. Except on some questions of detail, or rather of procedure, M. Waddington voted regularly with the Republicans. On January 30, 1876, he was elected a senator for the department of the Aisne, together with M. Henri Martin and M. Saint-Vallier; his term of office expired in 1885. He was recalled to the ministry of public instruction in the cabinet of March 10, 1876, in succession to M. Wallon, and he retained his portfolio under the administration of M. Jules Simon, with whom he resigned office May 17, 1877. On the formation of the Dufaure cabinet in December, 1877, M. Waddington became minister of foreign affairs. He was the first plenipotentiary of France at the congress of Berlin in 1878. After the resignation of Marshal MacMahon and the retreat of M. Dufaure, M. Waddington was invited by M. Grévy to remain at the foreign office while assuming the presidency of the council (February 4, 1879). On December 27, 1879, he resigned, and was replaced as minister of foreign affairs, and as president of the council, by one of his colleagues, M. de Freycinet. At this juncture he refused the offer of the London embassy, and paid a visit to Italy, where he was received by the king (March, 1880). He was appointed ambassador at the court of St. James' in succession to M. Tissot, in July, 1883, holding the position six years. The King of the Belgians conferred the grand ribbon of the Order of Leopold on M. Waddington in April, 1878. He was a distinguished archæologist, and an honorary fellow of Cambridge. He died Jan. 13, 1894.

**WADE, BENJAMIN F.**, an American statesman, was born at Springfield, Mass., October 27, 1800, and removed to Ohio about 1821. He was admitted to the bar in 1825, and began the practice of law in the counties composing what is known as the Western Reserve, so continuing until 1837, when he was elected State senator, and in 1847 became judge of the third judicial district of Ohio. He was first elected United States senator by the Whigs in 1851, and reelected by the Republicans in 1857, and again in 1863, being succeeded, March 4, 1869, by Allen G. THURMAN (*q.v.*), when he retired to the private walks of life. As senator, Judge Wade was an ardent supporter of the Homestead law, and as ardently in favor of the repeal of the Fugitive-slave law. During the discussions of the Kansas-Nebraska Bill in 1854, he was conspicuous for his opposition to its adoption, and at the session of congress prior to the Civil war, was firm and unyielding in his refusal to "make further concessions to the slave power." During the continuance of the war he was chairman of the committee supervising its conduct, and of other leading committees charged with duties incident thereto. In 1867 he was elected president of the Senate, vice Lafayette S. Foster, and served in that capacity until the expiration of his term of office. He died March 2, 1878.

**WADE, SIR THOMAS FRANCIS, K. C. B.**, born about



1820, entered the army as ensign in the 81st foot in 1838, and served afterward in China and elsewhere in the 42d Highlanders and 98th foot, from which he retired as lieutenant in 1847. In 1852 he was made vice-consul at Shanghai, where he acted as inspector of customs for the Chinese Government. In 1855 he was appointed Chinese secretary at Hong Kong, and in the same year he was sent on a special mission to Cochin China. He was attached to Lord Elgin's mission to China in 1857-59, and in the last-named year he was appointed Chinese secretary to the English mission in China. He was acting *chargé d'affaires* at Pekin from June, 1864, to November, 1865, and again from November, 1869, to July, 1871, when he was appointed envoy extraordinary and minister plenipotentiary and chief-superintendent of British trade in China. He was advanced to the rank of K.C.B. in November, 1875. Sir Thomas Wade is the author of *Tzu-Erh Chi* (Progressive Course), 1867, which deals with both colloquial and documentary Chinese. Died July 31, 1895.

WADHAMS, EDGAR P., a bishop of the Roman Catholic Church in the United States, was born May 21, 1817, at Lewis, in the State of New York, and in 1838 was graduated at the Middlebury (Vt.) College. In 1847 he became a graduate of the General Theological Seminary of the Episcopal Church, and took deacon's orders. Soon after, however, he embraced the Roman Catholic faith, and at the conclusion of a course of preparation at St. Mary's Seminary, near Baltimore, was ordained priest. He served as vicar-general of the diocese, was consecrated bishop of Ogdensburg in 1872, and died in December, 1891.

WADSWORTH, JAMES SAMUEL, an American general, was born at Geneseo, in Livingston county, N. Y., and fell at the battle of the Wilderness, Va., May 6, 1864. He was educated at both Yale and Harvard, and upon completing his legal studies in the office of Daniel Webster, about 1833, was admitted to the bar. Inheriting from his father an immense area of land located in western New York, General Wadsworth devoted his time and attention to its care, also paying particular attention to the promotion of educational interests. When the Civil war broke out he enlisted in the army, and became brigadier-general. He participated in the battles of Fredericksburg, Chancellorsville, and Gettysburg, and, when Grant took charge of the army of the Potomac, Wadsworth was assigned to the command of a division. He died May 8, 1864.

WAGNER, HERMANN, a German scholar, born in Erlanger, June 23, 1840, and educated at Göttingen. Since his graduation he has devoted his attention to geography, and is the author of a number of works on that subject. In 1876 he accepted a call to the chair of geography at the Königsberg University.

WAGNER, JOHN, a distinguished surgeon of South Carolina, was born at Charleston, July 7, 1791; graduated at Yale College in 1812, and, after a course of study in New York, became a student in the office of Sir Astley Cooper, London, and an attendant at Guy's Hospital, that city. He concluded his studies in Paris, and, returning to the United States, entered upon the practice of his profession at Charleston, where he also filled the chair of surgical anatomy in South Carolina Medical College, also that of surgery. While in Europe the Royal College of Surgeons, London, conferred on him the degree of M.D. He died at Charleston, May 22, 1841.

WAGNER, MORITZ F., a German explorer and traveler, was born at Baireuth, in Bavaria, October 3, 1813; educated at the University of Augsburg, and studied natural sciences at Paris and Munich. His explorations, made under the auspices of the Berlin

Academy of Sciences, extended over Italy, Asia Minor, Persia and the East, the United States, Central America, the West Indies, etc. He returned to Germany in 1860, and became professor of geography at Munich University, also member of the Academy of Sciences in that city and Berlin. He wrote numerous works on science and travel, and many magazine contributions of articles relating to the same subjects. He died at Munich in 1887.

WAGNER, RUDOLF JOHANNES, a distinguished German chemist, was born at Leipsic, February 13, 1823; educated at the Leipsic University and studied chemistry there and in Paris. Subsequently he filled the chair of chemistry at the Universities of Würzburg and Nuremberg, and in 1858 was appointed inspector of schools for Bavaria. His works on chemistry are standard authorities. He died Oct. 4, 1880.

WAGNER, WILHELM, an accomplished philologist of Germany, was born at Steinau, May 11, 1843, and obtained his education at the universities of Berlin and Bonn. He afterwards became a teacher, and later still devoted his attention to literary work, making a specialty of ancient authors, among whom Plato and Terence were partly annotated by him. He also devoted considerable attention to annotating Shakespeare's works and those of other English writers. He died at Naples, April 15, 1880.

WAITE, MORRISON REMICK, LL.D., was born at Lyme, Conn., November 29, 1816. He received the degree of A.B. at Yale in 1837. After his admission to the bar he removed to Ohio, where he practiced successfully in Maumee City and Toledo. He was a member of the State legislature in 1849, and one of the arbitrators of the Geneva tribunal in 1872. He was president of the Ohio constitutional convention in 1873, and in March, 1874, was appointed by President Grant chief justice of the United States. His course in that position was singularly free from political or personal prejudice; he declined to serve as one of the electoral commission to decide the presidential controversy of 1876, and in other instances showed his independence of political considerations. In 1872 Yale College conferred the degree of LL.D., Kenyon College doing likewise in 1874, and the University of Ohio in 1879. In 1874 he acted as president of the Ohio constitutional convention. Among the important questions presented to the Supreme Court for determination and decided by Chief Justice Waite, were those affecting polygamy, election laws, the civil-rights law, the legal-tender act, the cases involving the liability of Virginia for certain State debts, the case of the Chicago anarchists, the Bell telephone case, and many others equally important, with which the country is familiar. He died March 23, 1888, in Washington, D. C., and was buried at Toledo, Ohio.

WALDEN, JOHN M., a bishop of the Methodist Episcopal Church, born at Lebanon, Ohio, February 11, 1831, and in 1852 was graduated at Farmers' College, at College Hill, near Cincinnati. For many years thereafter he devoted his attention to educational and editorial work, being also a member of the constitutional convention of Kansas. In 1858 he entered the ministry at Cincinnati, and filled several important posts. He was subsequently secretary of the Freedman's Aid Society of the Methodist Episcopal Church, and in 1868 became one of the agents of the Western Methodist Book Concern, remaining in that position until 1884, when he was consecrated bishop.

WALDERSEE, MARY, COUNTESS VON, an American woman of remarkable ability and history, born in New York city, Oct. 3, 1837, the daughter of David Lee, a wealthy merchant. While in France in 1865 she married



Prince Frederick, of Schleswig-Holstein-Sonderburg-Augustenburg-Noër, an Austrian nobleman, who died soon after. In 1871 she married Count von Waldersee, an influential German nobleman, who succeeded von Moltke as field marshal of the German army, and has held other high offices. Countess von Waldersee was an intimate friend of the Emperor Frederick William and Empress Victoria of Germany and through her close friendship with the Empress Augusta retains her potent influence at the court of Berlin.

WALDSTEIN, CHARLES, archæologist, born in New York city, March 30, 1856, and educated at Columbia College and Heidelberg, has delivered art lectures at the British museum and Columbia College, excavated sites of ancient cities in Greece and Italy and made many interesting discoveries. He became director of the American School of Archæology in Athens, in 1888, is one of the foreign editors of the *American Journal of Archæology* and has published *The Balance of Emotion and Intellect*, *The Art of Pheidias*, and *The Work of John Ruskin*.

WALKE, HENRY, born in Princess Ann county, Va., December 24, 1808, entered the navy as a midshipman from Ohio, 1827, was executive of the bomb brig *Vesuvius* in the Mexican war and commanded the gunboat *Carondelet* at the capture of Fort Henry, February 6, 1862, and at the capture of Fort Donelson, running the batteries of Island No. 10 and performing other brilliant feats during the war and several times receiving votes of thanks from Congress and compliments from General Grant. He became rear-admiral, 1870, and died March 8, 1896. He wrote and illustrated *Naval Scenes of the Civil War* (1877).

WALKER, AMASA, an American economist, was a native of Woodstock, Conn., where he was born May 4, 1799, and in 1814 began his commercial career, remaining thus engaged until 1840. In 1842 he occupied the chair of political economy at Oberlin (Ohio) College, where he remained seven years. In 1849 he filled a similar position at Amherst College, and in 1862 was elected to congress, serving one term. He was the author of a number of works on political economy. He died at North Brookfield, Mass., October 29, 1875.

WALKER, FRANCIS AMASA, LL.D., an American publicist and economist, was born near Boston, Mass., July 2, 1840, and graduated at Amherst in 1860, afterward studying law. He enlisted in the Civil war, and was made brigadier-general for gallantry at Chancellorsville and other battles in Virginia. From 1867 to 1869 he assisted in the editorial department of the Springfield *Republican*. In the latter year he was connected with the government bureau of statistics, and he superintended the collection of statistics for the ninth and tenth censuses of the United States. He became Indian commissioner, and in 1873 was called to the chair of political economy of Yale College. In 1881 he was selected for the presidency of the Massachusetts Institute of Technology. He has published works on political economy and other subjects. Died, 1897.

WALKER, FREDERICK A., R.A., an English artist, born in London in 1840, and died June 4, 1875. He began his professional career as an engraver on wood for a number of London publications, but subsequently devoted his attention to water-color and oil painting. He was elected to the Royal Academy in 1871.

WALKER, FREDERICK WILLIAM, was born in London, England, July 7, 1830, and educated at Rugby, under Dr. Tait. He was scholar of Corpus Christi College, Oxford, 1849; was called to the bar, Lincoln's Inn, 1857; and was appointed high master of Manchester Grammar School, 1859; examiner at Oxford, 1868; and high master of St. Paul's School, London, 1877.

WALKER, JAMES, an English artist, born in that country, June 3, 1819, and died in California during September, 1889. When a child he accompanied his parents to New York, where he resided until 1884. In that year he moved to the Pacific coast for the purpose of painting a battle picture ordered for a private gallery in San Francisco. His specialty was pictures of that character, *The Repulse of Longstreet at Gettysburg* being the subject of one of them, with which the artistic world is familiar.

WALKER, LEROY POPE, an American lawyer and statesman, was born at Huntsville, Ala., July 8, 1817, and early in life became conspicuous as a lawyer and public speaker. Coming thus into prominence and popularity, he exerted a potent influence in the State, and was elected to positions of importance, including the speakership of the State House of Representatives, judge of the Circuit Court, and to other places of trust. He was secretary of war of the Confederate States in 1861 and 1862. After the war he resumed the practice of law at Huntsville, where he died, August 24, 1884.

WALKER, ROBERT JOHN, statesman, born in Northumberland, Penn., July 23, 1801; died in Washington, D. C., November 11, 1869. He was graduated in August, 1819, at the University of Pennsylvania, studied law, practiced his profession at Pittsburgh, and in 1826 removed to Natchez, Miss., and became a prominent lawyer and Democratic politician. In 1836 he was elected to the United States Senate. Under the administration of President Polk he was appointed secretary of the United States treasury, which office he conducted with ability and held until March 5, 1849. In 1853 he served as commissioner to open commercial relations with China and Japan, in 1857 for a brief term as governor of Kansas, and in 1863 and 1864 was financial agent for the United States in Europe.

WALKER, SEARS COOK, mathematician, was born in Wilmington, Mass., March 28, 1805, and died in Cincinnati, Ohio, January 30, 1853. He was graduated at Harvard in 1825, and two years later removed to Philadelphia, where he built an observatory for the high school in 1837. The astronomical observations and investigations which he made there were published in the *American Journal of Science* and in the *Proceedings of the Philosophical Society* for twelve years. In 1847 he was given charge of the longitudinal computations of the United States coast survey, which position he held until his death. He aided in developing the method of determining differences of longitude by telegraph, and introduced the chronographic system of recording observations. By the introduction of his parallactic tables, first prepared in 1834, a great reduction of time was effected in computing the phases of an occultation. He published a number of astronomical and mathematical papers.

WALKER, WILLIAM, adventurer, born in Nashville, Tenn., May 8, 1824; died in Trujillo, Honduras, September 12, 1860. After studying law in Nashville, and medicine in Heidelberg, Germany, he became a journalist in New Orleans and San Francisco, and finally settled as a lawyer in Maryville, Cal. In October, 1853, with 170 followers, he undertook an enterprise against the Northwestern States of Mexico, landing at La Paz, naming himself president of the country, "annexing" Sonora by proclamation, and surrendering to the United States authorities at San Diego, Cal. In 1855 he landed with sixty-two followers at Realejo, Nicaragua, raised a force, captured Granada, and in September, 1856, caused himself to be proclaimed president of the country. His minister, sent to Washington, was recognized by the United States Government, but his arbitrary and ill-considered measures soon provoked an insurrection.



He was defeated in several encounters, burned the city of Granada, and surrendered at San Juan del Sur to the United States naval forces that conveyed him to Panama. At New Orleans he was tried for filibustering, and escaped conviction. Thereafter he made several attempts to invade Honduras, in the last of which he surrendered on Tinto river to the British man-of-war *Icarus*, was delivered to the Honduras authorities, underwent the formality of a trial by court-martial, and, in accordance with Spanish usage, was shot.

WALKER, WILLIAM DAVID, a bishop of the Protestant Episcopal Church of the United States, was born in New York city, June 29, 1839, and graduated at Columbia College in 1859. He pursued his theological studies at the General Theological Seminary, New York, where he graduated in 1862, and was ordained deacon June 29th of the same year. One year later he was ordained priest and assigned to Calvary church, where he remained until his consecration as missionary bishop of North Dakota, December 20, 1883.

WALKER, WILLIAM H. T., an American soldier, was born in Georgia in October, 1816, and graduated at West Point in 1837. He served in the Florida war and participated in all the engagements of the Mexican war, being wounded at Molino del Rey. He was promoted to major and lieutenant-colonel for gallantry at Contreras, Churubusco, and Molino del Rey, and in 1854 was appointed commander at the United States Military Academy. He served in the Confederate army during the Civil war, and became a major-general. He was killed at Decatur, Ga., July 26, 1864.

WALLACE, ALFRED RUSSEL, F.L.S., born at Usk, Monmouthshire, January 8, 1822; was educated at the Grammar School, Hertford, and articulated with an elder brother as land surveyor and architect, but gave up this profession in order to travel and study nature. In 1848 he visited the Amazon with Mr. Bates. Returning in 1852, he published his *Travels on the Amazon and Rio Negro*, and a small volume on *Palm Trees of the Amazon, and their Uses*. In 1854 he visited the Malay Islands, where he remained eight years. In 1868 he was awarded the royal medal of the Royal Society, and in 1870 the gold medal of the Société de Géographie of Paris. He has published numerous works on the geographical distribution of animals and plants and allied subjects. The honorary degree of LL.D. was conferred upon him by the University of Dublin in 1882.

WALLACE, SIR DONALD MACKENZIE, a Scottish author, was born at Paisley, November 11, 1841, and studied at Glasgow, Edinburgh, Paris, Berlin, and Heidelberg. He was graduated as doctor of laws at the last named place, and passed M.A. at Edinburgh in 1859. In 1870 he went to Russia, where he remained six years, gathering the material for his greatest work, *Russia*, which was published in 1877. He has also written *Egypt and the Egyptian Question*.

WALLACE, JOHN W., an American author, was born at Philadelphia, February 17, 1815, and was graduated at the Pennsylvania University in 1833. He pursued the study of law at Philadelphia, also at the Temple, London, and upon his admission to the bar was appointed a master in chancery of the Supreme Court of Pennsylvania. From 1842 to 1854 he was reporter of the United States Circuit Court for the third judicial district, and from 1863 to 1877 reporter of the United States Supreme Court. He was also president of the Pennsylvania Historical Society. He died at Philadelphia, January 12, 1884, and left a valuable collection of court reports, chronologically arranged, with occasional remarks on their respective merits, published under his direct supervision.

WALLACE, LEWIS, born in Brookville, Ind.,

April 10, 1827. He received a good education and studied law. During the Mexican war he entered the army as first lieutenant. Thereafter he practiced his profession at Covington and Crawfordsville. At the beginning of the Civil war he was appointed adjutant-general of Indiana, became colonel of volunteers, and served in Western Virginia. In September he was commissioned brigadier general of volunteers; commanded a division at the capture of Fort Donelson, and was made major general of volunteers. His division was engaged at the battle of Shiloh, and in 1863 prevented the capture of Cincinnati by the Confederates under Gen. Kirby Smith. Assigned to command the middle department with headquarters in Baltimore, he intercepted the march of Gen. J. A. Early on Washington, and was by him badly beaten on July 9, 1864, in the battle of the Monocacy. By order of Gen. H. W. Halleck he was removed from his command, but Gen. U. S. Grant reinstated him. After the war he was appointed governor of Utah, 1878-81, and from 1881-85 served as United States minister to Turkey. Since then he has returned to the practice of law in Crawfordsville, and given his attention to literature. He wrote *The Fair God* (Boston, 1873); *Ben Hur, a Tale of the Christ* (New York, 1880); *The Boyhood of Christ* (New York, 1883); *A Life of Benjamin Harrison* (1888) and *The Prince of India*.

WALLACE, ROBERT, M. P., was born in Fifeshire, Scotland, June 24, 1831; was educated at Geddes Institution, Culross, the High School, Edinburgh, and the Universities of St. Andrews and Edinburgh, and graduated M. A. in the former in 1853. He entered the church, and became minister of Old Greyfriars, Edinburgh, in December, 1868; D.D. of the University of Glasgow in 1869; and professor of church history in the University of Edinburgh, in December, 1872. He quitted the clerical profession in August, 1876, when he became editor of the *Scotsman* in succession to the late Doctor Russel. He resigned the editorship in November, 1880, and was called to the bar in November, 1883. After the dissolution of 1886 he opposed Mr. Goschen for East Edinburgh, and was elected as a Liberal by a large majority. Died June 6, 1899.

WALLACE, WILLIAM HARVEY LAMB, was born at Urbana, Ohio, July 8, 1821; died in Savannah, Tenn., April 10, 1862. He removed to Illinois in 1832, and adopted the profession of law, but in the same year that he was admitted to the bar, 1846, he joined the first Illinois regiment of volunteers for the Mexican war as a private. He soon attained the rank of adjutant, took part in the battle of Buena Vista and other engagements, and after the war resumed the practice of law, becoming district attorney in 1853. At the beginning of the Civil war he entered the service as colonel of the 11th Illinois volunteers, rose to the rank of brigadier-general in 1862, and was mortally wounded at the battle of Shiloh.

WALLACE, WILLIAM ROSS, an American lawyer and poet, was born at Lexington, Ky., about 1819, and was educated at Bloomington, Ind., also attending college at South Hanover, in the same State. He was admitted to the bar at Lexington, and in 1841 removed to New York city, when he divided his time between literature and the practice of his profession. He wrote a number of patriotic poems which attracted favorable comment, and have become popular. He died in New York city, May 5, 1881.

WALLACE, WILLIAM VINCENT, a musician and musical composer, was born at Waterford, Ireland, June 1, 1814. He gave evidence of his possession of musical abilities of a high order early in life, and, after making a tour of India and the East, South America, and the United States, located in London, and devoted



his attention to music. He composed a number of operas, among which *Maritana* and *Lurline* are the principal. These have met with popular approval. He made a second tour of the United States later on, giving concerts in all the leading cities, and returned to Europe, dying at Haute Garonne, France, October 12, 1865.

WALLACK, JAMES WILLIAM, actor, born in Lambeth, England, August 24, 1794; died in New York city, December 25, 1864. He first appeared at the Surrey theater, London, as a child, among the supernumeraries; later assumed small juvenile parts at Drury Lane theater, and in 1824 became stage-manager; finally he performed at the Haymarket, and was stage-manager of the Princess' theater. For nearly twenty years he played in the United States and Great Britain. From 1837 until its destruction by fire, Wallack conducted the New York National theater. In 1852 he established Wallack's theater, on a smaller scale.

WALLACK, JOHN LESTER, actor, born in New York city, January 1, 1820; died in Stamford, Conn., September 1, 1888. At the age of twenty he entered the British army as lieutenant, remaining two years. Thereafter he turned his attention to the drama. He made his first appearance in the United States at the New York Broadway theater, September 27, 1847, as "Sir Charles Coldstream" in the play of *Used Up*. He subsequently appeared at the Bowery, Burton's, Niblo's and Brougham's theaters, and in 1852 became a permanent member of his father's company, where he played leading parts. On the death of his father in 1864, he became proprietor of Wallack's theater, which he conducted twenty-four years. Among pieces for the stage he wrote the *Veteran* and *Rosedale*, and prepared three papers of *Theatrical Reminiscences*, published in *Scribner's Magazine* shortly after his death.

WALLER, THOMAS M., an American statesman and jurist, is a native of New York city; was born in 1840. He was adopted by a citizen of New London, Conn., taking his name, and, after a course of study, was admitted to the bar about 1860. He entered politics as a Democrat, in 1861, and soon acquired a widespread reputation as an orator. He was elected to the legislatures of 1867, 1868, 1872 and 1876, when he was chosen speaker; was secretary of state in 1870, and mayor of New London in 1873. In 1882 he became governor of Connecticut, and in 1885 was appointed consul at London, England, by President Cleveland.

WALLIS, S. T., a distinguished American lawyer, born at Baltimore, Md., September 8, 1816; was graduated at St. Mary's College, near that city, in 1832, and five years later became a member of the Maryland bar. He is a member of the Royal Academy of Madrid and a fellow of the Royal Society of Copenhagen. In 1861 he was elected to the state legislature, and, as chairman of the committee on federal relations, incurred the hostility of the Federal government by his condemnation of the Civil war. He was arrested, and for more than a year imprisoned in various forts throughout the country. Upon his release he resumed the practice of his profession. In 1870 he was appointed provost of the Maryland University, and has held other offices of prominence and trust. He is author of several works on Spain, and has been a frequent contributor of articles of an historical and political character to the daily press and monthly periodicals.

WALLIS, HENRY, member of the Royal Society of Painters in Water Color, was born in London February 21, 1830, and studied in the art school of F. S. Cary, London, and in the atelier of C. Gleyre, Paris, Ecole des Beaux Arts, Paris; also at Rome and Venice. His first picture (in oil color) was exhibited at the

British Institution, 1851. His most celebrated work was *The Death of Chatterton*. He joined the Royal Society of Painters in Water Color in 1879, his pictures exhibited at the gallery of the Society being mainly scenes from *The Merchant of Venice*, and Italian and Oriental subjects. He has contributed papers to artistic and other journals on the history of painting and on ceramic art.

WALLON, HENRI ALEXANDRE, was born at Valenciennes, France, December 23, 1812. In 1840 he became a professor with M. Guizot at the Sorbonne, where he lectured on history and geography. In 1860 he gained the Golibert prize of the French Academy for a work on Joan of Arc. He was returned to the National Assembly in February, 1871, as a moderate Conservative by the department of the Nord, but he joined the Lavergne group on the question of constitutional laws. M. Buffet, on forming his administration in March, 1875, nominated him minister of public instruction. It was he who proposed the clauses which first gave constitutional shape to the Republic. M. Wallon is a member of the institute, and a sound and capable historian. His chief works are *Richard II.*, *Histoire de l'Esclavage dans l'Antiquité* (2 vols.), *Jeanne d'Arc*, and *Le Tribunal Révolutionnaire de Paris*.

WALPOLE, SPENCER, lieutenant-governor of the Isle of Man, was born February 6, 1839; was educated at Eton. He entered the war office in 1858, and was made one of her majesty's inspectors of fisheries in 1867, and lieutenant-governor of the Isle of Man in 1882. He is the author of *A History of England from the Conclusion of the Great War in 1815*, and has been a contributor to periodical literature.

WALPOLE, SIR SPENCER HORATIO, born 1806, and was educated at Eton and Trinity College, Cambridge. Having been called to the bar in 1831, by the Society of Lincoln's Inn, he obtained a large practice in the courts of chancery, and became a Q.C. in 1846. He was returned in the Conservative interest for Midhurst, January, 1846, and represented that borough till February, 1856, when he was elected one of the members for the University of Cambridge. On the accession of Lord Derby to office in 1852, Mr. Walpole accepted the post of secretary of state for the home department, and in that capacity carried through parliament the measure for embodying the militia. After leaving office Mr. Walpole became chairman of the Great Western railway. He held the seals of the Home office in Lord Derby's second administration in 1858, but resigned in March, 1859. He was appointed secretary of state for the home department in Lord Derby's third administration in 1866, and resigned May 9, 1867, retaining a seat in the cabinet without office. He retired with his colleagues in 1868. Mr. Walpole resigned his seat for the University of Cambridge in November, 1882. He died May 22, 1898.

WALSH, JOHN, a Roman Catholic bishop of Canada, was born in the county of Kilkenny, Ireland, May 24, 1830, and studied theology at St. John's College, Waterford. In 1852 he emigrated to Canada and completed his studies at Montreal. He became a priest November 1, 1854, and in 1856 was assigned to the pastorate of St. Mary's church, Toronto. He was consecrated bishop of Sandwich November 10, 1867, but was established in London, where he was constantly occupied in labors connected with the administration of his see. In 1876 he visited Rome, and in 1884 participated, upon invitation, in the deliberations of the plenary council convened that year at Baltimore, Md. During his episcopate, Bishop Walsh has made large additions to the number of churches, schools, asylums, etc., within his jurisdiction. Among them is the cath-



dral at London, said to be one of the finest church edifices in Canada.

WALSH, JOHN HENRY, F.R.C.S., was born at Hackney, October 21, 1810, and educated at a private school in Dorsetshire. He practiced as a surgeon at Worcester until 1852, when he removed to London. He has been editor of the *Field* since 1857. Mr. Walsh wrote *The Greyhound* in 1855. It was first published in *Bell's Life*, and then in book-form. He compiled *British Rural Sports* in six months of 1855; and wrote a series of dissertations on the various phases of field sports, giving directions for the care of animals and accoutrements. He died February 12, 1888.

WALSH, ROBERT, author, born in Baltimore, Md., in 1784; died in Paris, February 7, 1859. He was educated at the Roman Catholic College at Baltimore, and the Jesuit College at Georgetown, D. C. After completing his studies he went to Europe. In 1809 he returned home, read law, was admitted to the bar, but relinquished his profession, and in 1811 issued *The American Review*, a quarterly publication, which continued two years. He next edited the *American Register*, and in 1819 established the *Philadelphia National Gazette*. He also edited *The Magazine of Foreign Literature* and revived *The American Review* in March, 1827; conducting it for ten years. From 1845 to 1851 he was American consul at Paris, and continued there until the time of his death.

WALSH, WILLIAM J., Roman Catholic archbishop of Dublin, was born in Dublin in 1841, and educated at Maynooth. He completed his academic course in 1864, and passed into the Dunhoyne establishment, where he spent three years in special ecclesiastical studies. Subsequently he became assistant-librarian at Maynooth College, and in 1867 he was appointed professor of theology. In 1878 he became vice-president of the college, and on the death of Doctor Russell Doctor Walsh was unanimously chosen president by the Irish Bishops. Through his exertions a commission was instituted to inquire into the Queen's Colleges of Ireland. For some time he was a senator in the Royal University of Ireland, and he became a member of the Chapter of Dublin on the accession of Cardinal McCabe to the archiepiscopal throne. On the death of that prelate in February, 1885, Doctor Walsh became vicar capitular, and was eventually appointed to the see of Dublin.

WALSHE, WALTER HAYLE, M.D., born in Dublin in 1816, and was educated at Paris and in Edinburgh, where he graduated M.D. He was emeritus professor of medicine in University College, London, for thirteen years; and consulting physician to three London hospitals. He was a fellow of the Royal College of Physicians, London, and an associate of several foreign medical colleges, and wrote much on the nature and treatment of diseases. He died December 14, 1892.

WALSHAM, SIR JOHN, British minister at Pekin, born at Cheltenham, England, in 1830. He was educated at Trinity College, Cambridge, where he took the degree of M.A. He was made acting consul at Mexico in 1859, secretary of legation in 1861, and *chargé d'affaires* in 1863. In 1866 he was transferred as second secretary to Madrid; was appointed to the Hague in 1870, and promoted to be secretary of legation at Pekin, October, 1873, but did not proceed. From 1875 to 1878 he was acting *chargé d'affaires* at Madrid, and then went to Berlin as secretary of embassy. In 1883 he was transferred to Paris, and acted as minister plenipotentiary during the absence of the ambassador. From October, 1885, he was envoy to China, and also to the king of Corea for several years.

WALTER, JOHN, eldest son of the late Mr. John

Walter, of Bearwood, Berks, some time member for that county, born in London, England, in 1818; was educated at Eton, graduated in honors at Exeter College, Oxford, took his M.A. degree in 1843, and was called to the bar at Lincoln's Inn in 1847. He was an unsuccessful candidate in the Liberal-Conservative interest for Nottingham in 1843; was returned in August, 1847, the day after his father's death, and continued to represent that borough till April, 1859, when he was elected for Berks. He was defeated at the general election in July, 1865, but was again elected in 1868, 1874, and 1880. After the dissolution of 1885, Mr. Walter did not offer himself for reelection. The name which Mr. Walter bore was intimately associated with the history of English newspapers, his grandfather having published the first number of the *Times*, January 1, 1788. His father raised that journal to eminence, and by his energy in inducing men of talent to contribute to its columns, rendered it a great organ of free opinions and popular knowledge; and he himself increased the paper's influence by his management. He died November 3, 1894.

WALTER, THOMAS USTICK, architect, was born in Philadelphia, Penn., September 4, 1804; died there October 30, 1887. He received his professional education in the office of William Strickland, the architect of the mint and the custom-house, Philadelphia, and in 1830 began practice as an architect. He designed Girard College, which was completed in 1847, and which is claimed to be the finest specimen of classic architecture on the American continent. One of his important works was the breakwater at Laguayra for the Venezuelan Government. He designed the extension of the capitol at Washington in 1851, and later, while serving as government architect, the extensions of the patent-office, treasury, and post-office buildings, the dome on the old capitol, the congressional library, and the government hospital for the insane. Mr. Walter was a member of the Franklin Institute, in which he held the professorship of architecture, and of the American Philosophical Society. At the time of his death he was president of the American Institute of Architects. In 1853 he was given the degree of D.C.L. by the University of Lewisburg, Penn., and in 1857 that of LL.D. by Harvard.

WALTON, GEORGE, born in Frederick county, Va., in 1740; died in Augusta, Ga., February 2, 1804. He read law in Georgia, was admitted to the bar, and made his home in Augusta. He was from 1776 to 1781 a delegate to the Continental congress. In 1778 he was made colonel of militia, and engaged in the defense of Savannah, where he was wounded and taken prisoner. In 1779, and again in 1789, he was governor of Georgia, in 1783 served as chief justice; and in 1795 he became United States senator.

WALWORTH, REUBEN HYDE, jurist, born in Bozrah, Conn., October 27, 1788; died in Saratoga Springs, N. Y., November 27, 1867. He was educated at Hoosick, N. Y., and in 1809 was admitted to practice. In 1810 he settled in Plattsburg, N. Y., and in 1821 was elected a member of congress. In 1823 he became judge, which office he held for five years, when he was appointed chancellor of New York, holding the office for twenty years. In 1835 Princeton gave him the degree of LL.D. He was the author of *Rules and Orders of the New York Court of Chancery*.

WALWORTH, MANSFIELD T., an American author, born at Albany, N. Y., December 3, 1830, graduated at Union College when he was nineteen years of age, and at the law school of Harvard University in 1852. Upon his admission to the bar in 1855, he began the practice of law, but after a brief period gave up his pro-



fession and devoted his attention to literature. He died in New York city, June 3, 1873, from the effects of a bullet wound inflicted by his son, who was acquitted of murder on the ground of insanity and sent to an asylum.

WANAMAKER, JOHN, ex-postmaster-general of the United States, was born at Philadelphia, Penn., in 1838, and received his education in the common schools. He early engaged in commercial ventures, and during 1861 established a clothing house at Philadelphia, which has been extended until it has grown to be one of the most extensive retail establishments in the country. The coöperative system was introduced into his business in 1887. Upon the inauguration of President Harrison, Mr. Wanamaker became the postmaster-general of the United States, serving until March 4, 1893.

WANKLYN, JAMES ALFRED, an eminent chemist, was born at Ashton-under-Lyne, England, in 1834. He studied chemistry under Bunsen, in Heidelberg, and became demonstrator of chemistry in the University of Edinburgh in 1859, was professor of chemistry at the London Institution from 1863 to 1870, and lecturer on chemistry and physics at St. George's Hospital from 1877 to 1880. In 1858 he prepared propionic acid by the action of carbonic acid on sodium-ethyl. Subsequently he pursued, conjointly with Dr. Emil Erlenmeyer, a series of researches which settled some important chemical problems, among them the fact of isomerism among the alcohols. In 1871 he conducted for the government an investigation into the quality of the milk supplied to the London workhouses. Mr. Wanklyn is the author of several text books for chemists and officers of health. In 1869 he was elected a corresponding member of the Royal Bavarian Academy of Sciences.

WARD, ADOLPHUS WILLIAM, born at Hampstead, England, December 2, 1837; was educated in Germany and at Bury St. Edmund's Grammar School. In 1866 he was appointed professor of history and English literature at Owen's College, Manchester. He held various examinations in the universities of Cambridge and London, and was, in 1879, created an honorary LL.D. of Glasgow, and, in 1883, a Litt.D. of Cambridge. He took an active part in the movement for the foundation of the Victoria University, Manchester (1880); and afterward successively held, in the new university, the offices of chairman of the General Board of Studies, and of vice-chancellor. Doctor Ward is the English translator of Curtius' *History of Greece*, and author of a number of works of an historical character.

WARD, ARTEMAS, soldier, born in Shrewsbury, Mass., in 1727; died there October 28, 1800. He was graduated at Harvard in 1748, and in 1775 served under General Abercrombie, where he rose to be lieutenant-colonel. On October 27, 1774, he was appointed brigadier-general by the provincial council of his State, and on May 19, 1775, became commander-in-chief of the forces of Massachusetts. He was at his headquarters in Cambridge during the battle of Bunker Hill. In June, 1775, the Continental congress placed him first on the list of major-generals; as such he was chief in command during the siege of Boston, and became second on the arrival of General Washington. In consequence of ill health he resigned his command in April, 1776, and was elected chief justice of the Court of Common Pleas of Worcester county. From 1791 to 1795 he served in congress as a Federalist.

WARD, GENEVIEVE, actress, born in New York city, March 27, 1833. Being endowed with a good singing voice, she studied with eminent teachers, and subsequently appeared at the opera houses of Italy, Paris, and London. She also sang at oratorios in London. Later she sang in New York city, Philadelphia,

and Havana. Losing her voice, she went on the stage, in 1873, failed in New York, but scored a hit in London as "Lady Macbeth," and played with success in France, England, America, India and Australia until her retirement from the stage in 1888. She managed the Lyceum Theatre, London, 1885-88.

WARD, HENRY AUGUSTUS, an American naturalist, born at Rochester, N. Y., March 9, 1834. Studied at Williams and was professor of natural science in the Rochester University, for fifteen years, and in 1871 accompanied the United States expedition to Santo Domingo, as naturalist. He owns a laboratory at Rochester, where he also has one of the most complete zoological and mineralogical cabinets in the world.

WARD, MRS. HUMPHRY, famous as the authoress of *Robert Elsmere*, an agnostic novel which was the literary sensation of its year, 1888, was born at Hobart Town, Tasmania, in 1851, the daughter of Thomas Arnold, niece of Matthew Arnold, and granddaughter of Dr. Arnold, of Rugby. She married, in 1872, Mr. Thomas Humphry Ward, writer and art critic of the *London Times*. Her other novels none of which have excited so much interest, are: *Miss Bretherton* (1884), *David Grieve* (1892) and *Marcella* (1894).

WARD, JOHN QUINCY ADAMS, was born at Urbana, Ohio, June 29, 1830. In 1850 he entered the studio of H. K. Browne, an eminent sculptor, where he remained six years. In 1861 he opened a studio in New York, where he modeled his *Indian Hunter*, *The Good Samaritan*, a statue of Commodore M. C. Perry, *The Freedman*, and many busts and small works. In 1869 he built a studio in Forty-ninth street, New York, where he made *The Citizen Soldier* and statues of Shakespeare, General Reynolds, General Washington, Gen. Israel Putnam, an equestrian statue of General Thomas, Gen. Daniel Morgan, and Lafayette. He built a larger studio in 1882, where he made the colossal statue of Washington for the New York sub-treasury building, a colossal statue of President Garfield, *The Pilgrim*, etc. For three years he was vice-president and for one term president of the National Academy of Design.

WARD, LESTER FRANK, an American botanist, born at Joliet, Ill., June 18, 1841, and educated at the common schools. He served through the Civil war, and while a resident of Washington, D. C., in 1872, began the study of botany. In 1888 he became botanist of the United States geological survey, and is at present curator of botany and fossil plants in the national museum. He is a member of leading scientific societies, and a prominent writer on flora and botany.

WARD, RICHARD, colonial governor, was born in Newport, R. I., April 15, 1689; died there August 21, 1763. He became attorney-general of the colony in 1712, was made deputy and clerk of the assembly in 1714, and from that year until 1730 served as recorder. He became deputy-governor in May, 1740, and two months later, on the death of Governor Wanton, he was installed as governor of the colony. He filled that office three terms, from July 15, 1740, until May, 1743.

WARD, THOMAS HUMPHRY, M.A., was born at Hull, England, in 1845. He was educated at Merchant Taylors' School, and at Brasenose College, Oxford, where he graduated in 1868. Before this he had been a candidate for the civil service of India, and in 1866 was placed first in the open competition. He resigned, however, without proceeding to India, and in February, 1869, was elected fellow of Brasenose, of which college he was tutor from 1870 to 1880. He then engaged in literary work in London. In 1880-81, with the aid of the principal critical writers of the day, he brought out *The English Poets: Selections with Critical Introduc-*



tions, and since that date has published a large number of miscellaneous works.

WARD, WILLIAM HAYES, LL.D., an American traveler, was born at Abington, Mass., June 25, 1835; graduated at Amherst College in the class of 1856, and pursued his theological course at Andover, where he graduated in 1859. He was pastor at Oskaloosa, Kan., for a year, and from 1861 to 1868 taught school. In the latter year he became associate editor of the *Independent*, remaining in that capacity until 1884, when he took charge of the expedition sent to Babylonia. He is a frequent contributor to religious and secular papers, and was made a D.D. by the university of New York, also by Rutgers' College. In 1885 Amherst conferred on him the degree of LL.D.

WARDER, JOHN ASTON, physician, was born near Philadelphia, Penn., January 19, 1812; died in North Bend, Ohio, July 14, 1883. He was graduated at Jefferson Medical College in 1836, and, from 1837 until 1855, followed his profession in Cincinnati. During that time he gave much attention to educational matters, and as a member of the Cincinnati school-board he kept himself informed as to the best systems of instruction. He served on the State board of agriculture, and did much to develop public interest in landscape gardening. In 1873 he prepared the official report for the United States Government on *Forests and Forestry*, for the World's Fair at Vienna, and in 1883 he became honorary president of the Ohio State Forestry Association. From 1850 until 1854 he published the *Western Horticultural Review*, and after that for several years the *Botanical Magazine and Horticultural Review*. He contributed extensively to periodicals, and published several works on subjects pertaining to medical, agricultural, and horticultural sciences.

WARING, GEORGE E., was born in Poundridge, New York, July 4, 1833, and died October 29, 1898. For a time he studied agriculture and lectured on that subject during the winter of 1854 in Maine and Vermont. He was drainage engineer of Central Park, New York city, from 1857 until 1861, and after the opening of the Civil war served as major of the Garibaldi guard for three months. Gen. John C. Frémont appointed him major of cavalry in August, 1861, and in January of the following year he was commissioned colonel of the 4th Missouri cavalry, in which capacity he served throughout the war. In June, 1869, he was appointed expert and special agent of the tenth census of the United States, and in 1882 he became a member of the national board of health. He devised the system of sewage adopted by the city of Memphis after the yellow fever epidemic of 1878, and is the inventor of many sanitary improvements in connection with the drainage of houses and towns. He has written many scientific works, and in 1895 became superintendent of streets in New York city.

WARNER, CHARLES DUDLEY, was born at Plainfield, Mass., September 12, 1829. He received the degree of A.B. at Hamilton College in 1851, was admitted to the bar in 1856, and practiced law until 1860, when he entered journalism and became editor of the Hartford (Conn.) *Press and Courier*. He has traveled in Europe and the East as correspondent of a number of American newspapers, and for the last few years, in addition to his editorial duties in Hartford, has conducted the "Easy Chair" in *Harper's Magazine*. He has contributed to the *Atlantic* and other periodicals, and has published volumes of romance, travel, autobiography, and correspondence, besides delivering addresses at Bowdoin and Yale Colleges, Washington and Lee University, and at

other educational institutions. Among his later works are the novels: *Their Pilgrimage* (1886), *A Little Journey in the World* (1889), and *The Golden House* (1894). He wrote *The Gilded Age* with Mark Twain. He died Oct. 20, 1900.

WARNER, SUSAN, born in New York city, July 11, 1819, died at Highland Falls, N. Y., March 17, 1885. Her first novel, *The Wide, Wide World*, written under the pseudonym "Elizabeth Wetherell," was published in 1850, and became very popular. Its home sales reached a quarter of a million copies, and in Europe, it was as warmly welcomed. *The Wide, Wide World* was followed by *Queechy* and other works in rapid succession, all of which met with equal success in this country and abroad, being also translated into the French, German, and Swedish languages. Her last effort was issued in 1876, and is known as *Wyche Hazel*.

WARRE, REV. EDMOND, D.D., head-master of Eton College, was born in 1836, and educated at Eton, and Balliol College, Oxford. He was elected fellow of All Souls in 1859, and retained his fellowship three years. In 1860 he went to Eton as assistant master, a post which he held under Doctors Goodford, Balston, and Hornby, until the resignation of the last-named in 1884, when he was elected to the vacancy thereby created by the governing body, and shortly afterward he took his degree of D.D. at Oxford.

WARREN, GOUVERNEUR KEMBLE, was born in Cold Spring, N. Y., January 8, 1830; died in Newport, R. I., August 8, 1882. He was graduated at the United States Military Academy in 1850, and after serving as topographical engineer on a number of exploring expeditions in the West until 1859, he became assistant professor of mathematics at the academy. At the beginning of the Civil war he became colonel of the 5th New York volunteers, and in the spring of 1862 he joined the army of the Potomac and was given command of a brigade. He was appointed brigadier-general of volunteers September 26, 1862; chief of engineers in March, 1863, and major-general May 3, 1863, subsequently assuming command of the fifth corps. He was relieved from this command after the battle of Five Forks, by General Sheridan, who charged him with procrastination and lack of military skill. General Warren was exonerated from these charges by a court of inquiry in 1879. He became brevet major-general of the United States army, March 13, 1865. A statue of General Warren was unveiled August 8, 1888, on Little Round Top, Gettysburg, where he had especially distinguished himself during the war.

WARREN, HENRY WHITE, D.D., a bishop of the Methodist Episcopal church, was born at Williamsburg, Hampshire county, Mass., January 4, 1831; graduated at the Wesleyan University in 1853, and two years later was licensed to preach the gospel. He occupied the pulpits of churches of the Methodist denomination at Boston, Cambridge, Charleston, and in other cities of the New England conference, whence he removed to Philadelphia, and became pastor of the Arch Street church. In 1881 he was sent from that city as a delegate to the general conference, convening at Cincinnati, by which he was elected bishop, his jurisdiction being quite extensive, with headquarters at Denver, Colo. He is the author of many books of a miscellaneous description, and a frequent contributor to church magazines and periodicals.

WARREN, JOSEPH, patriot, born in Roxbury, Mass., June 11, 1741; died in Charlestown, Mass., June 17, 1775; was graduated at Harvard in 1759, and a year later became master of Roxbury Grammar School. He studied medicine, and early took an interest in the affairs of the colony, having during this



period several open contentions with the royal authorities. When the American army was in process of organization, he urged the appointment of George Washington as commander-in-chief, instead of Artemas Ward, and on June 14th was himself appointed major-general of the troops of Massachusetts. He refused to take command at Bunker Hill, saying he came as a volunteer to learn from older soldiers. He was killed in that battle. Warren's four orphan children were left destitute until April, 1778, when Gen. Benedict Arnold came to their relief. He contributed \$500 for their education, and obtained from congress the amount of a major-general's half-pay to be applied to their support until the youngest child should be of age.

WARREN, MERCY, author, born in Barnstable, Mass., September 25, 1728; died in Plymouth, Mass., October 19, 1814. She was the wife of James Warren, president of the Provincial congress of Massachusetts, and sister to James Otis, of Revolutionary fame. Mrs. Warren was noted as one of the early literary women of America. Her writings include dramas, novels, etc., some of which are contained in her *Poems, Dramatic and Miscellaneous*. She also published a *History of the American Revolution*.

WARREN, WILLIAM, an American comedian, born in Philadelphia, November 17, 1812, died in Boston, September 21, 1888. He made his first appearance on the stage at the Arch Street theater, Philadelphia, in 1832, and met with a success so gratifying that he decided to adopt the profession of an actor. In 1841 he appeared in New York city, and in 1845 in London. He retired from the stage in 1882, after a prosperous professional career of more than fifty years.

WARREN, WILLIAM FAIRFIELD, LL.D., a Methodist divine, was born at Williamsburg, Mass., March 13, 1833; graduated at Wesleyan University, Middletown, Conn., in 1853, and at once entered upon the ministry in the New England conference. Subsequently he studied theology at Andover, Mass., and at the German universities of Berlin and Halle. He became professor of theology in the Methodist Episcopal Mission College at Bremen, and was afterward connected with theological institutes at Frankfort and Boston. He was a member of the committee on the revision of the New Testament, but did not participate in the proceedings. He was made D.D. by the Ohio Wesleyan University, and LL.D. by the Wesleyan University at Middletown, Conn.

WARRINGTON, LEWIS, a distinguished American naval officer, born at Williamsburg, Va., in 1782, and died in 1851. He participated in many of the naval engagements of the war of 1812, and distinguished himself as a brave and aggressive opponent. He commanded the *Peacock* in April, 1814, and with her effected the capture of the *Epervier*, a fully equipped British war vessel. For this act of bravery he was promoted to be captain. During the latter years of his professional career he was chief of the ordnance bureau.

WASHBURN, CADWALADER COLDEN, was born in Livermore, Me., April 22, 1813; died in Eureka Springs, Ark., May 4, 1882. In the spring of 1839 he settled at Davenport, Iowa, where he studied law, and was admitted to the bar, March 29, 1842. The same year he removed to Mineral Point, Wis., where he and Cyrus Woodman established the Mineral Point bank in 1852. He served in congress from December 3, 1855, until March 3, 1861, and at the opening of the Civil war was commissioned colonel of the 2d Wisconsin cavalry. After gallant service in Arkansas, he was commissioned brigadier, and subsequently major-general of volunteers doing good work at Vicksburg and in Texas. From

March 4, 1867, until March 3, 1871, he represented the sixth district of Wisconsin in congress, after which he was governor of Wisconsin for two years. In 1876 he erected an immense flouring mill in Minneapolis. Besides many other charities, General Washburn bequeathed \$50,000 to found a public library at LaCrosse, and \$375,000 for the establishment of an orphans' home in Minneapolis.

WASHBURN, ELIHU BENJAMIN, was born in Livermore, Me., September 23, 1816; died in Chicago, October 22, 1887. After a varied experience as a printer's apprentice, district school teacher, and assistant editor of the *Kennebec Journal*, he began the study of law at Kent's Hill Seminary in 1836, and finished at Harvard in 1839. He removed to Galena, Ill., in 1840, entered into a law partnership with Charles S. Hempstead, and became an active Whig politician. In 1852 he was elected to congress, serving from December 5, 1853, until March 6, 1869, and holding the chairmanship of the committee on commerce for ten years. He was a steadfast friend of Gen. Ulysses S. Grant, and when the latter became president he appointed Mr. Washburn secretary of state, which office he soon afterward resigned to become minister to France. He held this office during the Franco-Prussian war, and gained the high esteem of both the French and Germans. He returned to Chicago in 1880, and from November, 1884, until his death, was president of the Chicago Historical Society. He published *Recollections of a Minister to France* in 1887.

WASHBURN, ISRAEL, was born in Livermore, Me., June 6, 1813; died in Philadelphia, May 12, 1883. He was educated at public schools and by private tutors, studied law, and began the practice of that profession in Orono, Me., in 1834. He soon acquired a reputation, and in 1842 was elected to the legislature. From December 1, 1851, until January 1, 1861, he represented his district in congress, and then became governor of Maine. He held this office two years, and in 1863 was appointed by President Lincoln collector of customs at Portland, Me., which post he filled until 1877. The degree of LL.D. was conferred on him by Tufts College in 1872. He was a member of historical and genealogical societies, and was president of the board of trustees of Tufts College.

WASHINGTON, BUSHROD, son of John Augustine, a younger brother of George Washington, was born in Westmoreland county, Va., June 5, 1762, and died in Philadelphia, November 26, 1829. He was graduated at William and Mary College in 1778, and adopted the profession of law, but served as a private in the war of the Revolution and as a member of the Virginia house of delegates in 1787. In 1798, while residing at Richmond, Va., he was appointed associate justice of the United States Supreme Court, which office he held for the remainder of his life. Judge Washington was known as a learned jurist. At the death of Martha Washington he inherited the Washington mansion and 400 acres of the Mount Vernon estate. He died without issue.

WASHINGTON, JOHN AUGUSTINE, a great-great-grandson of George Washington's brother, John Augustine, was born in Blakely, Jefferson county, Va., May 3, 1821; died near Rich Mountain, Va., September 13, 1861. He was graduated at the University of Virginia in 1840, and inherited the Mount Vernon property, which he sold to the association that now owns it. When the Civil war began he entered the Confederate service as aide-de-camp on the staff of Gen. Robert E. Lee, with the rank of lieutenant-colonel, and was killed with a reconnoitering party near Rich Mountain.

WASHINGTON, JOHN MARSHALL, soldier, born



in Virginia in October, 1797; died at sea, December 24, 1853. He was graduated at the United States Military Academy in 1814, became first lieutenant of artillery May 23, 1820, and captain, May 23, 1830. He served in the Creek and Seminole wars, and subsequently on the northern frontier during the Canada troubles, which ended in 1840. He went into the Mexican war in 1846 and commanded a light battery at the battle of Buena Vista, where he distinguished himself by guarding the pass of La Angostura against vastly superior numbers. For this he was brevetted lieutenant-colonel. From June 24 until December 14, 1847, he was acting governor of Saltillo, Mexico, being at the same time chief of artillery of General Wool's division, and later of the army of occupation. He commanded the ninth military department and was civil and military governor of New Mexico from October, 1848, until October, 1849. Colonel Washington was among the many officers and soldiers who were drowned when the steamer *San Francisco* was wrecked off the Capes of the Delaware in December, 1853.

WASHINGTON, WILLIAM, soldier, born in Stafford county, Va., February 28, 1752; died near Charleston, S. C., March 6, 1810. He was educated for the church; in the war of the Revolution served as captain of infantry and was promoted to be lieutenant-colonel, and, on March 23, 1780, at Rantawles, encountered and defeated Lieut.-Col. Banastre Tarleton. At the battle of Cowpens he had a personal encounter with the English commander, in which both were wounded. He participated in the operations around Guilford Court House, N. C., and at Eutaw Springs he was unhorsed, received a bayonet wound, and was taken prisoner. In 1798 he was appointed brigadier-general.

WATERHOUSE, ALFRED, R.A., was born July 19, 1830, at Liverpool, England. He studied architecture in Manchester, where he began to practice his profession, after traveling, chiefly in Italy. His first considerable work was the Manchester Assize Courts, and he has since been the architect for many of the public buildings in England. Mr. Waterhouse received a grand prize for architecture at the Paris Exhibition of 1867, and a "Rappel" at that of 1878. He is a member of the Royal and Imperial Academy of Vienna, an associate of the Académie Royale des Sciences, des Lettres, et des Beaux-Arts de Belgique, and was elected an associate of the Royal Academy January 16, 1878, becoming a full member June 4, 1885.

WATERLOW, SIR SYDNEY, was educated at the grammar school, Southwark, England, and at the age of fourteen was apprenticed to the late Thomas Harrison, government printer; at eighteen he was placed in charge of the Cabinet Printing Press, at the foreign office, Downing street, and at twenty he went abroad. In 1866-67 he filled the office of sheriff of London and Middlesex, and received the honor of knighthood. In the following year he agreed to contest the county of Dumfries in the Liberal interest, and greatly astonished the Conservative party by being returned at the head of the poll for a county which had been held uncontested by them for eighty years. In 1870 Sir Sydney was appointed on the royal commission for inquiry into friendly and benefit building societies, and in 1872 he was elected lord mayor of London. In 1874, at the general election, he successfully contested Maidstone, but lost the seat in 1880, and was elected for Gravesend, which he continued to represent until the general election of 1885.

WATKIN, SIR EDWARD WILLIAM, BART., M.P., was born in Manchester, England, about 1815, and was first employed in his father's counting-house (ultimately becoming a partner) until the year 1845, when he was

appointed to the secretaryship of the Trent Valley railway. This led to his joining the London and North-Western Company, and to his various positions as general manager, and afterward as a director and chairman of the Manchester, Sheffield, and Lincolnshire railway, and president of the Grand Trunk railway of Canada; chairman of the South-Eastern railway, and director of the Great Western and Great Eastern Companies. In 1861 he undertook a private mission to Canada, at the desire of the duke of Newcastle, then secretary of state for the colonies, with the object of bringing the five British provinces into union, and the establishment of a connection between Canada and the Atlantic by an independent railway system, which he successfully accomplished. While in parliament, in 1866-67, he obtained, as the chairman of two select committees, important alterations in the laws affecting railways, and especially the change in the law of limited liability, which enabled companies to reduce their capital by mere resolution, and without winding up. In 1868 he received the honor of knighthood and in 1880 was created a baronet. He was high sheriff of Cheshire, 1874. The proposed tunnel under the channel to connect England and France is an enterprise with which he has been connected in conjunction with the late Michel Chevalier, M. Léon Say, and other eminent French and English public men. Assuming the experiment to succeed, Mr. Watkin has recommended Mr. Gladstone to approach the European and American powers with a view to the complete neutralization of the work, believing that this would do away with the military alarms raised on the question of late years. At present the works near Shakespeare Cliff, Dover, are kept in repair and ventilation, but the government has not yet shown any desire to give the sanction necessary to their completion. It is understood that Sir Edward has investigated the question of connecting the south coast of Scotland and the north coast of Ireland by a submarine tunnel. In 1885, and again in 1886 and 1892, he was returned for the Hythe division of Kent. Died April 13, 1901.

WATSON, ALFRED A., D.D., an American Episcopal bishop, born August 21, 1818, in New York city; educated at the New York University, and admitted to the bar in 1841. One year later he studied for the ministry, and was ordained priest May 25, 1845, at Fayetteville, N. C. In 1861 he became chaplain of a regiment of North Carolina troops, and in 1863 was selected as the assistant to Bishop Atkinson. He became rector of St. James church, Wilmington, during the year following, and occupied the pulpit of that church until April 17, 1884, when he was consecrated bishop of East Carolina, a new diocese of North Carolina. In June, 1868, he was made a D.D. by the State University.

WATSON, ELKANAH, an American traveler, born in Plymouth, Mass., January 22, 1758; died in Port Kent, N. Y., December 5, 1842. As a youth he was employed by a Providence merchant, and in 1777 went to Charleston, S. C., to purchase produce for shipment to Europe. In 1779, he was engaged in business at Havre and Nantes, France. Returning home, he spent four years in South Carolina, and lived in Albany in 1789, where he was the first to urge the establishment of a State Canal to connect the waters of the great lakes with the Hudson river; he also organized stage routes to the West, and in 1816 he visited Michigan, and explored the route to Montreal. He again went to Europe, but, in 1828, located in Port Kent, on Lake Champlain.

WATSON, JAMES CRAIG, LL.D., was born in Canada West, January 28, 1838, and became a graduate of Michigan University in 1857, after which he rapidly



became prominent among scientists and men of letters in all parts of the United States. After filling the chair of astronomy at this university for some time he was called to the professorship of mathematics in the same institution, and in 1863 was made director of the observatory. In 1879 he accepted the directorship of the Washburn Observatory at Madison, Wis., where he remained until his death, November 23, 1880. His discoveries were numerous, including twenty asteroids, and his treatise on comets, works on astronomy, and treatment of scientific subjects, are accepted as indisputable authorities. He was honored by degrees conferred by the University of Leipsic, Columbia College, and the Khedive of Egypt. He died November 23, 1880.

WATSON, JOHN DAWSON, R.W.S., was born May 20, 1832, at Sedbergh, in the West Riding of Yorkshire; was educated at the Edward VI. Grammar School at Sedbergh, entered the School of Design at Manchester in 1847, went to London in 1851, and became a pupil of Alexander Davis Cooper, and a student of the Royal Academy. He exhibited his first picture, *The Wounded Cavalier*, at the Royal Institution, Manchester, in 1851. He exhibited at the Royal Academy for the first time, in 1853, *An Artist's Studio*, and has continued to exhibit to the present time. In 1865 he was elected an associate of the Society of Painters in Water Colors, and a member of the same society in 1870. Died Jan. 3, 1892.

WATSON, WILLIAM, LORD, son of Thomas Watson, minister of Covington, Lanarkshire, where he was born in 1828. He was educated at the universities of Glasgow and Edinburgh, and admitted an advocate at the Scotch bar in 1851. He was elected dean of the Faculty of Advocates in 1875. In November, 1876, he was elected member of parliament in the Conservative interest, for the universities of Glasgow and Aberdeen, and was solicitor-general for Scotland from July, 1874, till October, 1876, when he was appointed lord advocate. In the latter year he was created LL.D. of Edinburgh. He continued to represent the universities of Glasgow and Aberdeen till April, 1880, when he was appointed a lord justice of appeal, and made a peer for life.

WATSON, WILLIAM, a popular English poet, born in Wharfedale, Yorkshire, first became widely known through his fine poem on *Wordsworth's Grave* (1892), and his *Lachrymæ Musarum*, containing a splendid ode on the death of Tennyson. Gladstone conferred on him the civil pension of \$1,200 which Tennyson had received. He was temporarily insane in 1892, but entirely recovered. His other works are: *Love Lyrics*; *Epigrams of Art, Life and Nature*; *The Prince's Quest*; *The Eloping Angels* (1893); *Excursions in Criticism*, a volume of essays (1893); and *Odes and Other Poems* (1894).

WATTERSON, HENRY, was born at Washington, D. C., February 14, 1840, and began his journalistic career in the city of his nativity. He removed to Nashville, Tenn., in 1861, where he edited the *Republican Banner*, subsequently serving in the Confederate army until the close of 1864. Soon after the suspension of hostilities he revived the *Republican Banner*, but was called to the editorial chair of the *Louisville Journal*, which he consolidated with the *Courier and Times*, of that city, and, in conjunction with W. N. Haldeman, established the *Courier-Journal*, which he has since editorially managed. He has served in congress and as member of the national Democratic conventions, being chairman of the convention which placed Samuel J. Tilden in nomination for the presidency in 1876, and chairman of the committees on resolutions in the conventions of 1888 and 1892. He is prominent as an

orator and political speaker, and is the author of frequent contributions to the daily press and current magazines.

WATTS, ALARIC A., an English journalist and editor, was born in London in 1789, and died there in 1864. He was, during his career, managing editor of papers at Leeds, Manchester and other cities, also publisher of *Lyrics of the Heart* and other *Poems*, besides works of a miscellaneous character.

WATTS, GEORGE FREDERICK, R.A., painter, born in London in 1820, first exhibited at the Academy in 1837. In addition to portraits, he made some historical attempts, such as *Isabella Finding Lorenzo Dead*, from Boccaccio, in 1840, and a scene from *Cymbeline*, in 1842. At Westminster Hall, in 1843, his cartoon of *Caractacus Led in Triumph Through the Streets of Rome* obtained one of the three highest class prizes of £300. Having spent three years in Italy, he again obtained, in 1847, the highest honors at the competition in Westminster Hall. His two colossal oil-pictures, *Echo*, and *Alfred Inciting the Saxons to Prevent the Landing of the Danes*, which secured for him one of the three highest class prizes of £500, were, with the pictures of Pickersgill and Cross, purchased by the commissioners. The latter is in one of the committee rooms of the new parliament houses. For some time he has exhibited regularly at the Royal Academy and Grosvenor Gallery. His principal productions have been portraits and ideal or mythological subjects such as the well-known *Law and Death*, *Endymion*, *Orpheus and Eurydice*, *Daphne*, and *Hope*.

WAUGH, EDWIN, born January 29, 1818, at Rochdale, in Lancashire, Eng., was descended from a border family long settled upon their own land, near Haltwhistle. He was educated at Davenport's Commercial Academy at Rochdale; was apprenticed to a bookseller and printer; and after his apprenticeship worked as a printer and bookseller for nearly ten years. He was then appointed secretary to the Lancashire Public School Association for the promotion of a national plan of secular education. He was connected with this association for nearly five years, after which he devoted himself entirely to literature. Mr. Waugh received a pension of £90 from the Civil List in 1882. He died in May, 1890.

WAYLAND, FRANCIS, born in New York city, March 11, 1796; died in Providence, R. I., September 30, 1865. He was graduated at Union College in 1813. In 1816 he entered Andover Theological Seminary, became tutor of Union College, and in 1821 was pastor of the First Baptist Church in Boston. In 1826 Mr. Wayland accepted a professorship at Union, and in the following year was made president of Brown University. This office he filled for twenty-eight years. After his retirement he was for eighteen months pastor of the First Baptist Church in Providence. He received the degree of D.D. from Union in 1827, duplicated by Harvard in 1829, and in 1852 was also created LL.D. by the latter.

WAYNE, ANTHONY, soldier, born in Easton, Penn., January 1, 1745; died in Erie, Penn., December 15, 1796. He was educated in Philadelphia, became a land surveyor, and in 1765 went to Nova Scotia. When the American colonies opposed the domineering measures of Great Britain he raised a regiment, of which he was commissioned colonel on January 3, 1776. After the battle of Three Rivers, where he was wounded, he was placed in charge of Fort Ticonderoga, and on February 21st was commissioned brigadier-general. He fought at the battles of Brandywine, Germantown, and Monmouth, captured the fort of Stony Point on the Hudson River, and successfully attacked Fort Lee, near



New York city. Later, Wayne was active in the investment and capture of Yorktown. The brevet of major-general was conferred on him October 10, 1783. At the close of the war he returned to his home, from there went to Georgia, and was elected to congress, serving from October 24, 1791, to March 21, 1792. In April of the last-named year he was promoted general-in-chief of the United States army. In August, 1794, with 1,000 men, he marched against the Ohio Indians and signally defeated them, and while descending Lake Erie on his way from Detroit he died from an attack of the gout.

WAYNE, JAMES M., LL.D., æ American lawyer and judge, was born in Georgia during 1790, educated at Princeton, and, upon being admitted to the bar in 1810, began the practice of law at Savannah. He was mayor of that city, member of the State legislature, judge of the Superior Court, and, from 1829 to 1835, a representative in congress. He was appointed an associate justice of the United States Supreme Court by President Jackson in January, 1835, and during the Civil war maintained his allegiance to the Union. On the bench his specialty was maritime law, and his decisions of questions involving that branch of jurisprudence are still cited as reliable and conclusive. He was made an LL.D. by Princeton in 1849, and died at Washington, D. C., July 5, 1867.

WEATHERS, WILLIAM, D.D., a Roman Catholic prelate, born in 1814, was educated at St. Edmund's College, Old Hall Green, where he was ordained priest in 1838; and became professor, vice-president and finally president in 1851, which office he continued to hold until 1869, when he removed to Hammersmith to become the first president of St. Thomas' Theological Seminary. He was made a domestic prelate by the Pope in 1868, and in 1872 was appointed bishop of Amycla, in *partibus infidelium*, and nominated bishop auxiliary for the diocese of Westminster, England.

WEAVER, JAMES B., was born at Dayton, Ohio, June 12, 1833, and graduated at the law school of the Cincinnati College in 1854. He served in the Union army during the Civil war, attaining the rank of brigadier-general, and at the conclusion of hostilities practiced law in Iowa. He was elected district-attorney of the Second Judicial District of that State, and filled the position of internal revenue assessor, besides that of editor of the *Iowa Tribune*, issued at Des Moines. He was elected to congress in 1878, in 1880 was the Greenback candidate for president; was elected to congress in 1884 and 1886 and was the People's Party candidate for president, 1892.

WEBB, ALEXANDER STEWART, soldier, was born in New York city, February 15, 1835. After his graduation at the United States Military Academy in 1855, he was assigned to the artillery, serving in Florida and Minnesota, and for three years assistant professor at West Point. He became major of the 1st Rhode Island artillery September 14, 1861, was in the battle of Bull Run, subsequently participating in the Peninsular campaign of the Army of the Potomac and in the Maryland and Rappahannock campaigns as chief-of-staff of the fifth corps. He was commissioned brigadier-general of volunteers, was wounded at the battle of Gettysburg, and received from General Meade a bronze medal for distinguished personal gallantry. He was again severely wounded at Spottsylvania in May, 1864, and upon his recovery was made chief-of-staff to General Meade. He was brevetted brigadier-general and major-general of the United States army, March 13, 1865. At his own request General Webb was discharged from the service December 3, 1870. In July, 1869, he became president of the College of the City of New York, and in 1870 Ho-

bart College gave him the degree of LL. D. In 1882 he published *The Peninsula: McClellan's Campaign of 1862*.

WEBB, JAMES WATSON, was born at Claverack, N. Y., February 8, 1802; died in New York city, June 7, 1884. He entered the regular army in 1819, rose to the rank of adjutant of the 3d regiment, and resigned, in 1827, to become editor of the *New York Courier*. Two years later this paper was consolidated with the *Enquirer* under the name of the *Morning Courier and New York Enquirer*, which he owned and edited until June, 1861, when it was merged in the *World*. His paper was the chief advocate of the principles of the Whig party. In June, 1842, he fought a duel with a Kentucky member of congress, Thomas F. Marshall, in which he was wounded. He became engineer-in-chief of the State of New York, with the rank of major-general, in 1843. In 1861 he declined the mission to Turkey and was appointed minister to Brazil, in which office he secured the settlement of long-standing claims against that country. He published a pamphlet on *National Currency* in 1875.

WEBER, GEORG, historian, born at Bergzahnern, Germany, February 10, 1808, wrote a *History of the World* (15 vols., 1857-80) and a popular *History of German Literature*.

WEBER, WILLIAM EDWARD, distinguished German physicist, born at Wittenberg, October 24, 1804, died June 23, 1891. He was a professor at Göttingen from 1831 to his death, except during twelve years from 1837, when he and six other liberal professors were excluded from the university. He was noted for his researches in magnetism and electricity, for his wave-theory and works on that subject, and for many other works.

WEBSTER, AUGUSTA, daughter of the late Vice-Admiral Davies, published her first book, *Blanche Lisle, and other Poems*, in 1860, under the name of "Cécil Home." After her marriage with Mr. Thomas Webster, fellow of Trinity College, Cambridge, she published *Lesley's Guardians*, a novel, *Lilian Gray*, a poem, and other works. She was a member of the London School Board. She died September 5, 1894.

WEBSTER, FLETCHER, was born at Portsmouth, N. H., July 23, 1813, and, after graduating at Harvard in 1833, studied law with Daniel Webster, his father. He was employed in the office of the secretary of state during his father's incumbency of that position, afterward becoming secretary of the American legation in China, member of the Massachusetts legislature, and collector at Boston. He was killed at the second battle of Bull Run, while colonel of the 12th Massachusetts infantry.

WEBSTER, JOSEPH D., was born in New Hampshire, August 25, 1811, and graduated at Dartmouth College in 1832. He was appointed lieutenant in the army in 1838, and served in the Mexican war, during which he attained the rank of captain. He was established in Chicago, Ill., at the outbreak of the Civil war. His services as an engineer were employed in the construction of fortifications at Cairo, Ill., and other points in Southern Illinois, until June, 1861, when he became a paymaster in the army, and, in 1862, colonel of the 1st Illinois artillery. Later he was chief-of-staff for General Grant, and participated in the capture of Forts Henry and Donelson. At the battle of Shiloh, his efforts on the first day are said to have saved the Union army. He was present at the surrender of Vicksburg, afterward serving in Tennessee, and resigned from the army in November, 1865, as brevet major-general of volunteers. He returned to Chicago, where he was appointed assessor and collector of internal revenue, also sub-treasurer. He died in that city March 12, 1876.



WEBSTER, SIR RICHARD EVERARD, attorney-general of England, born December 22, 1842; received his education at Charterhouse School, and at Trinity College, Cambridge; was called to the bar at Lincoln's Inn in 1868, and was made queen's counsel in 1876. He has been extensively engaged in most of the heavy commercial and railway cases of the day, besides having a large general practice; has been retained in numerous appeal cases in the House of Lords and appeared for the *Times* before the Parnell Commission. From July to November, 1885, he represented Launceston, and at the general elections of 1885, 1886 and 1892, he successfully stood for the Isle of Wight. He was attorney-general in Lord Salisbury's ministries.

WEDMORE, FREDERICK, was born at Clifton, England, July 9, 1844, and entered the office of a Bristol newspaper before he was nineteen. He subsequently went to London, writing for various magazines and devoting himself to the study of pictorial and dramatic art. He traveled and lived for some time abroad, chiefly in France, and subsequently became known as a writer on the arts. In 1877 there appeared, reprinted from *Temple Bar*, *Pastorals of France*, Mr. Wedmore's single work of poetical-prose fiction. He has for several years held the posts of art critic of the *Standard*, and dramatic critic of *The Academy*, and he has also written in the *Nineteenth Century* and the *Fortnightly Review*. In the Autumn of 1885 he visited the United States, and repeated at Harvard College, and before the Johns Hopkins University, Baltimore, one or two lectures previously delivered in some principal English cities.

WEED, EDWIN G., a bishop of the Protestant Episcopal Church, was born at Savannah, Ga., July 23, 1837, and became a graduate of the General Theological Seminary, New York, in 1870. He was ordained priest August 29, 1871, and accepted a call to the rectorship of the Church of the Good Shepherd, at Summerville, Ga., where he remained until August 11, 1886, when he was consecrated bishop of Florida. He has been made a D.D. by the University of the South and S. J. D. by Racine (Wis.) College.

WEED, STEPHEN H., was born in New York city, about 1834, and graduated at West Point in 1854. His first services were on the frontier in Kansas, Utah, and elsewhere. He was promoted to the rank of captain in May, 1861, and served throughout the Peninsular campaign, during which he was in command of a battery. He was promoted brigadier-general for gallantry at Chancellorsville, and was killed at Gettysburg, July 2, 1863.

WEED, THURLOW, born in Cairo, N. Y., November 15, 1797; died in New York city, November 22, 1882. At the age of twelve he began to learn the printer's trade in Catskill, N. Y., and at twenty-two he edited the Norwich *Agriculturalist*. Two years later, at Manlius, N. Y., he founded the *Onondaga County Republican*, and in 1824 became editor and owner of the *Rochester Telegraph*. In 1830 he established the *Albany Evening Journal* and controlled it for thirty-five years as a Whig, and later as a Republican newspaper. In 1867 he became editor of the *Commercial Advertiser* of New York city. In the following year failing health compelled him to resign.

WEEKS, ROBERT KELLY, was born September 21, 1840, in New York city, graduated at Yale College in 1862, and from the law school of Columbia College, two years later. He was admitted to the bar, but abandoned the profession for journalism. He died at New York, April 13, 1876.

WEEMS, MASON L., an American biographical writer and historian, was born in the Shenandoah

Valley, Va., about 1760, and studied theology in London. He was ordained a pastor of the Protestant Episcopal Church and was for some time rector of the church of that denomination at Mount Vernon, attended by General Washington's family. He resigned that charge in 1790, and became, as one of his biographers relates, "a book agent." He afterward devoted his attention to preparing sketches of prominent patriots of the Revolution, and wrote the lives of Washington, Marion, Franklin, and others. He died at Beaufort, S. C., May 23, 1825. He was the author of the ridiculous "little hatchet" story about Washington.

WEIGEL, ERHARD, a German astronomer, author of *The Mirror of the Heavens*, was born at Wida, about 1625, and was the inventor of a number of astronomical and mathematical instruments. He was professor of mathematics at Jena for many years, and died in 1699.

WEIR, HARRISON WILLIAM, born at Lewes, May 5, 1824, was in 1837 articled to learn designing on wood, color-printing, and wood-engraving. His first picture, the *Dead Shot*, was afterward exhibited at the Royal Academy, and his first wood drawings appeared in the *Illustrated London News*. He has labored to improve children's books, and books for the poorer classes; and is best known by his pictures of birds, fruit, and animals, and has also been successful in his engravings of fish and flowers.

WEIR, J. A., an American artist, was born at West Point, N. Y., August 30, 1852, and makes a specialty of portraits and sketches. He was taught the rudiments of art by Robert W. Weir, his father, and made rapid progress. He resides in New York city, where in 1888 he received the first prize of the American Art Association. He is a member of the American Society of Art, and an academican of the National Academy.

WEIR, JOHN F., an American artist and sculptor, was born at West Point, N. Y., August 28, 1841, son of Robert W. WEIR (q.v.), under whom he studied, and in 1861 settled in New York city. He went abroad in 1869 and 1880, and a number of his pictures were exhibited in Paris and London. He is an academican of the National Academy, director of the school of fine arts at Yale College, and was judge of arts at the Philadelphia Centennial. His pictures are noted products of artistic genius; equally celebrated is the statue of Professor Silliman of Yale College, executed by Weir, and located on the college campus.

WEIR, ROBERT WALTER, painter, born in New Rochelle, N. Y., June 18, 1803. At the age of nineteen he began preliminary studies in the art of design. He studied in Florence and Rome, and on returning to the United States was elected an academican of the National Academy in 1829, and three years later was appointed professor of drawing at the United States Military Academy; this position he held for forty-two years. His works include portraits, genre pictures, and historical compositions. He died May 1, 1889.

WEITZEL, GODFREY, was born at Cincinnati, Ohio, in 1834, and graduated at West Point in 1855, being at once assigned to duty in the engineer corps of the army. At the outbreak of the Civil war he was made lieutenant of engineers, and accompanied General Butler to New Orleans, becoming chief engineer of the department of the Gulf upon the surrender of that city. When General Banks superseded Butler at New Orleans, Weitzel was placed in command of a brigade and was present at the capture of Opelousas, Alexandria, and Port Hudson. For gallantry at the taking of the latter he was promoted to be lieutenant-colonel in the regular army. His subsequent service was with the army of the Potomac in its operations against Richmond, and when that



city surrendered his command was the first to take possession. He became brigadier-general, 1865; major-general of volunteers, 1866, and lieutenant-colonel of engineers, regular army, 1882. He died March 19, 1884.

WEKERLE, DR. ALEXANDER, Hungarian statesman and financier, was born in 1849, studied law, entered the service of the Ministry of Finance, became Professor of Financial Science at the Budapest University, and in 1887 succeeded M. Tisza as Minister of Finance, on the latter's suggestion. He was appointed Premier of Hungary in 1892. He secured the reform of the currency, in 1892, and the passage of his Marriage Law Reform Bill in 1894, resigning January 15, 1895.

WELCH, JOHN, was born in Harrison county, Ohio, October 28, 1805; graduated at Franklin College in the class of 1828, and five years later was admitted to the bar. In 1846 he was elected to the State Senate, and in 1850 became a member of congress. From 1862 until 1875 he was a representative of the Ohio judiciary, first as probate judge and finally as one of the justices of the Supreme Court. Franklin College conferred the degree of LL.D. upon him in 1867.

WELCKER, F. G., an eminent German scholar, was born at Grünberg in 1784, and was in part educated at Giessen, finally completing his studies at Rome. Upon his return to Germany he took a prominent position as a philologist, and made numerous and valuable contributions to science. He was professor of Greek at Giessen and Göttingen universities, and filled the chair of philology at Bonn. He died in 1868.

WELCKER, K. T., a German writer and publicist, brother of the philologist, F. G. Welcker (see above), a native of Upper Hesse, was born in 1790, and studied at the universities both of Giessen and Heidelberg. Later he filled the chair of law professor at Kiel; and in 1831 was elected to the council of Baden. In connection with others he established a paper noted for the liberal views it represented, and known to the public as *Der Freisinnige*, and for expressions of opinion was subjected to arrest and imprisonment. He was subsequently released, and in 1848 was sent as representative to the German National Assembly. He died in 1869.

WELDON, C. W., a Canadian jurist, was born near Richibucto, New Brunswick, February 27, 1830; obtained his education in the college at Windsor, Nova Scotia, and was admitted to the bar in 1852, where he at once took high rank. He has been a member of parliament continuously since 1878, and is prominently identified with the educational and material interests of New Brunswick.

WELDON, GEORGINA, was born in England, May 24, 1837. In 1860 she married William Henry Weldon, a lieutenant in the 18th hussars, and in consequence was disinherited by her father. In 1861 she conceived the idea of starting a musical academy for the careful training of *artistes*, and in order to gain experience she moved to London. For various reasons, however, the plan came to nothing. In 1878 an attempt was made to remove her, by her husband's orders, to a lunatic asylum; she, however, escaped being taken, and subsequently brought an action against the four doctors who had given their consent; she gained her suit and was awarded \$25,000 damages. Since then she has become celebrated for the number of law suits in which she has appeared, always defending herself, and generally gaining her suit.

WELLDON, REV. JAMES EDWARD COWELL, was born in England, April 25, 1854, and educated at Eton, and at King's College, Cambridge. In 1878 he became fellow and tutor of King's College, and in 1883 was appointed head master of Dulwich College, which he left on being appointed head master of Harrow School

in 1885. Mr. Weldon has published *Politics of Aristotle Translated, with Analysis and Notes*, 1883, and several papers read at church congresses.

WELLES, E. R., D.D., a bishop of the Protestant Episcopal Church, was born near Waterloo, N. Y., January 10, 1830, and graduated at Hobart College when he was twenty years old. He was ordained deacon in 1857, and the year following became a priest, after which he organized a parish at Red Wing, Minn., and became the rector of Christ Church in the Episcopal diocese of that State, so remaining until October 24, 1874, when he was consecrated bishop of Wisconsin. He was the author of many sermons and papers which have been published. His death occurred at Waterloo, N. Y., October 19, 1888.

WELLES, GIDEON, was born in Hartford county, Conn., July 1, 1802, obtained his education at the schools of Norwich, and was admitted to the bar, but devoted his attention to journalism and politics. He was a member of the State legislature for nine years from 1827, and editor of the *Hartford Times* from 1826 to 1854, during which that paper was the journalistic representative of the Connecticut Democracy. He was also State comptroller in 1842 and 1843, and in 1846 was appointed to a position in the navy department at Washington, remaining in charge of the bureau of clothing until 1849. In 1855 he was one of the organizers of the Republican party of Connecticut, and, upon the election of Abraham Lincoln, was made secretary of the navy, remaining in that position until the inauguration of General Grant in 1869. His administration of the trust was characterized by a steady improvement in the service and the adoption of iron clads as war vessels. Subsequent to his retirement, Mr. Welles became affiliated with the Liberal Republicans, and in 1876 he acted with the Democrats. He wrote at frequent intervals for the daily press, and was the author of a number of books and papers on the conduct of the navy during the war. He died February 11, 1878.

WELLING, J. C., an American journalist and educator, was born at Trenton, N. J., July 14, 1825, graduated at Princeton in 1844, and was admitted to the bar. He was identified with the cause of education in New York city until 1850, when he became associate editor of the Washington *National Intelligencer*, succeeding to the position of editor-in-chief during 1856. In 1867 he became president of St. John's College at Annapolis, Md., and in 1870 was called to the chair of belles-lettres at Princeton, resigning that position, however, in 1871, to undertake the presidency of Columbian University, Washington. He was in 1877 appointed chairman of trustees of Corcoran Art Gallery, and in 1884, regent of the Smithsonian Institution; being also a member of leading scientific, social, and literary societies in the United States, president of the Philosophical Society of Washington, and otherwise associated with the development of education and art. Died Sept. 4, 1894.

WELLS, C. H., an American naval officer, born in Pennsylvania, September 22, 1822; entered the navy in 1840, and graduated at Annapolis in July, 1846. He participated in the siege of Vera Cruz, being also present at the capture of other Mexican ports, and was attached to the expedition sent out in 1857 to superintend the laying of the Atlantic cable. During the Civil war he served with the South Atlantic squadron and as commander at the navy yard, Philadelphia, and participated in many engagements, notably the battle in Mobile Harbor, culminating in the surrender of the city. After the war he was attached to the squadron serving off Brazil and later off the coast of Italy. He received the cross of the Legion of Honor from the



French Government for assistance given a French iron-clad in distress, near Spezia, and was promoted through the regular official grades of the navy until his retirement as rear-admiral, September 22, 1884. He died at Washington, D. C., January 28, 1888.

WELLS, C. W., an eminent physician and surgeon, was born at Charleston, S. C., in 1757, and, upon completing his preparatory studies in America, went to Scotland and became a matriculant at the University of Edinburgh. He was subsequently admitted to the practice of medicine, and locating in England was, in 1800, appointed physician to the Hospital of Saint Thomas, London. He was a fellow of the Royal Society, and author of many medical essays. He died in 1817.

WELLS, DAVID A., LL.D., an American publicist, was born at Springfield, Mass., June 17, 1828; graduated at Williams in 1847, and during the year following became connected, editorially, with the *Springfield Republican*. He subsequently, until 1851, was a student of the Lawrence Scientific School at Harvard, and soon after graduating began the publication of a scientific paper at Cambridge, which was regularly issued until 1866. In 1865 he visited Washington upon invitation, and was chairman of a commission organized to consider the question of taxation in its relation to the needs of the government, becoming in 1866 head of the bureau of statistics. He was at this time an earnest advocate of the policy of protection, but as the result of his investigations in Europe, whither he was sent by the government in 1867, he has since been a prominent supporter of free trade. Of late years he has frequently been called upon to serve in positions of trust, notably as receiver in cases of bankrupt corporations, trustee of public works, etc. He has been president of the Free-trade League of America, and of the American Social Science Association, also member of the academies of France and Italy, and of the leading societies of the United States. He is a writer of books and pamphlets on economic subjects, many of which have been republished in England, Germany, and France. In 1874 he was made a D.C.L. by Oxford University, and an LL.D. by Williams College in 1871. He died November 5, 1898.

WELLS, HENRY TANWORTH, R.A., was born in London in December, 1828. His first practice in art was as a miniature painter. When only sixteen years of age he exhibited at the Royal Academy a portrait of Arthur Prinsep, a brother of Mr. Valentine Prinsep, the painter. From the year in which he first exhibited till 1866 he never ceased to be represented as a miniaturist on the walls of the Academy; and down to 1860 he usually exhibited eight works annually—the largest number allowed. Since 1861 Mr. Wells has devoted his energies to oil painting, and since 1862 has been a constant contributor to the exhibitions of the Royal Academy. In 1866 he painted his large picture of *Volunteers at a Firing Point*, and in May of that year he was elected A.R.A. Since that time he has been a constant exhibitor of portrait pictures, some of which are large compositions. He became an academician in 1870.

WELLS, HORACE, M.D., said to have been the discoverer of nitrous-oxide-gas, as an anæsthetic, was born at Hartford, Vt., January 21, 1815, and educated in the common schools of his native town. He became a dentist, and in 1836 began to experiment with a view to the discovery of some form of narcotic that would effectually "anæsthetize" his patients while being operated upon, without danger or entailing serious results. He finally reached the conclusion that nitrous-oxide-gas, or "laughing gas," was the agency to be employed, and upon public trial its efficacy was conclusively demon-

strated. He subsequently exhibited at Boston, Cambridge, and elsewhere, with but indifferent results. Later the discovery became the subject of dispute between Doctor Wells and Dr. W. T. G. Morton, the latter insisting that he was the author of the invention, while the former contended that he had communicated the result of his investigations to Doctor Morton upon visiting Boston in 1845. The patent, however, was issued to the latter, and Doctor Wells removed to New York city, where he died by his own hand, January 24, 1848.

WELLS, JAMES MADISON, a Louisiana planter, also governor of that State, located at an early day near Alexandria, Rapides parish, and, in conjunction with T. J. Wells, his brother, engaged extensively in cotton planting. During the Civil war he was an outspoken unionist, and in 1865 was elected governor of Louisiana. He was removed from that office by military order in 1866, and thereafter was conspicuous during the reconstruction history of the State. He was a member of the returning board of Louisiana, which, in 1877, awarded the electoral vote of the State to Hayes, but since that date has lived in retirement.

WELLS, SIR THOMAS SPENCER, was born in 1818 at St. Alban's, England, was educated at Trinity College, Dublin, and subsequently studied in the Anatomical School at Dublin, and at St. Thomas' Hospital. He was admitted a member of the Royal College of Surgeons in 1841, and upon returning to England at the close of the Russian war, he devoted himself to the study of that branch of professional science with which his name is associated—namely, ovariotomy, and connected himself with the Samaritan Hospital for Women. He was president of the College of Surgeons in 1882-83, is a fellow of the Royal Medical and Chirurgical Society, and surgeon to her majesty's household. Sir Spencer Wells is the author of several important surgical works, especially on those branches of operative surgery to which he was devoted. Died Jan., 1897.

WELLS, WALTER, was born at Salisbury, N. H., in November, 1830; graduated at Bowdoin College in 1852, and for a number of years taught school in the East. Later he removed to Pennsylvania, and accepted the professorship of physical geography in the State University. In 1867 he was engaged in the survey of the water power of Maine, and two years later, as secretary of the association of cotton growers and manufacturers, prepared the report on the growth and manufacture of that staple in the United States. He died at Portland, Me., April 21, 1881.

WELSH, ALFRED HIX, is a native of Fostoria, Ohio, and was born September 7, 1850. He entered Baldwin University, where he graduated in 1872. The year following he accepted the chair of mathematics at Buchtel College, where he remained three years. In 1876 he was a member of the faculty of the high school at Columbus, Ohio, and in 1885 was called to the chair of English literature in the University of Ohio. Professor Welsh is the author of a list of works on grammar, mathematics, etc., in use among the schools, also a number of miscellaneous publications.

WEMYSS, EARL OF, was born in 1818, and educated at Eton and Christ Church, Oxford. In the same year he was returned to the House of Commons for the Eastern division of Gloucestershire, which he represented until 1846. In August, 1847, he was returned as a Liberal Conservative for Haddingtonshire, which he continued to represent until his succession to the peerage; was a lord of the treasury under the Aberdeen ministry, 1852-55, retiring with the Peel party in February of that year from the administration of Lord Palmerston. As Lord Elcho, he took a conspicuous



part in the volunteer movement, and he is an authority on various questions connected with the national defense and armaments. He succeeded to the earldom of Wemyss on the death of his father, January 1, 1883.

WENTWORTH, JOHN, was born at Sandwich, N. H., March 5, 1815; graduated at Dartmouth College in 1836, and the same year removed to Illinois, locating at Chicago, where he studied law, and was admitted to the bar. He was for many years editor of the *Chicago Democrat*; served in congress from 1843 to 1851, from 1853 to 1855, and from 1865 to 1867, and was one of the Democratic representatives instrumental in the organization of the anti-slavery party after the Missouri Compromise had been repealed. He was afterward elected mayor of Chicago, and contributed largely to laying the foundations for the present excellence of the various departments under municipal control. He was a member of the State constitutional convention of 1861, and served in other public capacities until within a few years prior to his death. He was made an LL.D. by Dartmouth College, and was also president of the Alumni. He died at Chicago, October 16, 1888.

WENTWORTH, SIR JOHN, colonial governor, born in Portsmouth, N. H., August 9, 1737; died in Halifax, Nova Scotia, April 8, 1820. He was graduated at Harvard in 1755, went to England in 1765, and from 1765 to 1775 served as governor of New Hampshire. In March, 1768, he arrived in Charleston, S. C., and entered on his duties as governor in June, 1768. As such he gave Dartmouth College its charter and endowed it with 44,000 acres of land. At the outbreak of internal troubles in the colony he fled to Fort William and Mary, and took shelter on an English vessel. In 1775 Governor Wentworth sailed for England. In 1792 he was appointed governor of Nova Scotia, which office he held until 1808, and in 1795 he was created a baronet.

WERDER, AUGUST VON, a Prussian general, was born September 12, 1808, entered, in 1825, the regiment of the gardes-du-corps, and was, on account of his special qualifications, appointed second lieutenant in the first regiment of infantry guards. From 1833 he served in various branches of the army, securing steady promotion, and becoming in March, 1860, a major-general, and on June 8, 1866, lieutenant-general, in which latter capacity he took part in the campaign in Bohemia in the army of Prince Frederick Charles. On the outbreak of the Franco-German war, Lieutenant-General von Werder was attached to the superior command of the third army corps of the Crown Prince of Prussia, and was engaged before Strasburg, and also in the battles near Belfort. His complete defeat of Bourbaki's army was of enormous importance to the Germans, as was shown by the gift of a sword of honor, specially made, to him by the emperor. He died September 12, 1887.

WERTMULLER, ADOLPH ULRIC, painter, born in Stockholm, Sweden, in 1751; died near Marcus Hook, Penn., October 5, 1811. In 1782 he was made a member of the French Academy, and in 1787 became court painter in Sweden. In 1794 he visited the United States, went abroad after two years, returned in 1797 and became permanently settled. During his first visit he painted several portraits of Gen. George Washington.

WEST, BENJAMIN, an American mathematician, born in Massachusetts, 1730, and, prior to the Revolutionary war, a resident of Providence, R. I., where he was engaged in commercial pursuits. In 1784 he was teaching mathematics at Philadelphia, and two years later filled the mathematical chair in Brown University, a position he retained until 1800. He was made an A.M. by Brown, Harvard, and Dartmouth, and an

LL.D. by Brown. He died at Providence, August 13, 1813.

WEST, W. E., an American artist, born at Lexington, Ky., December 10, 1788; died at Nashville, Tenn., November 2, 1857. He began the study of art in his native city, and, after a course of instruction at Philadelphia, visited Europe, taking up his residence at Florence, Italy, in 1819. He remained there until 1826, when he removed to London, and continued a resident of that city for many years, returning to the United States in 1840, and locating at Baltimore. In 1855 he opened a studio at Nashville, Tenn., and resided in that city until his death. His specialty was portraits and "vignette pictures," of which he executed quite a number, including *Judith and Holofernes*, which have obtained a national reputation.

WEST, SIR LIONEL SACKVILLE, was born July 19, 1827, and entered the diplomatic service in 1847, as attaché to the legation at Lisbon. He was appointed first paid attaché at Berlin in 1853, and secretary of legation at Turin in 1858, was *chargé d'affaires* from August to November, and for some months during the years 1859 and 1863. He was then transferred to Madrid, and in 1867 promoted to be secretary of embassy at Berlin, and minister plenipotentiary at Paris during the absence of the ambassador in 1868 and 1869. From February 16th till March 12, 1871, he was *chargé des archives*, and was again minister plenipotentiary from September 19th till December 6, 1871, and from August 20th till November 7, 1872. Promoted to be envoy extraordinary and minister plenipotentiary to the Argentine Republic in September, 1872, he was transferred to Spain in 1878, and to Washington in 1881, but was recalled in the fall of 1888, at President Cleveland's request, for interfering in American politics.

WESTCOTT, BROOKE FOSS, D.D., was born near Birmingham, England, in January, 1825, and was educated at Trinity College, Cambridge. He obtained the Norrisian prize in 1850, and was ordained deacon and priest in the following year. He was elected fellow of his college in 1849, and proceeded M.A. in 1851, B.D. in 1865, and D.D. in 1870. Doctor Westcott received from Oxford University the honorary degree of D.C.L. in 1881, and that of D.D. from Edinburgh University at its tercentenary commemoration in 1883. He was elected regius professor of divinity at Cambridge, November 1, 1870, and, on the retirement of Doctor Jeremie, Doctor Westcott was nominated honorary chaplain to the queen in 1875, and a chaplain in ordinary in 1879. In May, 1881, was published, under the title *The New Testament in Greek*, the result of the twenty-eight years' joint labor of Doctors Westcott and Holt upon the Greek text. In October, 1883, he was nominated to the canonry of Westminster, vacated by Canon Barry, bishop designate of Sydney, Australia. He was one of the company for the revision of the authorized version of the New Testament. Died July 28, 1901.

WESTCOTT, THOMPSON, was born at Philadelphia, Penn., June 5, 1820, and educated at the Pennsylvania University. He was admitted to the bar in 1841, but adopted journalism as a profession, and began his career in a reportorial capacity on the *Public Ledger*. From 1848 to 1884 he was editor of the *Philadelphia Sunday Despatch*, and for six years from 1863, editor of the *Philadelphia Inquirer*, becoming editor of the *Philadelphia Record* in 1884. Subsequently he was a contributor to the leading dailies of that and other cities, and was the author of a number of works, chiefly biographical and historical. He died at Philadelphia, May 8, 1888.

WESTLAKE, JOHN, Q.C., was born at Lostwithiel, Cornwall, England, February 4, 1828, and



educated at Trinity College, Cambridge. He was called to the bar, was one of the founders and editors of the *Revue de Droit International et de Législation Comparée*, published at Brussels, and the author of a standard work on international law.

WESTWOOD, JOHN OBADIAH, entomologist, born in Sheffield, England, 1805, became professor of zoölogy at Oxford, 1861, and was elected to fill the place of Humboldt, as a corresponding member of the Entomological Society at Paris. He wrote much on entomology and archæology and was likewise one of the highest authorities on mediæval ivories. He died January 2, 1892.

WETHERILL, CHARLES MAYER, born at Philadelphia, November 4, 1825; graduated at the Pennsylvania University in 1845, but completed his studies at the College of France, Paris, and the University of Giessen. He lectured on chemistry at the Franklin Institute, Philadelphia, 1849-52, going thence to Washington as chemist of the agricultural department. He was professor of chemistry at Lehigh (Penn.) University from 1866 till his death, March 5, 1889. He was Ph. D. of the University of Giessen, and M.D. of the Medical College of New York; was a member of the American Philosophical Society and other scientific organizations, and left a large number of papers on scientific subjects.

WEYMAN, STANLEY J., a popular writer of romantic novels, born at Ludlow, England, August 7, 1855, and educated at Christ Church, Oxford. He studied for the bar, but left the law for literature with the publication, in 1889, of his first novel, *The House of the Wolf*. In 1890 came *The New Rector*, a story of modern English life. *The Story of Francis Cludde* (1891), and in 1893, *The Gentleman of France*, one of the most popular of modern novels, which has been translated into half a dozen languages, and at once established his fame. Later works of his are *The Man in Black*, *Under the Red Robe*, a fascinating tale of love and adventure in the times of Cardinal Richelieu, and *My Lady Rotha*.

WHARTON, FRANCIS, was born at Philadelphia, March 7, 1820; graduated at Yale College in 1839, and became a member of the Philadelphia bar in 1843. In 1845 he was assistant attorney-general of Pennsylvania, and for seven years, from 1856, filled the chair of logic and rhetoric in Kenyon College, at Gambier, Ohio. In the latter year, having been meanwhile ordained a minister of the Protestant Episcopal Church, he was called to the rectorship of St. Paul's Church, Brookline, Mass., afterward to the chair of international and ecclesiastical law in the divinity school at Cambridge, in the same State. In 1885 he accepted the position of solicitor of the state department at Washington, and in 1888 the editorship of the diplomatic correspondence of the United States during the Revolution. Kenyon College made him a D.D. in 1863, and an LL.D. two years later. Edinburgh University conferred the latter degree in 1883. He wrote *Wharton's Criminal Law*, the standard authority on that subject in the United States, also of numerous works on law and medical jurisprudence, and court reports. He died February 2, 1889.

WHARTON, T. I., an American author, born at Philadelphia, August 1, 1859; graduated at the University of Pennsylvania twenty years later, and studied law. He was admitted to the bar, but has since devoted his attention to literature, and is the author of a number of works, including *Hannibal of New York*, a novel.

WHATCOAT, RICHARD, a bishop of the Methodist Episcopal Church, was born in Gloucester, England, February 23, 1776, and when twenty-two years of age

became a convert to the Methodist faith, having previously been identified with the Church of England. He was licensed to preach in 1769, and in 1784 was ordained a presbyter by John Wesley, who sent him to America in the capacity of a missionary. He was described as an exhorter of wonderfully persuasive powers, and his success has been pronounced. He was consecrated bishop in 1800, and died at Dover, Del., July 4, 1866.

WHEATON, HENRY, an American jurist, born near Providence, R. I., November 27, 1785; was graduated at Brown University, in the class of 1802, and three years later was admitted to the practice of law. In 1812 he removed to New York city, and for three years edited a paper conducted in the interest of the party in power. He next served in an official capacity, and, during his term on the bench of the Marine Court of New York, became reporter of the Supreme Court of the United States. While thus occupied he was a member of the New York constitutional convention of 1821, served in the State legislature, revised the statutes of New York, and took part in important litigations involving much mooted questions of law and equity. He went to Denmark in 1827 as the American consul, became minister to Prussia ten years later, and in 1847 declined the appointment of lecturer on constitutional law at Harvard University. He was a member of the leading scientific and literary societies of Europe and the United States, an A.M. of Harvard University, and an LL.D. of Harvard, Brown, and Hamilton. He was the author of many publications on law and of a miscellaneous character, and died at Dorchester, Mass., March 11, 1848.

WHEDON, DANIEL D., born near Onondaga, N. Y., March 20, 1808; was graduated at Hamilton College in 1828. He studied law, and in 1833 accepted the chair of ancient languages and literature at Wesleyan College, Middletown, Conn., where he remained ten years, being ordained a minister of the Methodist Episcopal Church during his incumbency. He filled various pulpits thereafter, and, in 1845, was chosen professor of logic at Michigan University. From 1856 he was for nearly twenty years in editorial charge of the *Methodist Quarterly Review*. Emory and Henry College, of Virginia, made him a D.D. in 1847. He died October 12, 1885. He was the author of commentaries on the Scripture, and of a volume of public addresses, together with numerous sermons, essays, and other contributions to the press and magazines.

WHEELER, GEORGE MONTAGUE, was born in Grafton, Mass., October, 1842. After graduating at the United States Military Academy in 1866, he was assigned to the corps of engineers. He was employed on the Pacific coast at San Francisco, in the construction of defenses at Fort Point. Receiving the rank of lieutenant, he was sent to make a survey of Central Nevada. His organization was known as the "Geographical survey of the territory of the United States west of the 100th meridian," and the government annually appropriated money for this purpose until March, 1879. Notwithstanding that the survey was intended to furnish geographical maps of the territory, it paid no little attention to zoölogy and ethnology, studies that Captain Wheeler put in book form, and which have been published. He was promoted to a captaincy March 30, 1879. On account of ill health he retired from active service June 15, 1888.

WHEELER, JOSEPH, soldier, born in Augusta, Ga., September 10, 1836; graduated at the United States Military Academy in 1859, and was assigned to the United States cavalry. He entered the Confederate service in 1861 as colonel of an Alabama regiment of infantry, to serve in the West. He was present at the battle of Shiloh, and the same year led the cavalry in



the army under Gen. Braxton Bragg. In 1862 he was made brigadier-general, and January 19, 1863, was promoted to be major-general. He commanded the cavalry at the battle of Chickamauga, defeated Stoneman in July, 1864, capturing that officer, with many prisoners and all his artillery, and the same year defended Savannah, Ga., and Aiken, S. C. On February 28, 1865, he was promoted to be lieutenant-general, and continued in charge of the cavalry under Gen. Joseph E. Johnston until the end of the war. Later he was sent to congress, and in January, 1888, became a regent of the Smithsonian Institution.

WHEELER, WILLIAM A., was born in Massachusetts, November 14, 1833; graduated at Bowdoin College in 1853, and later assisted in the compilation of  *Worcester's Dictionary*, subsequently rendering a similar service in the preparation of  *Webster's Dictionary*. In 1866 he was associated with the management of the Boston public library, and about this period collected data for works which were afterward published under his direction. He died at Roxbury, Mass., October 28, 1874.

WHEELER, WILLIAM ALMON, vice-president of the United States from 1877 to 1881, was born at Malone, N. Y., June 30, 1819. He was admitted to the bar in 1843, served several terms in the State legislature, and as president of the State constitutional convention of 1867, and was a member of the House of Representatives from 1861 to 1877. He was nominated for the vice-presidency in 1876 by the Republicans, and was seated, after a contest before the electoral commission. He died at Malone, June 4, 1887.

WHEELOCK, ELEAZAR, educator, was born in Windham county, Conn., April 22, 1711; died in Hanover, N. H., April 24, 1779. He was graduated at Yale in 1733, was ordained in 1735 over the second church in Lebanon, Conn., where he labored thirty-five years. He also took pupils into his house, educated Samson Occom, a Mohican Indian, and subsequently opened an Indian missionary school. An endowment of £10,000 was obtained in England for this work, and the school was removed to Dresden (now Hanover), N. H., and a seminary added. Wheelock was named as founder and president of the college, which was named for Lord Dartmouth. At the first commencement, in 1771, four pupils were graduated, but the number had increased to seventeen in the year of the founder's death. The Indian school, which was the germ of Dartmouth College, was broken up by the Revolution. Wheelock received the degree of D.D. from the University of Edinburgh in 1767.

WHEELOCK, JOHN, an American educator, was born in Connecticut, in January, 1754, and was a member of the first graduating class of Dartmouth College, in 1771. In the war of the Revolution he served in various capacities until 1779, when, upon the death of Eleazar Wheelock, his father, he became president of Dartmouth College. His administration of its affairs, during a period of nearly forty years, has left its impress upon the succeeding history of that institution. The means of support were materially increased, departments were added, the faculty was augmented in number, buildings to accommodate the requirements of an improved service were constructed and equipped, and the college left by him in a flourishing condition. He was removed from the presidency in 1815, on account of dissensions among the trustees, but was reinstated two years later. The dissensions, however, led to a prolonged litigation, in which Daniel Webster appeared as counsel, and was carried to the Supreme Court of the United States. Doctor Wheelock was the author of a number of essays, sketches, and biographical

writings. He was made an LL.D. by Dartmouth in 1789, and died April 4, 1817.

WHEELOCK, JOSEPH A., an American journalist, was born at Bridgstone, in the province of Nova Scotia, February 8, 1831, and was educated at Sackville, New Brunswick. In 1850 he came to the United States, and, locating in Minnesota, engaged in commercial ventures. Six years later he was managing editor of a real estate and financial weekly, issued at St. Paul, and in 1858 became an editorial writer for the St. Paul *Pioneer*. During 1861 he established the St. Paul *Press*, and when the *Pioneer-Press* of that city was founded he took editorial charge, and has since directed the policy of that paper. He served as commissioner of statistics for Minnesota during 1861 and 1862, and in 1871 was appointed postmaster at St. Paul.

WHEELWRIGHT, WILLIAM, philanthropist, born in Newburyport, Mass., in 1798; died in London, England, September 26, 1873. He was apprenticed to a printer; later he entered the merchant marine, and, at the age of nineteen, commanded a vessel. From 1824 to 1829 he was United States consul at Guayaquil, and on the expiration of his term went to Valparaiso, where he established lines of steamers on the Pacific coast, and was engaged in building railways and telegraph lines. During his life he gave large amounts to benevolent purposes, and he left \$100,000 to found a scientific school in Newburyport.

WHELAN, JAMES, a Roman Catholic bishop, was born in Kilkenny, Ireland, December 8, 1823; came to the United States in 1833, studied theology at Springfield, Ky., and Somerset, Ohio, and was ordained a priest August 2, 1846. In 1852 he was called to the presidency of St. Joseph's College, near New Lexington, Ohio, becoming coadjutor to Bishop Miles of Tennessee, May 8, 1859, and upon the latter's death, a year later, was consecrated bishop of Nashville. During the war he was accused of making remarks, during a visit to Bishop Spalding, at Louisville, that had precipitated an advance by the Union army, and in 1864 he resigned the bishopric of Nashville. He died at Zanesville, Ohio, February 18, 1878.

WHIPPLE, ABRAHAM, a naval officer who is credited with having "fired the first gun of the Revolution on water," was a native of Providence, R. I., born September 16, 1733, and saw his first service as commander of a privateer during the French and Indian war. In 1775 he was placed in command of two vessels fitted out by Rhode Island, and thenceforward, until 1780, was in charge of war-ships of the American navy, doing irreparable damage to the British commerce. In the latter year he was captured while endeavoring to give aid to the inhabitants of Charleston, S. C., and remained a prisoner during the war. He died at Marietta, Ohio, May 29, 1819.

WHIPPLE, AMIEL WEEKS, was born in Greenwich, Mass., in 1818; died in Washington, D. C., May 7, 1863. He was graduated at the United States Military Academy in 1841, served as assistant astronomer and engineer until the beginning of the Civil war, when he became chief topographical engineer on the staff of Gen. Irvin McDowell. After the first battle of Fredericksburg he was attached to the staff of Gen. George B. McClellan, but was soon appointed brigadier-general and placed in command of the defenses of Washington, south of the Potomac river. For his services here he received the thanks of President Lincoln. Later he took part in the engagements at Blue Ridge, Waterloo, Fredericksburg, and Chancellorsville, and was shot in the last-named battle, May 4, 1863. He lived three days and was appointed major-general of volunteers for gallantry. He had also



received the brevet of major-general in the regular army for services during the war.

WHIPPLE, EDWIN PERCY, author, born in Gloucester, Mass., March 8, 1819; died in Boston, Mass., June 16, 1886. He attended the public schools at Salem in 1837, and later was appointed superintendent of the newsroom of the Merchants' Exchange in Boston. Following this he wrote for the *Boston Miscellany* and other magazines, and lectured in Boston and other cities. In 1872 he became literary editor of the *Boston Globe*, in 1877 wrote for the *North American Review*, and at the same time did considerable bookseller's job-work. His publications are numerous, and were followed by several posthumous publications.

WHIPPLE, H. B., a bishop of the Protestant Episcopal Church, was born at Adams, Jefferson county, N. Y., February 15, 1822, and entered the ministry in 1850, as rector of Zion Church, at Rome, N. Y. In 1857 he was called to the pulpit of the Church of the Holy Communion at Chicago, and on October 13, 1859, was consecrated bishop of Minnesota, the same year receiving the degree of D. D. from Racine (Wis.) College. He is one of the founders of the Seabury Mission at Faribault, Minn., also of the Divinity School, the Shattuck School, and St. Mary's Hall, in the same city. He has been influential in promoting the civilization of the Indians of the Northwest, and is a frequent contributor of articles on the Indian question to papers and magazines. Died Sept. 16, 1901.

WHIPPLE, WILLIAM, a signer of the Declaration of Independence, was born at Kittery, Me., January 14, 1730, and was during his earlier years a sailor and a merchant. In 1775 he was elected a representative to the Continental congress from New Hampshire, and re-elected in 1776, signing the Declaration the same year. He was appointed brigadier-general in 1777; participated in the battles of Stillwater and Saratoga, and, in conjunction with Col. James Wilkinson, represented Gen. Horatio Gates at Burgoyne's surrender. He resigned his commission in 1782, and subsequently occupied various public offices until his death at Portsmouth, N. H., November 28, 1855.

WHISTLER, GEORGE WASHINGTON, was born at Fort Wayne, Ind., in 1800, graduated at West Point in 1819, and served in the army and as assistant at the United States Military Academy until January 1, 1834, when he resigned his commission. Thereafter, until his death, he was engaged in the construction and operation of railroads, including the Baltimore and Ohio, Boston and Albany, and other railroad lines. In 1842 he was employed to build and equip the railroad from St. Petersburg to Moscow, Russia, also to construct the harbor at the former city. For his services in this capacity he received the decoration of the Order of St. Anne from the Emperor Nicholas. He died at St. Petersburg, April 7, 1849, and is buried at Stonington, Conn.

WHISTLER, JAMES ABBOTT MCNEILL, painter, born in Lowell, Mass., in 1834; was educated at the United States Military Academy, studied drawing and painting in Paris, France, and in 1863 settled in London, England. He holds original views concerning his art, and has made interesting experiments with color, in quest of novel effects. Mr. Whistler is also celebrated as an etcher, and is the author of etchings and paintings of established reputation and worth.

WHITAKER, O. W., a bishop of the Protestant Episcopal Church, was born at Salem, Mass., May 10, 1830; graduated at Middlebury (Vt.) College in 1856, and at the General Theological Seminary, New York, in 1863. He was ordained priest the same year, and, after filling the pulpits of churches in Nevada and New

Jersey, was, in 1868, consecrated missionary bishop of the Nevada diocese. In 1886 he was elected assistant bishop of Pennsylvania, and upon the death of Bishop Stevens, June 11, 1887, succeeded to the bishopric of that State.

WHITCOMB, JOHN, an American soldier, born in Worcester county, Mass., in 1720. He served with distinguished gallantry during the campaign for the capture of Crown Point, on Lake Champlain, in 1755. Notwithstanding his age, he joined the American army at the beginning of the Revolutionary war, but was retired in 1776 with the rank of major-general, and died in 1812.

WHITE, ANDREW DICKSON, educator, born in Homer, N. Y., November 17, 1832, and in 1853 was graduated at Yale. Thereafter he spent several years in Europe. Returning home, he was, in 1857, chosen professor of history and English literature in the University of Michigan, but in 1867 was appointed first president of Cornell, and continued as such until 1885. From 1879 to 1881 he was United States minister to Germany and minister to Russia, 1892. He contributed \$100,000 to the equipment of Cornell, and, besides, made over to its library 30,000 volumes of books and 10,000 pamphlets, that cost him \$80,000. He has contributed to numerous prominent periodicals.

WHITE, ANTHONY WALTON, a soldier in the war of the Revolution, was born at New Brunswick, N. J., July 7, 1750, and in 1775 was appointed aide-de-camp to General Washington. The year following he took command of a battalion of New Jersey troops, and served in the North until 1780, when he was transferred to the South and placed in command of the cavalry branch of the service. He fought in the campaigns of the Carolinas, was with General Lafayette in Virginia, and with Gen. Anthony Wayne before Savannah in 1782. His advances of money for the equipment and support of the troops under his command, together with the amounts in that behalf he obligated himself to pay, rendered General White bankrupt at the close of the war. He died at Brunswick, N. J., February 10, 1803.

WHITE, DANIEL A., born near Lawrence, Mass., June 7, 1776; was graduated at Harvard in 1797, and admitted to the bar in 1804, afterward practicing law at Newburyport and Salem. He was a member of the State legislature in 1810, but declined an election to congress in 1814, and from that date, for a period of thirty-eight years, served as probate judge of Essex county. He was a member of the State Historical Society of Massachusetts, and the author of works on the jurisdiction of probate law, also of a miscellaneous character. He died at Salem, March 30, 1861.

WHITE, EDWARD DOUGLASS, Associate Justice of the Supreme Court of the United States, was born in the parish of Lafourche, Louisiana, November, 1845, and educated at Mount St. Mary's, the Jesuit College of New Orleans, and at Georgetown College. He served in the Confederate army, practiced law, was elected State Senator, 1874, appointed Associate Justice of the Supreme Court of Louisiana, 1878, and elected to the United States Senate as a Democrat, taking his seat March 4, 1891. While senator he was appointed, February 19, 1894, an Associate Justice of the Supreme Court, and took his seat March 12.

WHITE, HORACE, an American journalist, was born at Colebrook, N. H., August 10, 1834; accompanied his parents to Rock county, Wis., in 1837, and graduated at Beloit College in 1853. The same year he adopted journalism as a profession, and after filling minor positions was appointed Washington correspondent of the *Chicago Tribune*. He became editor of



that paper in 1864 and so continued for ten years, when he removed to New York city, and has since edited the *Evening Post*.

WHITE, HUGH LAWSON, statesman, born in Iredell county, N. C., October 30, 1773; died in Knoxville, Tenn., April 10, 1840. He served as a private in the Cherokee war, after which he studied law in Philadelphia and Lancaster, Penn., thence going to Knoxville, Tenn. At the age of twenty-six he was appointed justice of the Supreme Court of that State. He became United States district attorney, and, in 1825, succeeded Gen. Andrew Jackson in the United States Senate. He stood as a candidate for the presidency in 1836, and received the electoral votes of Georgia and Tennessee. Upon his retirement from national politics he resumed the practice of his profession.

WHITE, JOSEPH BLANCO, an eminent writer, native of Seville, Spain, where he was born in 1775. He early abandoned the church, for which he had been educated, and became a resident of England. He was there made editor of Spanish papers and periodicals published in London, and was well known as a contributor to the leading English magazines, including the *Westminster Review*, the *Dublin University Review*, and other journals. He wrote a number of books and was the author of poetical contributions. He died in 1841.

WHITE, JULIUS, was born at Cazenovia, Madison county, N. Y., September 26, 1817, and removed to Illinois in 1836. He subsequently resided in Wisconsin and was a member of the legislature of that State in 1849. He afterward returned to Illinois and was appointed collector of the port of Chicago by President Lincoln in 1861, but resigned to accept the command of the 37th regiment of Illinois infantry. He participated in the campaigns of Missouri and Arkansas, and was promoted brigadier-general for his gallantry at the battle of Pea Ridge. He afterward served in Virginia and was taken prisoner at the surrender of Harper's Ferry, in September, 1862. He resigned in 1864, and at the close of the war became a major-general by brevet. He died at Chicago, May 12, 1890.

WHITE, PEREGRINE, was born November 20, 1620, on board the *Mayflower*, shortly after the arrival of that vessel off the coast of the present State of Massachusetts, and was the first white child born in New England. In after years he was engaged in business at Marshfield, Mass., where he was elected to office, and where he died, July 22, 1704.

WHITE, PHILLIPS, an American patriot, born in New Hampshire during the year 1730; elected a member of the Continental congress in 1782, and died the year following.

WHITE, RICHARD GRANT, author, born in New York city, May 22, 1821; died there, April 8, 1885. He was graduated at the University of New York in 1839, studied medicine and law, and in 1845 was admitted to the bar. Soon afterward he became connected with the New York *Courier and Enquirer* as art critic, and so continued for ten years. In 1846-47 he was associate editor of *Yankee Doodle*, and in 1861 became editor of the New York *World*. For nearly twenty years he was connected with the New York custom house, at the same time writing for magazines, contributing to cyclopædias, and doing booksellers' work.

WHITE, SIR WILLIAM ARTHUR, was born in 1824, in England, and educated at King William's College, Isle of Man, and at Trinity College, Cambridge. He entered the diplomatic field in 1857, and was continuously employed in the consular service. He was created K. C. M. G., and died in 1891.

WHITE, WILLIAM, Protestant Episcopal bishop, born in Philadelphia, Penn., April 4, 1748; died there July 17, 1836. He studied at the College of Philadelphia, read theology under Drs. Richard Peters and Jacob Duché, and in 1770 went to England for holy orders. He returned to America in 1772, and became assistant minister of Christ's church and St. Peters. At the beginning of the Revolution he took the oath of allegiance to his country, and on the approach of the British army to Philadelphia retired to Maryland. On September 14, 1786, he was elected bishop at a convention of the diocese of Pennsylvania, and, in company with Dr. S. Provoost, who had been chosen bishop of New York, sailed for England, where they were consecrated in Lambeth chapel, and in April, 1787, returned to the United States, where for nearly fifty years he occupied a prominent position in the church.

WHITE, WILLIAM HENRY, was born at Devonport, England, February 2, 1845, and educated at the Royal School of Naval Architecture, South Kensington. He graduated at the head of the list of students in 1867, and received the highest diploma as naval architect; was at once appointed to the constructive department at the admiralty, where he remained until 1883, rising through the various grades to the rank of chief constructor. From 1883 to October, 1885, he was engaged in the organization and direction of the shipbuilding department of the Elswick works of Sir William Armstrong & Co. He was invited by the admiralty, in 1885, to assume the office of director of naval construction, which he now holds in conjunction with that of assistant controller of the navy. He is vice-president of the Institution of Naval Architects, member of the Institution of Civil Engineers, and of the Royal United Service Institution, and author of publications on naval architecture.

WHITEHEAD, CORTLANDT, a Protestant Episcopal bishop, was born in New York city, October 30, 1842; graduated at Yale College in 1863, and was ordained a priest August 7, 1868. He served as rector of the parish of South Bethlehem until his consecration as bishop of Pittsburgh, January 25, 1882.

WHITEHOUSE, HENRY JOHN, a Protestant Episcopal bishop, was born in New York city, August 19, 1803; graduated at Columbia College in 1821 and at the General Theological Seminary of New York in 1824; was ordained a deacon in 1827, and at once took charge of a parish at Reading, Penn. He was called to St. Paul's parish, Rochester, N. Y., in 1830, became rector of St. Thomas Church, New York city, in 1844, and in 1851 assistant bishop of Illinois, succeeding to the bishopric upon the death of Philander Chase, September 20, 1852. Bishop Whitehouse was made a D.D. by Oxford and an LL.D. by Cambridge; Columbia College also conferring the latter degree in 1865. He died at Chicago, August 10, 1874.

WHITING, HENRY, an American soldier, born in Massachusetts in 1790, and entered the United States army, October 20, 1808. He served in Canada during 1813, and on the frontier, becoming quartermaster of the army of occupation during the Mexican war, in which he was brevetted brigadier-general for gallant conduct at Buena Vista. He died at St. Louis, September 16, 1850. He was chosen a regent of Michigan University in 1848, and was the author of poems and works of fiction.

WHITING, WILLIAM, an American lawyer, born at Concord, Mass., March 3, 1813. He was graduated at Harvard in 1833, and from the law department of that institution in 1838. In 1862 he was appointed solicitor of the United States treasury, and ten years later elected a member of congress, but died in June,



1873, before qualifying for the position. He was made an LL.D. by Colby University in 1872, and, as the author of a work entitled *The War Powers of the President and the Legislative Powers of Congress in Relation to Rebellion, Treason, and Slavery*, acquired a national reputation.

WHITING, WILLIAM H. C., an American soldier, was born in Mississippi in 1825; graduated at West Point in 1845, and entered the service in the engineer corps of the army. He served during the Civil war in the Confederate army, where he rose to the rank of major-general. He was wounded and taken prisoner at Fort Fisher in the winter of 1864, and died March 10, 1865.

WHITMAN, SARAH HELEN POWER, an American poet, born at Providence, R. I., early in the year 1803, where she also began her literary career in 1833. She was the author of a work on the life and critics of Edgar A. Poe, and of many poems, also contributing sketches, essays, etc., to magazines, reviews, and the daily press. She died at Providence, June 27, 1878.

WHITMAN, WALTER, author, born in West Hills, L. I., March 31, 1819. In the Civil war Whitman's brother was wounded, which circumstance led to his becoming a volunteer army nurse at Washington and in Virginia, from 1862 to 1865. Fatigue and exposure there experienced brought on an illness from which he never entirely recovered. From 1865 to 1874 he held a government clerkship in Washington. In 1873 he was first struck with paralysis. At the end of his appointment he retired to Camden, N. J., where he resided until his death, March 26, 1892. His writings have found favor with some learned reviewers in Great Britain and America. His *Leaves of Grass*, first published in 1855, remains his boldest and most characteristic performance. At first it was derided by critics, and condemned for its supposed indecencies, until Ralph Waldo Emerson's commendation procured the author a hearing with the general public.

WHITNEY, MRS. ADELINE D. (TRAIN), American writer, born in Boston in 1825; was married to Seth D. Whitney in 1843, and has since resided at Milford, Mass. She has published *Mother Goose for Grown Folks*, 1860, and a long list of novels, also a volume of poems under the title *Pansies*.

WHITNEY, ANNE, an American sculptor, is a native of Watertown, Mass., where she also began her professional work. She was born September 2, 1821, opened a studio in 1859 and soon after went to Europe, where she devoted four years to study. Upon her return in 1873 she established herself in Boston, and has continued a resident of that city. Her works embrace portraits, groups, busts, statues, etc., of which the more prominent are statues of Samuel Adams in the national capitol, and of Harriet Martineau, at Wellesley College.

WHITNEY, ELI, inventor, born in Westborough, Mass., December 8, 1765; died in New Haven, Conn., January 8, 1825. In 1792 he was graduated at Yale, went to Georgia, and for a time read law, while living on the plantation of the widow of Gen. Nathanael Greene. Here he invented the cotton gin, but owing to litigation growing out of the claims of fraudulent imitators, and despairing of obtaining his rights in the South, Whitney went to New Haven, Conn., in 1798, where he became engaged in the manufacture of firearms, introducing the extension of machinery in place of manual labor.

WHITNEY, JOSIAH D., an American geologist, was born at Northampton, Mass., November 23, 1819, and graduated at Yale College, twenty years later. During the ensuing three years he was occupied in mak-

ing geological surveys at the East, and in 1842 visited Europe, where he pursued his studies under Liebig, Rose, and others. Upon his return to the United States, after an absence of five years, he was for a time engaged on a survey of the Lake Superior iron region. In 1855 he was called to the chair of chemistry in the Iowa University, and subsequently made geological surveys of Iowa, the lead districts of Southern Wisconsin, and other portions of the country. In 1856 he became geologist of Iowa; in 1860 he was appointed to a similar position in California, and in 1865 accepted the chair of geology and mining at Harvard University. Upon the establishment by congress in 1863 of the National Academy of Sciences, Professor Whitney was one of the first members of that organization; and in 1870 he was made an LL.D. by Yale College. The published reports of his surveys fill a number of volumes; and, besides his translations and works on the metallic wealth of the United States, he is the author of many articles on scientific subjects, printed in leading magazines. Died Aug. 18, 1896.

WHITNEY, MYRON W., was born in Massachusetts, September 5, 1836, and made his first professional appearance in Boston during the winter of 1858. He afterward studied in Florence and London, and in 1876 was the chief solo singer at the Philadelphia centennial exposition. His specialty is oratorio singing.

WHITNEY, WILLIAM COLLINS, late United States secretary of the navy, was born at Conway, Mass., July 5, 1841, and graduated at Yale College in 1863. He studied law at the Harvard Law School and began its practice in New York in 1865. From 1875 to 1882 he was corporation counsel of New York, the only official position held by him until appointed, by President Cleveland, secretary of the navy, in March, 1885, a position he held until the change of administration, March 4, 1889, since when he has resided in New York city, engaged in the practice of his profession.

WHITNEY, WILLIAM D., an American philologist, was born at Northampton, Mass., February 9, 1827, and graduated at Williams College in 1845. Later he studied at the universities of Berlin and Tübingen, and in 1854 became the professor of Sanskrit at Yale College where he was also professor of philology. He was president of the American Oriental Society, and his contributions to its journal were numerous and valuable. He was also a voluminous writer on philological subjects for the *North American Review*, and other prominent periodicals, and a contributor to cyclopædias and scientific publications. He was made president of the American Philological Society upon its organization; was a member of the National Academy of Sciences, and a correspondent of the academies of Turin, Berlin, St. Petersburg, and Rome, and also of the French Institute. He was regarded as one of the most eminent Sanskrit scholars and philologists of the day. He died June 7, 1894.

WHITTEMORE, AMOS, an American inventor, was a native of Massachusetts, born at Cambridge, April 19, 1759. He was early employed as a gunsmith; but subsequently engaged in the manufacture of cotton and wool combs. His chief invention was the adjustment of wire teeth in cotton cards or combs by machinery. The work had previously been done by hand. It was patented in the United States, and subsequently sold for a very large price. He died at Cambridge, March 27, 1828.

WHITTIER, JOHN GREENLEAF, was born at Haverhill, Mass., Dec. 17, 1807. Until the age of eighteen he worked on a farm and occasionally as a shoemaker. In 1825 he entered a school of the Society of Friends, of which he was a member, and in 1829 went to



Boston as editor of a newspaper, the *American Manufacturer*, and in the following year became editor of the *New England Weekly Review*, published at Hartford, Conn., but in 1832 returned to Haverhill to edit the *Haverhill Gazette*, and work upon his farm. He remained there till 1836, being twice a representative in the legislature of the State. In 1836 he became one of the secretaries of the American Anti-Slavery Society, and soon after removed to Philadelphia, where he edited for four years the *Pennsylvania Freeman*, an anti-slavery paper. In 1840 he returned to Massachusetts, and settled at Amesbury, where he afterward resided, being for some years corresponding editor of the *National Era*, published at Washington. Mr. Whittier's works are among the best known and most popular of all American authors. They include publications in prose and verse, and have obtained an unprecedented circulation, both in the United States and in all portions of Europe. Besides these, various fine illustrated editions of some of his shorter poems have been published separately. In 1869, and again in 1876, was published a uniform edition of his poems up to date, and, in 1875 he published a collection of poetry, under the title of *Songs of Three Centuries*. He died September 7, 1892.

WHITTLE, FRANCIS MCNEEZE, LL.D., a Protestant Episcopal bishop, was born near Jerusalem, Mecklenburg county, Va., July 7, 1823, and became a graduate of the Alexandria Theological Seminary in 1847. He was ordained priest in October, 1848, and after officiating as rector of parishes in Virginia and Kentucky was consecrated assistant bishop of the former State, April 30, 1860, succeeding to the bishopric April 4, 1876, upon the death of Bishop Johns. When West Virginia was made a separate diocese in 1877, Bishop Whittle continued in charge of the diocese of North Virginia. He was made LL.D. by William and Mary College in 1873, and D.D. by the Ohio Theological Seminary in 1867.

WHITTLESEY, FREDERICK, an American jurist, was a native of Connecticut, being born in Washington county, June 12, 1799. He was graduated at Yale in 1818; was admitted to the bar, and in 1822 settled at Rochester, N. Y., where he practiced his profession, and, during the political campaign of 1828, edited a paper. The year following he was elected treasurer of Monroe county. In 1831 he was chosen a representative in congress and afterward served on the bench of the Supreme Court of the State. He died at Rochester, September 19, 1851.

WHITTRIDGE, WORTHINGTON, an American artist, was born May 22, 1820, near Springfield, in Green county, Ohio, and learned his art among the studios of Cincinnati. In 1849 he went to Europe, where he pursued his studies at Paris, London, and Düsseldorf. After a tour through Holland and Belgium he opened a studio in Rome, in 1855, whence, in 1859, he returned to the United States and located in New York. He was made an academian of the National Academy in 1861, and became president of the organization in 1874. His specialty is landscape paintings, and his works, which are mostly American scenes, are distinctively individual and true to nature.

WHITWORTH, SIR JOSEPH, BART., engineer, born at Stockport, December 21, 1803. In 1821 he went to Manchester, and in 1825 to London. In 1833 he returned to Manchester, and started in business on his own account as a manufacturer of engineers' tools, thus founding the firm of which he became the head. In 1851 he came prominently before the public by the exhibit of machine tools at the great exhibition, where he exhibited his machine for measuring differences of one-millionth of an inch, for which he received the council

medal. In 1853 he was appointed a royal commissioner to the New York exhibition. In 1854-55 he began his experiments with fire-arms, which led to the production of the celebrated Whitworth rifle. These experiments were extended to guns, and after that date he was a strong competitor of Sir William Armstrong in the production of rifle ordnance. In 1857 he was made an F.R.S., in 1878 LL.D., Edinburgh, and previously D.C.L., Oxford. He died at Monte Carlo, Italy, January 22, 1887.

WHYMPER, EDWARD, artist, author, and traveler, was born in London, April 27, 1840. In 1861 he ascended Mount Pelvoux (then reputed to be the highest mountain in France), and discovered from its summit another mountain 500 feet higher—the Pointe des Ecrins—which is the loftiest of the French Alps. Between the years 1861-65, in a series of expeditions remarkable for boldness and success, he ascended one peak after another of mountains till then reputed to be inaccessible. These expeditions culminated in the ascent of the Matterhorn, July 14, 1865, on which occasion his companions, the Rev. Charles Hudson, Mr. Hadow, Lord Francis Douglas, and one of the guides, lost their lives. In 1867 he traveled in north-west Greenland. This journey was characterized by Sir Roderick Murchison as "truly the *ne plus ultra* of British geographical adventure on the part of an individual." In 1871 Mr. Whympere published an account of his Alpine journeys, under the title *Scrambles Among the Alps in the Years 1860-69*, London, 1871. In recognition of the value of this work, its author received from the king of Italy the decoration of chevalier of the order of SS. Maurice and Lazarus. In May, 1872, he again left Copenhagen for North Greenland, and in 1879-80 Mr. Whympere traveled in the Republic of Ecuador, exploring, ascending, and measuring the Great Andes on and near the equator. On this journey he made the first ascents of Chimborazo (20,517 feet), Sincholagua, Antisana, Cayambe, Cotacachi, and several others.

WHYTE, WILLIAM PINKNEY, was born at Baltimore, Md., August 9, 1824, and in 1846, upon his graduation at the Harvard law school, became a member of the Maryland bar. He served in the State legislature for two sessions, 1847-48, as State comptroller in 1853, and in 1868 was appointed to fill the vacancy in the United States Senate caused by the resignation of Reverdy Johnson. Three years later he was elected governor of the State, and in 1874 was reelected to the Senate for the term ending March 4, 1881. In 1887 he was elected attorney-general for the State. The University of Maryland made him an LL.D. in 1874.

WICKERSHAM, JAMES PYLE, born in the county of Chester, Penn., March 5, 1825; was prominently identified with the cause of education in Pennsylvania for years, and was editor of the *School Journal* of that State. He was made an LL.D. in 1871, and in 1882 was appointed United States minister to Denmark. He was also the author of a number of works on instruction and education. He died March 5, 1891.

WICKES, LAMBERT, an American naval officer, born in England in 1735, and one of the earliest appointed officers in the colonial navy. He commanded the *Reprisal* when that vessel carried Benjamin Franklin to France, and until 1778, when the *Reprisal* went down off Newfoundland with all on board, he did irreparable damage to the British marine.

WICKES, STEPHEN, M.D., was born March 18, 1813, at Jamaica, Long Island, and educated at Union College, Rensselaer Polytechnic Institute and the University of Pennsylvania. He was long a successful practitioner and was secretary of the Historical Society



of New Jersey. He lived in retirement after 1886, devoting his attention to the compilation and publication of medical works, and died July 8, 1889.

WICKHAM, EDWARD CHARLES, was born December 7, 1834, and educated at Winchester College and at New College, Oxford. He won the chancellor's prizes for Latin verse, 1856, Latin essay, 1857, and was elected fellow of New College, 1854. After being ordained he went as assistant master to Winchester, 1857-59; and afterward became tutor of New College, Oxford, 1859-73; Whitehall preacher, 1872-73; select preacher in the University of Oxford, 1865-66, 1884-85; master of Wellington College, 1873. He is the editor of *Horace* in the Clarendon Press series; and married, December 27, 1873, Agnes, eldest daughter of the Right Hon. W. E. Gladstone, M.P.

WICKHAM, WILLIAM C., an American soldier, born in Richmond, Va., September 21, 1820; graduated at the Virginia University, studied law and was admitted to practice. He was a captain in the 4th Virginia infantry at the breaking out of the Civil war, fought through the campaign of Northern Virginia, was promoted to be brigadier-general, and in 1864 became a member of the Confederate congress. After the war he was chosen to the State Senate as a Republican. He died at Richmond, July 23, 1888.

WIGFALL, LEWIS T., an American lawyer and soldier, was born in South Carolina, April 21, 1816, and graduated in the law department of Virginia University. Upon his admission to the bar, he removed to Texas and opened an office at Marshall. He was a member of the State legislature, at intervals, from 1849 to 1860, and was during the latter year elected United States senator. He entered the Confederate army as an aide-de-camp to Gen. P. G. T. Beauregard, and received the surrender of Fort Sumter from Major Anderson in person. He was promoted to be brigadier-general, and subsequently represented Texas in the Confederate congress. After the war he visited Europe, and in 1873 resumed the practice of law at Baltimore. He died at Galveston, Tex., February 18, 1874.

WIGHTMAN, WILLIAM MOY, a bishop of the Methodist Episcopal Church South, is a native of Charleston, S. C., and an alumnus of Charleston College. He was born January 29, 1808, and graduated in 1827, being licensed to preach the same year. He occupied the pulpit of various churches in South Carolina for the ensuing six years, when he accepted the chair of English literature in Randolph-Macon College, subsequently becoming editor of the *Southern Christian Advocate*, and, in 1854, president of Woodford College, at Spartanburg, S. C., also chancellor of the Southern University of Greensborough, Ala., in 1859. He was made bishop of the Methodist Episcopal Church South in 1866. Bishop Wightman has been made D.D. by Randolph-Macon College, and LL.D. by Charleston College. He is also the author of a life of Bishop Capers, and other publications.

WILBERFORCE, REV. ERNEST ROLAND, D.D., bishop of Newcastle, was born at Brigstone, or Brixton, in the Isle of Wight, January 22, 1840, and educated at Exeter College, Oxford. He was ordained deacon in 1864, and was admitted into priest's orders in the following year. He held the post of sub-almoner to her majesty from 1871 till 1882, when he was appointed first bishop of the newly created see of Newcastle-upon-Tyne.

WILCOX, CADMUS M., born in North Carolina, May 29, 1826, and graduated at West Point in 1846. He served through the Mexican war from the siege of Vera Cruz to the surrender of the Mexican capital, and was three times promoted for gallant conduct. He

subsequently became assistant professor of mathematics at the United States Military Academy, and in 1857 visited Europe. He entered the Confederate army at the breaking out of the Civil war, was engaged in all the battles of the army of Northern Virginia, from the Peninsular campaign to Appomattox, and retired from the service a major-general. After the war, overtures were made to him by the khedive of Egypt to accept a command in the Egyptian army. In 1886 he was appointed to a position in the general land office at Washington, D. C. He died December 2, 1890.

WILCOX, ELLA WHEELER, an American poet and writer, was born in 1855 near Madison, Wis., and educated at the State University in that city. She was for many years a contributor to the Milwaukee and Madison papers, of poems, sketches, etc., the demand for her productions steadily increasing, and extending to the leading journals and periodicals of the country. Her writings have also been published in book form.

WILD, EDWARD A., was born at Brookline, Mass., November 25, 1825; graduated at Harvard University in 1844, and entered the army as captain in a Massachusetts regiment at the breaking out of the Civil war. He served through the Peninsular campaign, and was afterward assigned to the recruiting and organizing of colored troops, remaining in that service until 1864, when he accompanied the expedition to Roanoke river, North Carolina, and was with the army before Richmond until the capture of that city. He was promoted to be brigadier-general in 1863, and after the war was connected with the administration of the Freedmen's Bureau in Georgia.

WILDE, OSCAR, an Irish poet, born at Dublin, October 16, 1856. He studied first at Trinity College, Dublin, and finally at Magdalen College, Oxford, graduating at the latter institution in 1878. About this time he affected to have become an apostle of æstheticism, and was an object of considerable interest by reason of his dress and manners. He visited Greece in 1879, and in 1881 lectured in the United States. He is the author of a number of poems and of *A Woman of No Importance* (1893), and other plays. Died Nov., 1900.

WILDE, RICHARD H., a jurist and writer, was born at Dublin, Ireland, in 1789, and when about ten years of age accompanied his parents to the United States. Upon the death of his father, the family removed to Georgia, where Wilde was educated to the law and admitted to practice in 1809. He was elected to congress in 1815, and reelected upon the expiration of his term, but was subsequently defeated, owing to his opposition to measures proposed by his party during the administration of President Jackson. In 1835 he visited Europe and passed five years in Italy, making a study of Italian literature and collecting data for a life of Dante. Upon his return to the United States he published a book on the *Love, Madness and Imprisonment of Torquato Tasso*, which was pronounced a work of substantial merit. When the department of law was added to the University of Louisiana, Mr. Wilde became the professor of constitutional law, remaining in that position from 1844 until 1847, dying of yellow fever in the epidemic which prevailed in that city during the latter year. He left an unfinished life of Dante, and a large number of manuscripts of a miscellaneous literary character.

WILDE, SIR WILLIAM ROBERT WILLS, was born near Castlereagh, Ireland, during 1810; studied medicine and became an M.D. at an early age. He attained to eminence, was appointed oculist to the queen, and was knighted in 1864. He was the author of works on the eye and ear, also of a miscellaneous character, and was the father of Oscar Wilde, (q.v.) He died April 19, 1876.



**WILDER, BURT G.**, was born at Boston, August 11, 1841, and became a graduate of the scientific and medical departments of Harvard in 1866. During the war he was employed as assistant surgeon to various Massachusetts regiments. In 1868 he was chosen to the chair of comparative anatomy and physiology at Cornell University, a position in which he is still maintained. His investigations during past years have been of a varied character, embracing almost every phase of scientific research. He has lectured at Bowdoin College, Harvard, and Michigan State universities, and elsewhere, and is a prominent member of the leading scientific societies and associations in the United States.

**WILDER, MARSHALL P.**, an American merchant, was born in New Hampshire, September 22, 1787, and in 1825 began business at Boston. He was a member of the Massachusetts legislature in 1839 and senator ten years later, being also president of the Senate. He was one of the originators of the United States Agricultural Society, and of the American Pomological Society, and served as president of each. His labors in the cause of science were constant and productive of advantageous results, and his historical and agricultural addresses have been sources of valuable information. He died in Boston, December 16, 1886.

**WILDEY, THOMAS**, the author and promoter in the United States of the present order of Odd-fellows, was born in England, January 15, 1783, and emigrated to the United States in 1817, settling at Baltimore. Two years later he organized the first lodge of Odd-fellows in the United States in that city, and for six years, from 1825, served as grand sire. He died October 19, 1861, and a monument has been erected to his memory in Baltimore by the Odd-fellows of the United States.

**WILHELMJ, AUGUST**, a composer and musician, was born at Usingen, Germany, September 21, 1845, and studied his art under the direction of Ferdinand David. When a child his genius for music attracted the notice of Liszt, to whom he was then and afterward indebted for much good advice. His forte is violin music, and critics are unanimous in pronouncing him one of the most brilliant performers of the century. He has made a number of concert tours throughout Europe and the United States, being everywhere greeted with pronounced manifestations of appreciation.

**WILKES, CHARLES**, naval officer, born in New York city, April 3, 1798; died in Washington, D. C., February 8, 1877. He entered the United States navy in 1818, as midshipman, and was promoted lieutenant in 1826. In 1838 he was appointed commander of the United States exploring expedition, and with six vessels sailed from Norfolk, Va., and returned to New York city in 1842. In the following year he was promoted commander, and in 1848 the London Geographical Society honored him with a gold medal. In 1855 he published his *Theory of the Winds* and was made captain. Thereafter he spent many years on special duty at home. At the outbreak of the Rebellion he was engaged in the West India waters, searching for the Confederate cruiser *Sumter*, when he encountered the British steamer *Trent*, engaged in conveying two Confederate commissioners, Mason and Slidell, to England and France. He demanded the two officials, and bore them as prisoners of war to Boston harbor. His action nearly involved Great Britain and the United States in war. Wilkes was, however, promoted to be commodore. Later, and until the close of the war, he was attached to the West Indian squadron, and was retired July 25, 1866, with the rank of rear-admiral.

**WILKINSON, GEORGE HOWARD**, bishop of Truro,

was educated at Oriel College, Oxford. In 1867 he was appointed incumbent of St. Peter's, Great Windmill street, London; and in 1870 he became vicar of St. Peter's, Eaton square. He was select preacher at Oxford, 1879-81. In January, 1883, he was appointed to the see of Truro, and was consecrated in St. Paul's Cathedral on April 25th. He is the author of several works on devotional and religious subjects.

**WILKINSON, JAMES**, soldier, born in Benedict, Md., in 1757; died near the city of Mexico, December 28, 1825. He studied medicine, but at the age of eighteen joined the army under Gen. George Washington at Cambridge, Mass., as captain. He served under Generals Arnold and Gates, and carried to congress the tidings of General Burgoyne's surrender. In June, 1776, he was successively advanced to the rank of major and colonel and brevet brigadier-general. At the termination of hostilities he went to Lexington, Ky., and in 1789 engaged in trading ventures at New Orleans. These not proving successful, he asked to be reinstated in the army, and in 1791 he was appointed lieutenant-colonel; as such he served in the West under Gen. Anthony Wayne. In 1792 he was made brigadier-general, and in 1796 became commander of the United States forces. In 1805 he was governor of Louisiana, and disclosed to the government Aaron Burr's plan to erect a southwestern empire. Burr asserted, and Jackson believed, that Wilkinson was deeply implicated in this scheme. For some unknown reason, however, he became hostile to Burr, and betrayed him. In 1812 he went to New Orleans, where he improved the defenses, and later reduced Mobile. On the reorganization of the army, in 1815, he was not included; in lieu thereof he received a pension from his native State. In the following year Wilkinson put forth his own side of his story. He then purchased an estate near the city of Mexico, where he lived in retirement until his death.

**WILKINSON, JAMES JOHN GARTH, M.D.**, born near Gray's Inn Lane, London, in 1812; was educated at a private school at Mill Hill, and Totteridge, Herts. He translated *Swedenborg's Animal Kingdom*, 1843-44, and has written a number of works on anatomy and medicine, also a pamphlet, *On Social Health*, 1865.

**WILKINSON, JESSE**, a United States naval officer, was born in 1790 in Virginia, entered the navy in 1805, and became a lieutenant in 1810. He participated in the war of 1812, in command of the *Hornet*. He was promoted to be commander about 1818, and was in charge of a vessel attached to Com. David Porter's squadron, serving in the West Indies for the suppression of piracy and the slave trade. He afterward commanded the *United States*, of the Mediterranean fleet, the *Macedonian*, the *Raritan*, and other vessels. He was commander at the Norfolk Navy Yard, where he died May 23, 1861.

**WILKS, SAMUEL, LL.D., F.R.S.**, born at Camberwell, June 2, 1824, and educated at University College, London. He was created M.D. of the London University in 1850; became a fellow of the Royal College of Physicians in 1856; a fellow of the Royal Society; physician to Guy's Hospital and lecturer on medicine, and president of the Pathological Society. He was the author of leading lectures and works on medical science, and contributed papers on *Alcoholism* and *Vivisection* to the *Contemporary Review* and the *Nineteenth Century*. He delivered the Harveian oration at the Royal College of Physicians, June 26, 1879.

**WILLARD, EMMA HART**, was born in Berlin, Conn., February 23, 1787; died in Troy, N. Y., April 15, 1870. She began to teach at the age of sixteen, was married to Dr. John Willard at Middlebury, Vt., in 1809, opened a school for girls there, 1814; conducted



the Troy, N. Y., Female Seminary, traveled abroad and wrote *Letters from France and Great Britain*.

WILLARD, EDWARD SMITH, a popular and finished English character actor, was born in 1853, went on the stage at sixteen, became famous as the gentlemanly burglar in *The Silver King*, in *Jim the Penman*, and in 1889 by his fine performance of "Cyrus Blenkarn," the dreaming, moody potter in *The Middleman*. He played in the latter piece and in *Judah* in this country in 1890, supported by Miss Marie Burroughs achieving so much popularity that he has since visited America annually, producing *The Professor's Love Story*, *Wealth* and *John Needham's Double*.

WILLARD, FRANCES E., is a native of New York, born at Churchville, September 28, 1839, and a graduate of the Northwestern Female College at Evanston, Ill., in 1859, subsequently studying in Paris. She has since filled the chairs of natural science and aesthetics at Northwestern Female College, and that of president of the Wesleyan Female College at Genesee, N. Y. Upon the death of O. A. Willard, her brother, in the summer of 1878, she became editor of the *Chicago Evening Post*, also president of the women's Christian temperance movement, and in 1882 a member of the executive committee of the Prohibition party. Died Feb., 1897.

WILLARD, SYLVESTER D., M.D., an American physician, born at Milton, Conn., June 19, 1825; graduated at the medical college of Albany, N. Y., in 1848. In 1865 he was appointed surgeon-general of New York, and soon after, in obedience to a resolution adopted by the State legislature, made a thorough examination into the condition of the insane, and their treatment at the asylums of the State. His report was accepted, and the recommendations contained therein acted upon, including the building of an asylum for the poor, which is called "Willard Asylum." He died at Albany, April 2, 1865.

WILLCOX, ORLANDO BOLIVAR, was born in Detroit, Mich., April 16, 1823, and was graduated at the United States Military Academy in 1847. After taking part in the closing scenes of the Mexican war, and in the final campaign against the Seminoles, he resigned his commission, September 10, 1857, and studied law. At the beginning of the Civil war he entered the service as colonel of the 1st Michigan regiment, was wounded and captured at Bull Run, and held a prisoner until August 17, 1862, when he was exchanged and commissioned brigadier-general of volunteers, to date from July 21, 1861. He was brevetted major-general August 1, 1864, for distinguished and gallant service in several actions. After the war he became assessor of internal revenue at Detroit, but on July 28, 1866, he was re-commissioned in the regular army as colonel of the 29th infantry. He received the brevets of brigadier-general and major-general March 2, 1867, and was promoted to brigadier-general October 13, 1886. He was placed on the retired list April 16, 1887, at which time he was in command of the department of the Missouri.

WILEY, W. T., LL.D., was born in western Virginia, October 18, 1811; graduated at Madison (Penn.) College in 1831, and was admitted to the bar in 1833. He was a member of the State constitutional convention of 1850, also of the convention called in 1861 to consider the question of secession. When the ordinance in that behalf was adopted, the Union members withdrew from the convention, organized the legislature at Wheeling, and elected Mr. Wiley United States senator. He was reelected upon the organization of West Virginia as a separate State, and served until March 4, 1871. He was a member of the constitutional convention which met at Wheeling during the

latter year, and has since been engaged in the practice of his profession.

WILLIAM I., late emperor of Germany and king of Prussia, son of Frederick William III. and of Princess Louise of Mecklenburg-Strelitz, and brother to the late king of Prussia, born March 22, 1797, educated as a soldier, and took part in the campaigns of 1813 and 1815 against France. In 1840 he was appointed governor of Pomerania, which post he held till the revolution of 1848 broke out, when he took refuge in England. He was elected a member of the Constituent Assembly in May, 1848, returned to Berlin, and took his seat in the assembly, June 8, 1848, and was made commander-in-chief of the Prussian army acting against the revolutionary forces of Baden, in June, 1849. When the mind of his brother gave way, in 1858, the prince was created regent, and he immediately dismissed the Kreuz, or aristocratic party, and adopted a liberal policy. His brother, Frederick William IV., dying without issue, January 2, 1861, he succeeded, under the title of William I., to the crown, which he placed upon his own head at Königsberg, October 18th, on which occasion he emphatically asserted the doctrine of the "divine right of kings." No sooner was he seated on the throne than he began a contest with the Chamber of Deputies, which gradually became more critical, until, after Count Bismarck-Schönhausen had been appointed prime minister, in 1862, the feud threatened to end in civil war. Fortunately for him the aggressive war on Denmark waged by Austria and Prussia diverted the attention of his people from home affairs for a time; and, after the close of that war of aggression the king proved by his firm attitude his fitness as a sovereign. Much against his inclination, he embarked on a still more ambitious scheme, and prepared to obtain supremacy in Germany by force of arms early in 1866. A treaty of alliance was concluded with Italy, an ultimatum was forwarded to the smaller states in the north of Germany, and an immense army was set in motion. War was declared against Austria, June 17th, and, after a short campaign, in which William I. and the royal princes took part, Austria was compelled to make peace. In 1867 the king of Prussia became the head of the powerful North German Confederation, comprising twenty-two states, representing a population of 29,000,000. The part played by King William in the war with France in 1870-71, resulted in the complete realization of the prime minister's idea of united Germany, and, on January 18, 1871, King William of Prussia was proclaimed German emperor, within the Hall of Mirrors, in the palace of the French kings, at Versailles. On September 2, 1873, the Column of Victory, in celebration of Germany's success, was unveiled by the emperor in Berlin. The meeting of the emperors of Germany, Russia, and Austria took place at Berlin in the autumn of 1872. In October of that year the Emperor William gave a decision adverse to England on the San Juan boundary question which had been submitted to his arbitration by the British and American governments. In April, 1873, he visited the czar at St. Petersburg, and in October of the same year he proceeded to Vienna on a visit to the emperor of Austria. The well-known correspondence between the Emperor William and the Pope relative to the Roman Catholic Church in Prussia was published at Berlin, October 14, 1873. In May, 1875, the czar paid a visit to the emperor of Germany at Berlin. An attempt was made to assassinate the Emperor William, while he was driving, on the afternoon of May 11, 1878, in Berlin. The crime was committed by a young Socialist tinker named Emil Hoedel, who came from Leipsic. He



fired two shots from a revolver, but neither of them hit the emperor, who stood up in his carriage and asked whether they were aimed at him. The man was pursued; he fired two or three more shots at the crowd, but was captured and handed over to the police, to whom he said he had no intention of murder, but, being unemployed and dissatisfied with the social conditions of life, he had resolved to commit suicide. Subsequently the prisoner was tried for the offense, found guilty, and executed. A second attempt upon the life of the emperor was made on June 2, 1878. His majesty was driving in Unter den Linden to the Zoological Gardens, when two shots were fired at him from the window of a house, and he was wounded in several places. The emperor returned immediately to the palace, and the physicians who removed the shot reported that his majesty was out of danger. The would-be assassin was Doctor Nobeling, who, after attempting to commit suicide, was secured and removed to the hospital, where he afterward died from the effects of the wound he had inflicted upon himself. William I. married, June 11, 1829, the Princess Augusta, daughter of Charles Frederick, Grand Duke of Weimar. They had two children—Prince Frederick William, who, upon the death of his father, assumed the government under the titles of Frederick I. of Germany and King Frederick III. of Prussia (*q.v.*); and the Princess Louise Mary, born December 3, 1838, married September 20, 1856, to Frederick William, Grand Duke of Baden. The emperor died March 9, 1888.

WILLIAM II., emperor of Germany, was born at Berlin, January 27, 1859, the eldest son of Crown Prince Frederick William of Prussia (afterward Frederick the second emperor of reunited Germany) and the princess royal, Victoria of England. Early in life he manifested a predilection for military affairs, and acquired proficiency in the school of the soldier. He studied law, science, mathematics, and political economy at Bonn, civil service under Doctor Aschenbusch, president of the province of Brandenburg, and the theory of government under Prince Bismarck. He was married to Princess Augusta Victoria, daughter of Frederick, duke of Schleswig-Holstein, February 27, 1881, and his family is composed of seven children. Before his father's death he evinced a feeling of repugnance for the peaceful policy inaugurated by the latter, and it was feared his accession menaced the peace of Europe; but upon succeeding to the throne in June, 1888, he issued two addresses, one to the army and the other to the navy, which in their pacific tone were quite a surprise to the outside world, and were received with a degree of caution as to their sincerity. These were supplemented by an address to the Prussian people dated June 18th, and setting forth the determination of its author to adopt and enforce a policy that would preserve the peaceful condition existing, protect the national interests and promote the national welfare. One week later, the Reichstag was formally opened at Berlin with magnificent ceremonies, and on June 25th, William II. took the oath and was formally inducted into office, his opening speech being largely devoted to the arrangements existing between the German and Russian empires; these, he pledged, would remain undisturbed. On July 13th following he started on a tour of Europe, and while absent visited St. Petersburg, Stockholm, and Copenhagen. The same month he was a guest of Prince Bismarck, and on September 12th, sojourned for several days at the Vatican, a guest of the Pope. At the opening of the Reichstag, November 22d, he explained that the object of these visits was to maintain the peace of Europe. He has since had as his guests several of the reigning sovereigns; but these visits, it is claimed, have no political

significance. Determined to be Emperor in fact he practically dismissed Bismarck March, 17, 1890, but they have since been reconciled. He visited England in 1893 and 1894 and visited King Humbert of Italy at Venice in 1894. His heir, Prince FRIEDRICK WILHELM, was born May 6, 1882.

WILLIAM III. (ALEXANDER PAUL FREDERICK LOUIS), king of the Netherlands, prince of Orange-Nassau, grand duke of Luxemburg, and duke of Limburg, born February 19, 1817, the eldest son of the late King William II., by the Princess Anne Pauline, sister of the late Nicholas I., Czar of Russia, succeeded March 17, 1849, and devoted himself to the development of the liberal institutions then recently granted to his country. He rendered effectual aid in lightening the burdens of his people by reducing his civil list one-half, and abrogated the concordat concluded with the Holy See in 1827. His colonial administration was also successful. During the Russian war of 1854–56, William III. observed the strictest neutrality. He married in 1839, the Princess Sophia Frederica Matilda, daughter of William I., king of Württemberg (she died June 3, 1877), by whom he had two sons. King William married, secondly, at Arolsen (Waldeck), on January 7, 1879, the Princess Emma Adelaide Wilhelmina Theresia (born August 2, 1858), daughter of Prince George Victor, of Waldeck and Pyrmont, by whom he had a daughter, Wilhelmina. In November, 1890, he was declared insane and on November 23 he died.

WILLIAM (AUGUSTUS LOUIS WILLIAM MAXIMILIAN FREDERIC), Duke of Brunswick-Wolfenbüttel, born April 25, 1806, the younger son of the late Duke Frederic William, who died in 1823, and brother of the ex-Duke Charles Frederic Augustus William. He assumed the government April 25, 1831, at the request of the Germanic Diet, upon the compulsory flight of his elder brother, the late duke of Brunswick, whose name afterward became well known in London, Paris, and Geneva. He died in October, 1884.

WILLIAMS, CHANNING M., a missionary bishop of the Protestant Episcopal Church, is a native of Virginia, born at Richmond, July 18, 1829. He was educated at William and Mary College and at the Alexandria Theological Seminary. On July 1, 1855, he was made deacon, and in November of the same year departed for China as a missionary. After his ordination as priest, January 11, 1857, he went to Japan, and on October 3, 1866, was consecrated bishop of China. In 1874 he became bishop of Veddo. He was made an S. J. T. by Columbia College in 1867.

WILLIAMS, CHARLES, was born at Coleraine, Ireland, May 4, 1838; educated at Belfast Academy, and at Greenwich, and was appointed leader writer and reviewer on the London *Evening Herald* in 1859. He became special correspondent of the *Standard* in October, 1859, and was senior special correspondent of that journal till January 1, 1870, when he accepted the editorship of the *Evening Standard*, but he resigned in 1872 to resume his old post. He retired from the *Standard* in 1874. Mr. Williams saw service in South and Central America, and accompanied the headquarters of the army of the Loire at the beginning of the second phase of the Franco-German war, and was one of the first two correspondents in Strasburg after the fall of that city in 1870. In 1877 he went to Armenia as correspondent on the staff of Ghazi Moukhtar Pacha; published an account of his experience, and in November, 1878, proceeded to Afghanistan. He accompanied the Soudan expedition, and attracted some attention by an attack on Sir Charles Wilson for his conduct of the force told off to advance upon Khartoum.

WILLIAMS, EDWARD P., naval officer, was born



in Castine, Me., February 26, 1833; graduated at the United States Naval Academy, 1853, served in the Civil war, commanding the *Powhatan*; commanded the first division in the attack on Fort Sumter, September 8, 1863, was captured and held prisoner one year; became commander, 1866, and was given command of the steamer *Oncida*, on the Asiatic station, 1868. On January 24, 1870, his vessel was run down by the English mail steamer *Bombay* in Yeddo bay, near Yokohama and sank in fifteen minutes. Captain Williams was drowned with twenty-one officers and 115 men.

WILLIAMS, GEORGE, born at Dulverton, England, October 11, 1821, went into business in London, was struck by the neglected condition of young men and on June 6, 1844, founded the Young Men's Christian Association, was its first treasurer and has always given generously to its support.

WILLIAMS, GEORGE WASHINGTON, a mulatto, born at Bedford Springs, Penn., October 16, 1849, served during the Civil war, as a Union soldier and became a lieutenant-colonel in the Mexican army. He was a preacher in Boston, studied law in Cincinnati, was a member of the Ohio legislature 1879-81 and in 1885 was appointed minister from the United States to Hayti. At the conference on foreign missions in London, England, in 1888, he was a delegate. He has edited periodicals and written a *History of the Negro Race in America* and other works.

WILLIAMS, HENRY SHALER, was born in Ithaca, N. Y., March 6, 1847. He was graduated at the Sheffield Scientific School of Yale, and afterward was appointed professor of paleontology in Cornell University, a chair which he still holds. He has also done good service in paleontological researches for the United States geological survey, and has contributed many valuable papers to scientific literature. He is a member of the various scientific societies, and, in 1882, became a fellow of the American Association for the Advancement of Science. He received the degree of Ph.D. from Yale in 1871.

WILLIAMS, HENRY WILLARD, was born in Boston, Mass., December 11, 1821; was graduated in medicine at Harvard in 1849, and became a distinguished oculist of Boston. He became professor of ophthalmology at Harvard in 1871, and for quarter of a century has served as ophthalmic surgeon to the Boston City Hospital. Doctor Williams is a member of many medical societies in America and Europe, and for years was president of the American Ophthalmological Society. Harvard gave him the degree of A.M. in 1868. He has published a number of works on medical science and diseases of the eye.

WILLIAMS, JAMES, a soldier of the Revolution, was a native of Hanover county, Va., where he was born in 1740. His parents removed to South Carolina, settling in Laurens county during 1743, from which State he was elected to congress in 1775. The year following he was made lieutenant-colonel of militia, and was killed October 8, 1780, while leading the attack at King's Mountain in Gaston county, N. C.

WILLIAMS, JAMES WILLIAM, D.D., bishop of Quebec, was born in Hampshire, England, in 1825; educated at Crewkerne School and at Pembroke College, Oxford, where he graduated B.A. in 1851, and proceeded M.A. and D.D. Having been ordained he came to Canada in 1857, to organize a school in connection with Bishop's College, Lennoxville, in which he held the post of classical professor. In 1863 he was consecrated fourth bishop of Quebec. Died in 1892.

WILLIAMS, JOHN, LL.D., a Protestant Episcopal bishop of the United States, was born at Deerfield,

Mass., August 30, 1817, and graduated at Trinity College in 1835. He studied theology, was ordained a minister in 1838, and, after a year's absence in Europe, accepted the post of assistant at Christ church, Middletown, Conn. He subsequently became rector of St. George's church, Schenectady, N. Y., and in 1848 was chosen to be president of Trinity College. October 29, 1851, he was made assistant to Bishop Brownell, of Connecticut, and upon the death of the latter, in 1885, was consecrated bishop of that diocese. He has been dean of Berkeley Divinity School since it was founded, chancellor of Trinity College, chairman of the House of Bishops, and lecturer at the General Theological Seminary, New York, also at Kenyon College. He is D.D. by conferment from Union, Trinity, Columbia, and Yale colleges, and in 1870 was made an LL.D. by Hobart. His published works, principally of a religious character, are numerous. Died Feb. 7, 1899.

WILLIAMS, JOHN, a representative in the Continental congress from North Carolina, was born in Virginia, and became a resident of North Carolina about 1760. He was admitted to the bar, served as judge for thirteen years, and in the Continental congress during 1777 and 1778. He died at Granville in 1799.

WILLIAMS, JOHN J., archbishop of the Roman Catholic Church, was born April 27, 1822, at Boston, where he also studied theology, subsequently graduating at the College of Montreal in 1841, and completing his course in Paris. He was ordained in 1845, and for many years thereafter was associated with the Boston churches, being rector at the Cathedral, pastor of St. James' parish, etc., and in January, 1866, appointed coadjutor of the diocese. He succeeded to the bishopric upon the death of Bishop Fitzpatrick, his consecration occurring March 11th of the same year. He remained bishop until 1875, when his authority was extended to the diocese of Portland, Burlington, Providence, and Springfield, which had been previously included within his original jurisdiction, but were then created sub-dioceses, and Bishop Williams received the pallium.

WILLIAMS, JONATHAN, soldier, born in Boston, Mass., May 26, 1750; died in Philadelphia, Penn., May 16, 1815. For a time he was secretary to Benjamin Franklin, in Paris, served as United States commercial agent, and studied military science and fortification. Returning to the United States in 1785, he was for several years a judge of common pleas in Philadelphia, and in 1801 was appointed major of artillery and engineers in the regular army. In 1802, on the establishment of the military academy at West Point, he was appointed its superintendent, but in the following year resigned, on a question of rank. At the request of the president he reentered the army as lieutenant-colonel and resumed his former station. Later he planned and superintended the building of the inner forts of New York harbor. On July 31, 1812, he resigned from the army, and in 1814 was elected to congress.

WILLIAMS, OTHO H., an American soldier, was born in Prince George county, Md., in 1749, and entered the army as a lieutenant in 1775. He was wounded and taken prisoner at the attack upon Fort Washington, and after his release was made adjutant-general on the staff of Gen. Horatio Gates and Gen. Nathanael Greene, respectively. At the battle of Eutaw Springs he led the charge that saved the Colonial army from defeat. He was promoted to be brigadier-general, and at the close of the war was collector at Baltimore, a position he held until his death, in 1800.

WILLIAMS, SAMUEL WELLS, LL.D., born at Utica, N. Y., September 22, 1812; was educated at the Rennselaer Institute, Troy, learned printing, and



in 1883 proceeded to China as a printer for the missionary board at Canton, and aided in editing *The Chinese Repository*. In 1858 he assisted Mr. W. B. Reed, the American envoy, in the negotiations at Tientsin, and in 1859 went with Mr. Ward to Peking to exchange the ratifications. In 1860 he returned to the United States, then went to China as secretary of legation, and rendered great services in the negotiations with China. In 1877 he became professor of the Chinese language and literature Yale College and in 1881 president of the New York Bible Society. He published the *Middle Kingdom* and other books about the Chinese. He died February 16, 1884.

WILLIAMS, SIR WILLIAM FENWICK, soldier, born in Annapolis Royal, Nova Scotia, December 4, 1800; died in London, England, July 26, 1883. He was graduated at Woolwich in 1821, and in 1825 appointed second-lieutenant of artillery. During the Crimean war he was made lieutenant-general in the sultan's army, under the name of Williams Pasha. After defending Kars four months against the Russians, his army met them on the heights above the city and defeated their forces, but on November 14th he was compelled to surrender the city. He was created a baronet, with a pension of \$5,000, was also decorated with the ribbon of the Order of the Bath, and received distinctions from Napoleon III. and the Sultan of Turkey. Oxford gave him the degree of D.C.L. In 1856 he commanded the garrison at Woolwich, and was elected to parliament. Retiring in 1859, General Williams was appointed commander-in-chief of the British forces in North America. On August 2, 1868, he was made a full general, and in 1870 became governor-general of Gibraltar, resigning in 1875. Two years later General Williams retired from the army.

WILLIAMS, THOMAS, was born in the State of New York in 1815, and graduated at West Point in 1837, entering the service as a lieutenant of infantry. Later he became assistant to the professor of mathematics at the military academy. In the Mexican war he was at the capture of Vera Cruz, and served in the battles of Contreras, Chapultepec, and Churubusco. In May, 1861, he was promoted to be captain, and to be brigadier-general from September 28th of the same year. After the capture of Fort Hatteras, N.C., he was placed in command there, participated in the engagements which preceded the opening of the lower Mississippi, and superintended the construction of the canal begun opposite Vicksburg in 1862. He afterward was in command at Baton Rouge, La., where he was killed in resisting the advance of Gen. John C. Breckenridge, August 5, 1862.

WILLIAMSON, ALEXANDER WILLIAM, LL.D., was born May 1, 1824. From the age of seventeen he studied in the universities of Heidelberg and Giessen, under Gmelin and Liebig. At Giessen he published his first chemical researches. He afterward spent three years in Paris studying the higher mathematics. In 1849 he was appointed professor of practical chemistry in University College, London; and in 1855, on the retirement of Professor Graham from the chair of chemistry in the same college, Doctor Williamson was chosen to succeed him in that office, while still retaining the chair of practical chemistry. For important and successful labors the royal medal of the Royal Society was awarded him in 1862. He has twice been president of the Chemical Society. In 1873 he was elected president of the British Association for the Advancement of Science, the same year foreign secretary of the Royal Society, a corresponding member of the French Academy, and a fellow of the Berlin Chemical Society, and is a member of other societies. The University of

Dublin conferred on him the honorary degree of LL.D. in 1878; the University of Edinburgh also conferred on him the degree of LL.D. He has written *Chemistry for Students* and other scientific works, papers, and addresses.

WILLIAMSON, HUGH, statesman, born in West Nottingham, Penn., December 5, 1735; died in New York city, May 22, 1819. He was graduated in 1757 at the College of Philadelphia, in which, from 1760 to 1763, he was professor of mathematics, and later studied medicine at Edinburgh and Utrecht, received his degree, and settled in Philadelphia as a physician. In 1777 he engaged in business at Charleston, S. C., thereafter practiced medicine at Edenton, N. C., and rendered aid to the wounded at the battle of Camden. From 1784 to 1786 he was a member of the Continental congress, and in 1787 was delegate to the convention that framed the constitution. He was also a member of the first United States congress, and later became interested in the New York canal system; was an active promoter of literary and scientific societies, and contributed a number of papers to their publications.

WILLS, WILLIAM GORMAN, born in 1828, in county Kilkenny, Ireland; studied at an early age at the Royal Irish Academy as an art student, and had some success, chiefly as a portrait painter, in Dublin and London. Mr. Wills was chiefly known as a dramatist, his principal plays being *The Man o' Airie*, *Charles the First*, etc. About 1875 Mr. Wills resumed the practice of portrait painting, having had a large number of sitters, among them the Princess Louise and the infant Princess Victoria. Among Mr. Wills' more recent contributions to dramatic literature are *Jane Shore*, *England in the Days of Charles II.*, *Ninon*, *Olivia*, *Nell Gwynne*, *Vanderdecken*, *Claudian*, and a free adaptation and rearrangement of the first part of *Faust*, containing several original scenes—Mr. Irving playing "Mephistopheles" and Miss Terry "Marguerite." Mr. Wills also wrote several novels, the best known being *The Wife's Evidence* and *Notice to Quit*, both of which have been republished in this country. He died December 14, 1891.

WILMARTH, LEMUEL EVERETT, an American artist, was born at Attleborough, Mass., November 11, 1835. He received his education at the common schools and academies of his native State, and about 1855 visited Europe. His art studies were pursued in Munich and Paris, after which he returned to the United States and opened a studio in New York. In 1870 he assumed charge of instruction at the schools of the National Academy, and, in 1874, became an academician. His pictures, which are of a miscellaneous character, are highly commended.

WILMER, RICHARD HOOKER, Protestant Episcopal bishop, is a native of Virginia, born at Alexandria, March 15, 1816. He was educated at Yale College and the Virginia Theological Seminary, from which he graduated in 1839. He was ordained a minister the year following, and, until 1864, served as rector of various parishes in his native State. In the latter year he was consecrated bishop of Alabama. After the war his church was "suppressed" by Gen. G. H. Thomas, for the expression by Bishop Wilmer of disloyal sentiment, but President Johnson directed the revocation of the order. Bishop Wilmer has been made a D.D. by William and Mary College of Virginia, and an LL.D. by Oxford (England) University, and the University of Alabama.

WILMOT, DAVID, an American politician, was born in Bethany, Penn., January 20, 1814, but upon his admission to the bar became a resident of To-



wanda, in the same State. He was elected to Congress in 1845, and served for six years. He was subsequently elected judge, but defeated for governor in 1857, and succeeded Simon Cameron as United States senator upon the latter's appointment as secretary of war in 1861. He was the author of what is known as the "WILMOT PROVISIO" (*q.v.*), introduced into congress in 1846, prohibiting the extension of slavery into certain territory about to be purchased from Mexico. The measure, which was defeated, is said to have been the inspiration of the Republican party. He was appointed to the bench of the Court of Claims in 1863, and died in Towanda, Penn., March 16, 1868.

WILSON, DANIEL (SIR), archæologist, and educator, born at Edinburgh, in 1816, and educated at the University of Edinburgh; Published in 1851 his great work, *The Archaeology and Prehistoric Annals of Scotland*, with about 200 illustrations, which gave him a wide reputation. He wrote many other works but his greatest book was his *Prehistoric Man: Researches Into the Origin of Civilization in the Old and New Worlds* (1863). In 1853 he was appointed professor of history and English literature in the University of Toronto, and president in 1881. He was for four years editor of the *Journal of the Canadian Institute*, and in 1859 and 1860 was president of the institute. In 1882 he was named by the Marquis of Lorne a vice-president of the literature section of the Royal Society of Canada, and was knighted in 1888. He died August 7, 1892.

WILSON, EPHRAIM KING, born in Snow Hill, Md., December 22, 1821, studied law, was elected a member of the Maryland house of delegates, 1847; was Congressman, 1872; State district judge, 1878-84 and United States Senator, as a Democrat, from 1884 to his death, February 24, 1891.

WILSON, FRANCIS, a popular American comedian, in comic opera first went on the stage as a negro minstrel in 1878, played a small part in *London Assurance*. He scored his greatest hit as "Caddy," the thief in *Erminie* under Aronson's management. He organized a company of his own in 1889 and has had continued success in the light operas: *The Merry Monarch*, *The Liar Tamer* (1893); and *The Devil's Deputy* (1894).

WILSON, GEORGE FRANCIS, inventor, manufacturer and philanthropist, born in Uxbridge, Mass., December 7, 1818, invented improvements in the manufacture of steel, amassed a fortune and left \$150,000 to Brown University on his death, January 19, 1883.

WILSON, HENRY BRISTOW, B.D., born in the city of London in 1803, was educated at Merchant Taylors' School, and at St. John's College, Oxford. He graduated B.A. in high classical honors in 1825, and was preferred by his college, in 1850, to the vicarage of Great Staughton, Hants, where he lived many years. He wrote several sermons and pamphlets on church and university questions, and an essay on the "National Church," for which in 1862 he was sentenced by the Judge of the Court of Arches to be suspended for one year from his benefice, on account of certain alleged errors. This sentence was reversed on appeal to the Privy Council. He died in 1888.

WILSON, JAMES, signer of the Declaration of Independence, was born near St. Andrew's, Scotland, September 14, 1742 and died in Edenton, N. C., August 28, 1798. He came to America about 1763, studied law in Philadelphia, and had established a reputation in his profession when the Revolution began. He was one of the Pennsylvania representatives in congress at the opening, May 10, 1775, and was twice reelected. On July 1, 1776, he and John Morton were the first of the Pennsylv-

ania delegates to vote for independence, and they were the only ones except Benjamin Franklin who voted for the adoption of the declaration on July 4th. He became advocate-general for the French Government in the United States in 1779. His opposition to the more liberal provisions of the constitution made him unpopular, and he and his friends were besieged by a mob October 4th, 1779, but he was reelected to congress in 1783 and again in 1785, and continued by reelection until the adoption of the present constitution. He was appointed associate justice of the United State Supreme Court in 1789. Philadelphia College gave him the degree of LL.D.

WILSON, JAMES F., was born at Newark, Ohio, October 19, 1828, and upon his admission to the bar settled at Fairfield, Iowa. He participated in the deliberations of the Iowa constitutional convention of 1856; was elected to the legislature in 1857, and was chosen State senator in 1859, becoming the presiding officer two years later. He took his seat in the national House of Representatives December 2, 1861, vice Samuel R. Curtis, resigned; was thrice reelected, and then sent to the Senate, where he was associate manager of that body during the trial of Andrew Johnson. In 1883 he was again elected to the Senate and reelected in 1889. Died April 22, 1895.

WILSON, JAMES GRANT, was born in Edinburgh, Scotland, April 28, 1832, and was educated at College Hill, Poughkeepsie, N. Y. In 1855 he established in Chicago the first literary paper published in the Northwest, which he conducted until 1862. In that year he was commissioned major of the 15th Illinois cavalry, and after active service in the South until August, 1863, he became colonel of the 4th regiment, United States colored cavalry. He was brevetted brigadier-general in 1865, and since the war has resided in New York, engaged in literary pursuits. In 1885 he was appointed president of the New York Genealogical and Biographical Society, and is a member of many historical and other societies. He has written the biographies of some of the most eminent men of America, and is the author of other interesting works.

WILSON, JAMES HARRISON, soldier, born near Shawneetown, Ill., September 2, 1837, was educated at McKendree College, and graduated at the United States Military Academy in 1860. Thereafter he was assigned to the corps of topographical engineers, served in Oregon until June, 1861, and on September 19th of that year was made first lieutenant. In 1862 he was engaged in the Port Royal expedition, served at the bombardment of Fort Pulaski, was acting aide-de-camp to Gen. G. B. McClellan, and took part in the battles of South Mountain and Antietam. At the end of that year he was promoted lieutenant-colonel of volunteers, served as chief topographical engineer of the army of the Tennessee until October, 1863, and was active at the siege of Vicksburg. In 1863 he was made captain of engineers and brigadier-general of volunteers. In 1864 he was placed in command of the third division of the cavalry corps in the army of the Potomac. In October he was assigned to command the cavalry of the military division of the Mississippi, and did efficient service at Selma, Columbus, and Macon, Ga., when he was promoted major-general of volunteers. At that time he captured five cities, 288 guns, and 6,820 prisoners, including Jefferson Davis. In January, 1866, he was mustered out of the service and brevetted major-general of the United States army. On December 31, 1870, he retired from military service, since which time he has been engaged in railroad engineering.

WILSON, J. M., was born in 1836, and went to St. John's College, Cambridge, in 1855. He was ap-



pointed natural science master at Rugby, and subsequently senior mathematical master, remaining at Rugby until, in 1879, he became headmaster of Clifton College.

WILSON, JOSEPH MILLER, engineer and architect, born at Phoenixville, Pa., June 30, 1838, graduated at the Rensselaer Polytechnic Institute, 1858, became assistant engineer of the Pennsylvania Railroad in 1860, and chief engineer, 1870-76, and designed the buildings of the Centennial Exhibition at Philadelphia in 1876, with J. MacArthur. He has written many valuable professional papers.

WILSON, MATTHEW, portrait painter, born in London, England, July 17, 1814, came to the United States in 1832, opened studios in Philadelphia and later in Brooklyn, and during a long and successful career painted portraits of Presidents Harrison, Lincoln and Arthur, and other distinguished men. He died February 23, 1892.

WILSON, SIR ADAM, born in Edinburgh, Scotland, September 22, 1814, emigrated to Canada in 1830, studied and practiced law, was appointed commissioner for revising the statutes of Canada, in 1856, was solicitor-general of Canada, 1862-63; held several judicial positions, and in 1884 he was made chief justice of the Court of Queen's Bench, and knighted in 1887.

WILSON, SIR CHARLES RIVERS, born in London, England, February 19, 1831, and educated at Eton and Balliol College, Oxford, became an authority on financial questions, was appointed comptroller-general of the national debt office in April, 1873, went to Egypt to devise plans to remedy the financial disorder in that country, was finance minister of Egypt, 1878-79, was created a K.C.M.G. 1880, and has since served the English government in numerous important capacities.

WILSON, SIR CHARLES WILLIAM, K.C.B., was born in England, March, 1836, entered the Royal Engineers, 1855, and became colonel 1883. He served in the Egyptian Expedition of 1882, led the Soudan Expedition and commanded the force in its attempt to reach Khartoum and to rescue General Gordon. He is now director-general of the ordnance survey of England.

WILSON, THEODORE DELAVAN, was born in Brooklyn, N. Y., May 11, 1840. He learned the trade of ship building in the Brooklyn navy yard; was appointed carpenter in the navy, August 3, 1861, and served in the steamer *Cambridge*, of the North Atlantic blockading squadron, until 1864. He was commissioned naval constructor July 1, 1873, after serving for about seven years as assistant naval constructor and instructor in naval architecture at the United States naval academy, and until 1882 was engaged at the Portsmouth navy yard. In 1878 he was appointed chief of the bureau of construction and repair, and in 1886 was reappointed for a term of four years. He invented some most important improvements in modern ship-building; was the designer of the *Chicago*, the *Boston*, the *Atlanta*, and a number of other vessels, and is the author of *Shipbuilding, Theoretical and Practical*. He died June 29, 1896.

WILSON, WILLIAM DEXTER, philosopher and theologian, born at Stoddard, N. H., February 28, 1816, graduated in 1838 at Cambridge Divinity School and became first a Unitarian minister, but in 1842 took orders in the Episcopal Church. In 1850 he was appointed professor of philosophy in Hobart College and in 1868 transferred his services to Cornell College, in the same capacity. He has written *The Church Identified* (1848), *Logic* (1856), *Lectures on Psychology* (1871), *Live Questions in Psychology and Metaphysics* (1877), *Foundations of Religious Belief* (1883), and other works.

WILSON, WILLIAM LYNE, statesman, born in Jefferson county, Va., May 3, 1843, and educated at Columbian College and the University of Virginia, served in the Confederate army, was professor in Columbian College, practiced law at Charleston, was a delegate in 1880 to the National Democratic Convention at Cincinnati, and was chosen an elector for the State at large on the Hancock ticket. He was president of the West Virginia University in 1882-83, resigning because of his election to congress as a Democrat from the second district in November, 1882. He received the degree of LL.D. from Columbian University and Hampden-Sidney College, Virginia, and was appointed a Regent of the Smithsonian Institution in 1884 and reappointed in 1886. In congress he became prominent as an orator and an able advocate of the Democratic doctrine of free trade and was successively reelected, serving six terms. In 1892, he was permanent president of the National Democratic Convention at Chicago, which nominated Grover Cleveland for president, and in the fifty-third congress he was chairman of the committee on Ways and Means, the leader of the Democratic majority on the floor and drafted the bill for the revision and reduction of tariff duties known as the "Wilson Tariff Bill." He was defeated for reelection in 1894 by A. G. Dayton, Republican, by a vote of 23,343 to 21,392, but on February 28, 1895, before his term of service had quite expired, he was appointed by President Cleveland postmaster-general of the United States, to succeed Wilson S. Bissell. Died Oct. 17, 1900.

WILSON, WOODROW, born at Staunton, Va., December 28, 1856, graduated at Princeton, 1879; practiced law at Atlanta, Ga., a short time, studied history and politics at Johns Hopkins University, 1883-85; taught history at Bryn-Mawr College, Pennsylvania, 1885-86; was associate professor of history and political science there, 1886-88; was elected professor of history and political economy at Wesleyan University in 1888, and later became professor of finance and political economy at Princeton. He is an able writer on the subjects which he has made his special study, his works including: *Congressional Government*, *A Study in American Politics* (1885), *The State* (1889), *Division and Reunion* (1882-89), and *An Old Master and Other Political Essays* (1893).

WIMAN, ERASTUS, born in Churchville, Ontario, April 21, 1834, was a printer, reporter and commercial editor of the *Toronto Globe*, and editor of the *Montreal Trade Review*, and in 1867 acquired a partnership in R. G. Dun & Co.'s mercantile agency, New York, becoming later its principal manager. In 1881 he accepted the presidency of the Great Northwestern Telegraph Company of Boston and became a director of the Western Union Telegraph Company, and president of the Staten Island Rapid Transit Railway Company. He did much to build up a sentiment in Canada in favor of commercial union with the United States, and in 1886 he secured the abolition of imprisonment for debt in New York.

WINCHELL, ALEXANDER, LL.D., geologist, born in North East, Dutchess county, N. Y., December 31, 1824; graduated at Wesleyan in 1847; became a teacher of natural science, and, in 1854, professor of physics and civil engineering in the University of Michigan; in the following year was transferred to the chair of geology, zoölogy, and botany, which he held until 1873, filling a similar professorship in the University of Kentucky from 1866 until 1869. He was director of the geological survey of Michigan, 1859-71, except during the war and was subsequently professor of geology, zoölogy, and botany in both the Syracuse and Vanderbilt universities, but in 1878, owing to his be-



lief in the existence of a preadamite race, and his defense of the doctrine of evolution, he was forced out of Vanderbilt by the abolition of his lectureship. In 1879 he accepted the chair of geology and paleontology in the University of Michigan. His name has been assigned to fourteen new species. He died February 19, 1891.

WINCHELL, NEWTON HORACE, geologist, born at North East, Dutchess county, N. Y., December 17, 1839, graduated at Michigan University, 1866, and became superintendent of schools and assistant State geologist of Michigan. In 1872 he was called to the chair of mineralogy and geology in Minnesota University, and made State geologist. He has been president of the Academy of Sciences of Minnesota, a member of the Assay Commission of the United States, and editor of the *American Geologist*.

WINDER, JOHN HENRY, born in Maryland, 1800; graduated at West Point, 1820; fought in the Mexican war; had become brigadier-general in the Confederate service when he was given command of Richmond and charge of Libby prison and Belle Isle, and later of the prison-pen at Andersonville, where his cruelties to Union prisoners rendered his name infamous. He died in 1865.

WINDISCHGRÄTZ, PRINCE ALFRED, prime minister of Austria, was educated at the universities of Bonn and Prague, studying for the law; was made a Doctor of Law in 1877, and appointed a member of the Imperial Court of Justice; sat in the Reichsrath from 1876 as a Conservative and a Clerical, and was also a member of the Bohemian Diet. In November, 1893, he was called upon to form a Coalition Ministry, succeeding Count Taaffe as Premier, and accomplished the task, although with some difficulty.

WINDOM, WILLIAM, secretary of the treasury, was born in Ohio, May 10, 1827, where he was also educated, and in 1850 admitted to the bar at Mount Vernon. In 1855 he removed to Winona, Minn., and four years later was elected to congress, serving the next ten years in the lower house. In 1870 he became United States Senator, vice D. S. Norton, deceased, and in 1871 was reelected, and again reelected in 1877. He became secretary of the treasury by appointment from President Garfield, and upon the death of the latter was once more sent to the Senate from Minnesota, where he served as the chairman of important committees. On March 4 President Benjamin Harrison appointed him secretary of the treasury. Mr. Windom died suddenly in New York, January 29, 1891.

WINDTHORST, LUDWIG, the parliamentary leader of the Catholic party in Prussia, was born January 17, 1812. He attended the "Carolinum," in Osnabrück, and continued his studies at Göttingen and Heidelberg, became an advocate, and from 1863 to 1865, was minister of justice at Hanover. From 1849 to 1866 he was a member of the Assembly of the Estates of the Realm, and in 1851 president of the second chamber of the same; and became in 1867, a member of the Prussian House of Deputies, always boldly upholding the Catholic cause in spite of the stern opposition of Prince Bismarck. He died March 12, 1891.

WINEBRENNER, JOHN, was born in Frederick county, Md., March 24, 1797; died in Harrisburg, Penn., September 12, 1860. He studied theology in Philadelphia, became a minister of the German Reformed Church in 1820, and was in charge of the Salem Church at Harrisburg, Penn., until 1827, when his views and practices became obnoxious to his congregation, and he retired. His connection with the Reformed Church ceased by action of the synod in September, 1828, and in October, 1830, he founded a new

denomination that he called the "Church of God," whose members hold that the three positive ordinances of perpetual standing are, baptism by immersion, the washing of feet, and the Lord's supper. This sect has grown until its membership in 1889 was estimated at 65,000. Winebrenner published a number of works on practical religion, and was for several years editor of the *Gospel Publisher*, which afterward became the *Church Advocate*.

WINSLOW, JOHN ANCRUM, naval officer, born in Wilmington, N. C., November 19, 1811; died in Boston, Mass., September 29, 1873. He entered the United States navy as midshipman February 1, 1827, and on February 9, 1839, was commissioned lieutenant. He was engaged in the Mexican war, was present at the capture of Vera Cruz, and commanded the schooner *Morris*, that was lost on a reef off that port in 1840. Promoted to commander, he rejoined the Mississippi River flotilla in 1861, where he became disabled from active duty by an accident. On July 16, 1862, he was placed in command of the United States steamer *Kearsarge*, specially commissioned to pursue the Confederate steamer *Alabama*. Captain Winslow followed his adversary to Cherbourg, and in June, 1864, blockaded her in that harbor. On Sunday, June 19, 1864, the *Alabama* came forth, escorted by a French ironclad and the British yacht *Deerhound*. Captain Winslow retired seven miles from shore, to be beyond neutral ground, and advanced toward the *Alabama*. The armament of the two vessels was about equal. After an exchange of broadsides for about an hour, the *Alabama* made for the shore in a crippled condition; she soon was found to be sinking, and surrendered. Many of her crew, including her commander, Semmes, were picked up floating on the waves just before the *Alabama* went to the bottom. Captain Winslow was promoted commodore for this important victory in 1866, and in 1867 commanded the Gulf squadron, was chief of the Pacific squadron from 1870 to 1872, and on March 2, 1870, was promoted to be rear-admiral.

WINSLOW, JOSIAH, born 1629; died 1680; governor of Plymouth colony from 1673 till his death, became general-in-chief of the united colonies 1675.

WINSLOW, MIRON, born at Williston, Vt., December 11, 1789; established a mission at Ceylon, 1819, and was engaged in mission work at Madras until his death, Oct. 22, 1864. He was an LL.D. of Harvard, and published missionary and biographical works, a translation of the Bible into the language of the East Indies, and a dictionary of the same language of 70,000 words.

WINSOR, JUSTIN, author, born in Boston, Mass., January 2, 1831. He studied for a time at Harvard, and at Heidelberg, Germany. From 1868 to 1877 he was superintendent of the Boston public library, and thereafter served in the same capacity at Harvard, where he still remains. In 1876 he was first president of the American Library Association, became president of the American Historical Association, and served as secretary of the Massachusetts Historical Society. In 1880 he wrote *Readers' Handbook of the American Revolution*, published *Cartier to Frontenac* (1894), and he wrote other historical works and Shakespearian, and edited the *Narrative and Critical History of America* (8 vols., 1884-89). Died Oct. 22, 1897.

WINTER, WILLIAM, journalist and author, was born at Gloucester, Mass., July 15, 1836, and is a graduate of the law department of Harvard University. In 1865 he became the dramatic editor of the *New York Tribune*. His published writings embrace poems and biographies of prominent actors and dramatists.

WINTHROP, ROBERT CHARLES, was born in Boston, May 12, 1809. He was graduated at Harvard



in 1828, adopted the profession of law, and from 1834 until 1840 was a member of the lower house of the Massachusetts legislature, of which he was speaker during the last three years of that time. He was then sent to congress, where he served ten years with distinction, being speaker of the House from 1847 until 1849, and in 1850 he was appointed to Daniel Webster's seat in the United States Senate, when the latter became secretary of state. His course on the slavery question caused him to be defeated for election to the Senate in the following year, and also prevented his election to the governorship of the State. He was a famous orator and delivered the addresses at the laying of the corner-stone of the Washington monument in 1848 and at its completion in 1855. He died November 16, 1864.

WINTHROP, THEODORE, author, was born in New Haven, Conn., September 22, 1828; died near Great Bethel, Va., June 10, 1861. He was graduated at Yale in 1848, went to Europe the following year, and in 1852 was stationed at Panama as an employé of the Pacific Mail Steamship Company. He subsequently studied law and was admitted to the bar in 1855, but spent most of his time in literary pursuits. At the beginning of the Civil war he enlisted in the 17th New York regiment, and later became military secretary to Gen. Benjamin F. Butler, with the rank of major. He was killed at the battle of Great Bethel. Besides many sketches and poems Winthrop was the author of the novels *Cecil Dreeme*, *John Brent*, and *Edwin Brothertoft*, which hold a high place in American literature.

WIRT, WILLIAM, born in Bladensburg, Md., November 8, 1772; died in Washington, D. C., February 18, 1834. He aided in the prosecution of Col. Aaron Burr for treason. His principal speech on this occasion greatly extended his fame. In 1817 Wirt became attorney-general of the United States, and removed to Washington, holding this office for twelve years and, resigning, settled in Baltimore, Md. In 1832 Mr. Wirt accepted the nomination of the Anti-Masons as their candidate for the presidency, as such receiving the seven electoral votes of Vermont.

WISE, HENRY ALEXANDER, statesman, born in Drummondtown, Va., December 3, 1806; died in Richmond, Va., September 12, 1876. He was graduated at Washington College, Penn., in 1825, and admitted to the bar in 1828. In 1833 he was elected to congress as a Jackson Democrat, and was twice reelected. In congress he was opposed to President Jackson's bank policy, strongly favored the institution of slavery, and after John Tyler's accession to the presidency was one of his principal supporters. In May, 1844, he was United States minister to Brazil, remaining there until October, 1847. In 1855 Mr. Wise was elected governor of Virginia, after a hotly contested campaign on the *Know-Nothing* question, in which he denounced the members of that party. One of the last acts of his administration was signing the death-warrant of John Brown, who was executed December 2, 1859. In February, 1861, as a member of the State convention he made a report that favored compromise and a peaceable adjustment of the injustice complained of by the seceded States, but when Virginia united with the confederation he became brigadier-general. After the war he resumed the practice of law.

WISE, HENRY AUGUSTUS, an American naval officer, was born at Brooklyn, N. Y., May 12, 1819, and became passed midshipman July 16, 1840. Previous to the Civil war he served on special duty, and was attached to the Mediterranean and Pacific squadrons. In 1861 he was engaged in the blockade of Charleston,

S. C., on board the *Niagara*. He was promoted to be commander July 16, 1862, and to be captain December 29, 1866, and until January, 1869, was chief of the ordnance bureau of the navy. He died April 2, 1869, at Naples, Italy, whither he had gone on leave of absence. He was the author of a series of novels, illustrating life in Mexico and in the tropics.

WISE, GEORGE D., was born June 4, 1821, in the county of Accomac, Va., and graduated at the Indiana University. He was admitted to the bar, and opened an office in Richmond, where he practiced several years. He served through the war in the Confederate army, returning to the practice of his profession at the conclusion of hostilities. He has served as district attorney in his native State, and in 1880 was elected to congress, and served until 1888. In the latter year he claimed the seat, but congress gave it to his competitor.

WISE, JOHN, aeronaut, born in Lancaster, Penn., February 24, 1808; died in Lake Michigan in September, 1879. His first ascension from Philadelphia, Penn., on May 2, 1835, was experimental. This was followed by others from Lebanon and Lancaster, Penn. In May, 1836, he ascended from Lancaster, and in the following year made two voyages from Philadelphia, in the first of which he alighted in the Delaware river. On August 11, 1838, he ascended from Easton, Penn., rising to a height of 13,000 feet, and came near losing his life in the descent. He made other balloon voyages until 1859, when they numbered about 230. In the last named year, in company with John La Mountain, he made the noted voyage from St. Louis, Mo., to Jefferson county, N. Y. From September, 1871, until July, 1872, he served as librarian of the Franklin Institute, Philadelphia, Penn., and thereafter removed to Missouri. On September 28, 1879, he made an ascension at St. Louis, in company with several others. The balloon was last seen at Carlinville, Ill., and later the body of one of the occupants was washed ashore on Lake Michigan.

WISE, JOHN S., born at Rio Janeiro, Brazil, December 25, 1846, was educated at the Lexington (Va.) military institute. He served through the war in the Confederate army, being wounded at New Market. After the fall of the Confederacy, he studied law, and upon his admission to the bar, in 1867, opened an office in Richmond. He was a Readjuster member of congress for one term from 1882, and in 1885 was defeated for governor of the State by Fitzhugh Lee.

WISSLER, JACQUES, engraver, born in Strasburg, Germany, 1803; died in Camden, N. J., November 25, 1887; came to America in 1849, and while visiting Richmond, Va., when the Civil war commenced, was detained by the Confederate authorities, to engrave their paper currency and bonds. He made a fortune at this work, but his estate was confiscated because of his loyalty to the Union cause. He was a skillful engraver and a successful portrait painter.

WISSMAN, HERMAN VON, German soldier and African explorer, born at Frankfort-on-the-Oder, 1853; in 1880, as lieutenant, accompanied Dr. Pogge to Nyangwe, from whence he crossed the continent alone, to Zanzibar, November 15, 1882. He was chief of a large expedition sent out by King Leopold in 1883. He was appointed imperial German commissioner in 1887 and suppressed the uprising under Bushiri. In 1892 he tried to take two steamers to Lake Victoria, but failed. He wrote *In Inner Africa* and *Under the German Flag Through Africa*.

WISTAR, CASPAR, born in Philadelphia, Pa., September 13, 1761; studied medicine at the University of Pennsylvania and abroad and for two years was president



of the Royal Medical Society of Edinburgh. He returned to the United States in 1787, and entered on the practice of medicine in Philadelphia. From 1789 to 1808 he was connected with the College and the University of Pennsylvania, and in 1815 was chosen president of the American Philosophical Society. Doctor Wistar contributed a number of papers to the transactions of the College of Physicians, and he was also the author of works on anatomy. He died January 22, 1818.

WITHERELL, JAMES, was born in Mansfield, Mass., June 16, 1759; died in Detroit, Mich., January 9, 1838. During the Revolutionary war he served in the 11th Massachusetts regiment until 1783, taking part in the principal battles in New York and New Jersey, and being severely wounded at White Plains. He took up the study of medicine, but afterward removed to Vermont and adopted the profession of law. From 1798 until 1803 he was a member of the Vermont legislature; was for two years a judge of Rutland county, and State councilor until 1807, in which year he was sent to congress. He resigned in 1808 to become United States judge for the Territory of Michigan. In 1828 he was appointed secretary of that Territory by John Quincy Adams. He left a valuable collection of papers on the history of Detroit and the State of Michigan.

WITHERS, JOHN MITCHELL, was born in Madison county, Wis., January 12, 1814. He was graduated at the United States Military Academy in 1835, commanded the Alabama volunteers during the Creek disturbances in 1836, studied law in Tuscaloosa, Ala., and was admitted to the bar in 1838. He was a lawyer and merchant in Mobile from 1841 until 1855, when he was elected to the legislature, and in 1856 he became mayor of Mobile. When the Civil war broke out he entered the Confederate service as colonel of the 3d Alabama, was made brigadier-general in July, 1861, and major-general early in 1862. He commanded a division at Shiloh, was at the battle of Stone river, and subsequently had charge of a department, with headquarters at Montgomery, Ala. After the war he became editor of the *Mobile Tribune*.

WITHERS, R. E., an American publicist, was a native of Virginia, and was born September 18, 1821, and became a graduate of the University of Virginia, in 1840. He was for many years a medical practitioner in Cumberland county, Va., thence removing to Danville. During the Civil war he served in the Confederate army, but was severely wounded at Gaines' Mill, and thereafter, until the surrender, was director of the military hospital and prison at Danville. Subsequent to the war he edited papers at Lynchburg and Richmond, was lieutenant-governor of the State, and in 1874 became United States senator. In 1885 President Cleveland appointed him consul to Hong Kong, China.

WITHERSPOON, JOHN, signer of the Declaration of Independence, born in Gifford, Scotland, February 5, 1722, died near Princeton, N. J., September 15, 1794. He was graduated at Edinburgh University in 1742, and three years later was ordained minister, serving at first in Paisley, and in the following year was chosen moderator of the synod of Glasgow and Ayr. In 1764 the University of Aberdeen conferred on him the degree of D.D., and August 17, 1768, he was inaugurated president of Princeton College. He introduced the study of the French and Hebrew languages, and during his entire presidency officiated as pastor of the church in Princeton. Quite early he embraced the cause of the patriots, and did much to attach the Scottish and Scottish-Irish people to the cause of America. He counseled resistance to the tea-tax, and on June 22, 1776, after taking part in the overthrow of

the authority of William Franklin, the royal governor, he was elected to the Continental Congress. In 1783 he visited England, for contributions to the treasury of Princeton College. On his return to the United States he employed himself with the administrative affairs of the college. Two years before his death he became blind. His publications include books of an ecclesiastical character, lectures, essays, etc.

WOLCOTT, OLIVER, born in Windsor, Conn., November 26, 1726; died in Litchfield, Conn., December 1, 1797. He was graduated at Yale in 1747, and in the same year made captain of a company of volunteers. Later he studied medicine. Between 1774 and 1786 he served as judge of the County Court of Common Pleas. In January, 1776, he took his seat as a member of the Continental Congress and signed the Declaration, and on his return to his State was appointed to the command of fourteen regiments of Connecticut militia sent for the defense of New York. In 1777 he assisted Israel Putnam on the Hudson, and then joined Gen. Horatio Gates, taking part in the defeat of General Burgoyne. From 1780 to 1784 he was again in congress, and in the following year became one of the commissioners who negotiated a treaty of peace with the six nations. In 1796 he was elected to the office of governor of Connecticut, which office he held until his death.

WOLCOTT, ROGER, colonial governor, born in Windsor, Conn., January 4, 1679; died in East Windsor, Conn., May 17, 1767. In 1710 he was made justice of the peace, and in 1741 he had risen to be deputy-governor and chief justice of the Supreme Court. In 1745 he was second in command under Sir William Pepperell of the Connecticut contingent of the forces sent by the colonies against Louisburg, with the rank of major-general. He was elected governor of Connecticut in 1750, and in 1754 he retired to private life.

WOLFE, CATHERINE LORILLARD, philanthopist, born in New York city, March 28, 1828; died there April 4, 1887. She was the daughter of John David Wolfe, and continued her father's charities. She established a home for incurables in Fordham, N. Y., made donations of money to Union College, to St. Luke's Hospital, New York city, to St. Johnland, L. I., aided in building the American chapels at Paris and Rome, established an Italian mission at a cost of \$50,000, a newsboys' lodging house, and a Protestant Episcopal diocesan house, which, with its endowments, cost \$170,000, besides very many other smaller charities. In 1884 she sent an expedition to Asia Minor, to make archaeological searches. Her collection of paintings was given to the New York Metropolitan Museum of Art, together with \$200,000 for its protection and enlargement.

WOLFE, JOHN DAVID, philanthopist, born in New York city, July 24, 1792; died there May 17, 1872. He was early placed in training with a business house, and became a hardware merchant. He founded a high school for girls in Denver, Colo., a Protestant Episcopal school at Topeka, Kan., gave the building for a theological seminary connected with Kenyon College, a fund for the College of the Sisters of Bethany, at Topeka, Kan., built homes for needy children in Suffolk county, N. Y., and, in connection with Mrs. Peter Cooper, established the "Sheltering Arms" charity in New York city. He was also one of the organizers of the St. Johnland, L. I., charitable institution, became its first president, and gave it liberal pecuniary support.

WOLFF, SIR HENRY DRUMMOND, was born at Malta, October 12, 1830, and was educated at Rugby and on the continent. He entered the Foreign Office, 1840, and was made an attaché at Florence in 1852-53,



during part of which time he was acting *chargé d'affaires*. He held minor offices, and at the election of 1880 was elected M.P. for Portsmouth. As such he was one of the active group known as the Fourth Party. In June, 1885, he was sworn a privy councillor, and in the August following appointed envoy extraordinary and minister plenipotentiary to the sultan of Turkey, on a special mission with particular reference to the affairs of Egypt, and ambassador to Persia in 1888. He is a fellow of the Royal Geographical Society and of the Royal Colonial Institute.

WOLSELEY, VISCOUNT (GENERAL SIR GARNET JOSEPH), was born at Golden Bridge House, near Dublin, Ireland, June 4, 1833, and was educated at a private school and under tutors. He entered the British army as ensign in March, 1852. He achieved distinction in the Crimea, where he served with the 90th light infantry. At the siege of Sebastopol he was severely wounded, after which he received the Legion of Honor and the fifth class of the Turkish Order of the Medjidie. He was also at the siege and capture of Lucknow and the defense of Alumbagh, when he was made brevet lieutenant-colonel and mentioned with commendation in dispatches. He was appointed deputy quartermaster-general in Canada in October, 1867, and commanded the expedition to the Red river; was nominated a knight commander of the Order of SS. Michael and George in 1870; and was assistant adjutant-general at headquarters in 1871. He was appointed in August, 1873, to command the troops on the Gold Coast during the Ashantee war, with the local rank of major-general. On September 12, 1873, he and his staff embarked at Liverpool for the west coast of Africa. Arriving there in advance of his troops, he commenced his inland march in the last days of 1873. After several skirmishes the Ashantees made a final stand in the neighborhood of the capital; and, after defeating the enemy, Sir Garnet Wolseley, on February 5th, entered Coomassie, and received the submission of the king, who agreed to appoint commissioners to conclude a treaty. The success of the expedition justified the confidence which had been reposed in the commander-in-chief. On his return to England Sir Garnet Wolseley received the thanks of parliament and a grant of \$125,000 for his "courage, energy, and perseverance," in the conduct of the Ashantee war; was created a K.C.B.; and was presented with the freedom of the city of London and a splendid sword of the value of 100 guineas, October 22, 1874. In June, 1879, he was sent to South Africa, as governor and high commissioner of Natal and the Transvaal, to reorganize the affairs of Zululand, and on that occasion conducted the operations against Secoeni, whose stronghold he destroyed. Returning in May, 1880, he was appointed quartermaster-general at the headquarters of the army, and in April, 1882, succeeded Sir Charles Elice as adjutant-general of the army. He was commander-in-chief of the expeditionary force sent to Egypt in 1882; received the thanks of parliament; and was gazetted (November 20) Baron Wolseley of Cairo, and of Wolseley, in the county of Stafford. For his services in Egypt he received from the khedive, Tewfik Pasha, the grand cordon of the Osmanieh. He was also promoted to the rank of general, in 1882. He was made D.C.L. of Oxford, and LL.D. of Cambridge. In June, 1883, the University of Dublin conferred upon him the honorary degree of LL.D. In 1884-85 he was commander-in-chief in Egypt, and conducted the operations undertaken for the relief of Khartoum, for which services he received the thanks of both houses of parliament, was made K.P., and raised to the dignity of Viscount

Wolseley. He became commander-in-chief of the army in Ireland in 1890 and field marshal in 1894. He wrote *Narrative of the War with China*, works on military science, magazine articles on the American Civil war, *Marley Castle*, a novel, and a life of the Duke of Marlborough (1894).

WOOD, ALFONSO, an American botanist, was born at Chesterfield, N. H., September 17, 1810, graduated at Dartmouth College in 1834, and during 1835 pursued a course of theological studies at Andover. He devoted his attention to botany, and was engaged in teaching for many years. He was president of the Ohio Female College, professor in the female college at Terre Haute, Ind., and principal of the Clinton Female Seminary, at Brooklyn, N. Y. In 1867 he retired to private life, at West Farms, N. Y., where he died, January 4, 1881. His contributions to botanical journals were numerous, and his publications embrace a list of books on botany that are highly esteemed.

WOOD, DEVOLSON, an American civil engineer, was born at Smyrna, N. Y., June 1, 1832, and graduated at the Rensselaer Polytechnic Institute, Troy, N. Y., in 1857. The same year he accepted a call to the chair of civil engineering at the Michigan University. In 1872 he was called to the chair of mechanics in the Stevens Institute, subsequently becoming professor of civil engineering in the same institution, where he yet remains. He is the author of a number of inventions of utility and value, also of a series of publications of importance to the profession. He was made an A.M. by Hamilton College, and an M.S. by the University of Michigan during 1859. Died June 27, 1897.

WOOD, FERNANDO, was born in Philadelphia, June 14, 1812, and became a resident of New York city eight years later. He engaged in commercial business there early in life, and, becoming identified with political organizations, was elected to congress in 1841. Upon the expiration of his congressional term he returned to New York, and in 1850 was Democratic nominee for mayor of the city, but was defeated. In 1854, however, he was elected to that office, and during its administration brought about reforms that so impressed citizens with the value of his services, that he was reelected almost unanimously. During his second term a conflict arose between the legislature and the municipal authorities, in respect to the control of the department of police. A riot followed, in which many persons were injured, and at the election held in 1857, he was defeated. In 1859 he was once more elected, and in 1863 was returned to congress, where he remained until 1865; he was reelected in 1867 and served until 1877. He died at Washington, D. C., February 14, 1881.

WOOD, GEORGE B., an American chemist and author, born at Greenwich, N. J., March 13, 1797, and was educated in New York, also at the Pennsylvania University, where he graduated in 1815. In 1817 he was licensed to practice medicine, and for the two years next succeeding delivered a series of lectures on chemistry in Philadelphia. From the latter period until 1860 he was continuously employed as a professor of chemistry in the Pennsylvania University and Philadelphia College of Pharmacy. He also provided for the maintenance of five professorships in the former institution, and by his will directed that a sum of money should be appropriated to the support of a ward in the Hahn hospital, Philadelphia. He was the author (in conjunction with Prof. F. Boche) of the *United States Dispensatory*, and of numerous works on materia medica—also of a history of Pennsylvania University. He died at Philadelphia, March 30, 1879.

WOOD, JAMES, statesman, born in 1750; died near



Richmond, Va., July 16, 1813. He served during the early part of the Revolution, and, when General Burgoyne's captured army lay at Charlottesville, Va., in 1778, Colonel Wood commanded that post. In 1783 he was promoted brigadier-general of State troops, and in 1789 appointed one of the presidential electors for Virginia. From 1796 until 1799 he was governor of Virginia. In 1801 he became president of the society for promoting the abolition of slavery in Virginia, and from 1802 until 1814 served as president of the Society of the Cincinnati.

WOOD, JOHN, F.R.S., born at Bradford, was educated at a private school and at University College, London. In 1846 he entered King's College Hospital, becoming house surgeon in 1850, and was then appointed surgeon to the Lincoln's Inn Infirmary. He gained successively the posts of examiner to the universities of London and Cambridge, and to the Royal College of Physicians, professor of surgery at King's College, 1871, examiner to the Royal College of Surgeons, and in 1885 Hunterian professor of surgery and pathology. Professor Wood has published a large number of lectures, articles, and papers on medical subjects.

WOOD, JOHN GEORGE, M.A., F.L.S., born in London, England, in 1827; was educated at Ashbourne Grammar School, entered Merton College, Oxford, in 1844, was elected Jackson scholar in 1845, and graduated B.A. in 1848 and M.A. in 1851; was ordained, in 1852, as chaplain to the boatmen's floating chapel, Oxford; appointed assistant chaplain to St. Bartholomew's Hospital, London, in 1856, and resigned the appointment in 1862. He held the office of precentor of the Canterbury Diocesan Choral Union from 1868 to 1876. He has written several valuable works on zoology; among others, a *Popular Natural History*. He edited for some time the *Boy's Own Magazine*, and was one of the associate commissioners of the great exhibition at Paris in 1867. In 1879 he projected a series of *Sketch Lectures* on zoology, illustrating them by extemporaneous drawings. He died March 4, 1889.

WOOD, GEN. SIR HENRY EVELYN, was born at Cressing, England, in February, 1838, entered the navy in 1852, served in command of the naval brigade in the Crimea (1854-55), and was present at the siege of Sebastopol. At the unsuccessful assault on the Redan he was severely wounded, and was mentioned with praise in Lord Raglan's dispatches. He obtained the Crimean medal with two clasps, the fifth class of the Order of the Medjidie, and a Turkish legion medal; and was made a knight of the French Legion of Honor. In the Indian campaign of 1858 he served as a brigade-major, and in 1859 and 1860 he commanded the 1st regiment of Beatson's irregular horse, and received the thanks of the Indian Government for his pursuit of the rebels in the Seronge jungle; he also won the Victoria cross for valor. In September, 1873, he accompanied Maj.-Gen. Sir Garnet Wolseley to the Ashantee war, and organized a native force, which he commanded, with other troops, in the affairs of Essaman, and, on the road from Mansu to the river Prah, following the retreat of the Ashantee army from the coast. Lieutenant-Colonel Wood afterward commanded the right wing of the army in the battles of Amoafal Ordahsun, and the capture of Coomassie. For these services he was nominated a C.B., promoted to the brevet rank of colonel, and received the medal with clasp. He served throughout the Zulu war of 1879, in command of No. 4 column. He defeated the Zulus in the action of Kambula on March 29th, and in April was made brigadier-general. He led the advance to Ulundi with a flying column, and was present in the engagement there on July 4th. On his return to England he was received by the queen in person, and was created a K.C.B. He served in the

Transvaal war of 1880-81, with the local rank of major-general; was nominated one of her majesty's commissioners for settling the Transvaal territory in April, 1881; and was appointed to command the troops in the Chatham district in 1882. He commanded the second brigade, second division in the expedition to Egypt in 1882, and for his distinguished services received the thanks of parliament. In December, 1882, he was appointed commander-in-chief of the Egyptian army, ranking as chief of the pashas, or sirdar. In July, 1883, he was appointed an extra knight-commander of the Star of India.

WOOD, THOMAS JOHN, was born in Munfordville, Ky., September 25, 1823. He was graduated at the United States Military Academy, served during the Mexican war, was captain of a cavalry company in Kansas during the border troubles of 1855, and was with the Utah expedition under Albert Sidney Johnston. He was commissioned brigadier-general of volunteers in October, 1861, and commanded a division in the Tennessee and Mississippi campaigns, participating in the battle of Shiloh and the siege of Corinth. He was wounded at the battle of Stone River, December 31, 1862, and afterward commanded a division in the twenty-first corps, army of the Cumberland. He was again wounded at Lovejoy's Station in September, 1864. In January, 1865, he was made major-general of volunteers and commanded various districts and departments until he was mustered out of the volunteer service, September 1, 1866. General Wood received the brevet of brigadier-general in the United States army for services at Chickamauga, and that of major-general for services at Nashville.

WOOD, THOMAS W., an American artist, was born at Montpelier, Vt., November 12, 1823, and studied his art in Boston. In 1858 he visited Europe, and, upon his return to the United States, was for some time professionally engaged at Nashville, Louisville, and other points in the South, removing to New York in 1866, where he has since remained. He is the author of the *Contraband*, the *Recruit*, and the *Veteran*, which received prizes at the Academy of Design, New York, in 1867, and of a large number of works on distinctly American subjects. He is an academician of the National Academy, and a member of other societies.

WOODALL, WILLIAM, M.P., was born in 1832, and educated at Liverpool. He was first elected to parliament as member for Stoke-on-Trent at the general election of 1880, and represented that constituency until the dissolution of 1885, when he was returned for Henley. He was again returned in 1886, became surveyor general of ordinance, was reelected in 1892 and on Gladstone's coming into power again was appointed financial secretary of war.

WOODBERRY, G. E., an American author, was born at Beverly, Mass., May 12, 1855, and became a graduate of Harvard University in the class of 1877. He has been associate editor of *The Nation*, and is the author of a life of Edgar Allan Poe and other works. He was professor of English literature at the Nebraska State University for several years between 1877 and 1883.

WOODBIDGE, WILLIAM CHANNING, was born at Medford, Mass., December 18, 1794. Upon the completion of his collegiate course at Yale, he studied theology and medicine, but afterward devoted his attention to teaching. In 1820 he visited Europe, and paid close attention to the educational systems there employed, particular reference being had to that of Pestalozzi. Upon his return to the United States he recommended the adoption of the latter by the common schools. From 1831 to 1838 he was owner and editor of the *Annals of Education*, and was the author of a num-



ber of text books adapted to the use of students. He died in Boston, November 9, 1845.

WOODBURY, DANIEL PHINEAS, was born in New London, N. H., December 16, 1812; died in Key West, Fla., August 15, 1864. He was graduated at the United States Military Academy in 1836. As lieutenant of engineers he was engaged in the construction of the Cumberland road in Ohio, the repairing of fortifications at points on the Atlantic coast, and as an assistant to the chief of engineers at Washington until 1847, after which he superintended the construction of Fort Kearny and Fort Laramie. He became captain of engineers March 3, 1853, and major in August, 1861, doing good service during the Civil war. He rose to the rank of brigadier-general of volunteers, March 19, 1862, and commanded the engineer brigade of the army of the Potomac, constructing roads, bridges, and causeways for the advance upon Richmond. At Fredericksburg he distinguished himself by laying and removing pontoons under the enemy's fire. In March, 1863, he was placed in command of the district of Key West, where he died of yellow fever. He was brevetted major-general in the United States army in 1862.

WOODBURY, LEVI, was born at Francistown, N. H., December 22, 1789, and was admitted to the bar in New Hampshire in 1812. He became a leader of the Democratic party of his State, was appointed to the Supreme Court of the State in 1816, elected governor in 1823, speaker of the State House of Representatives 1825, and served in the United States Senate from 1825 to 1831. He was secretary of the navy in 1831, and secretary of the treasury from 1834 to 1841. Again elected to the United States Senate in 1841, he served until 1845, when he was appointed an associate justice of the United States Supreme Court. He died at Portsmouth, N. H., September 7, 1851.

WOODHOUSE, JAMES, an American scientist, was born at Philadelphia, November 17, 1770, and in 1787 graduated at the University of Pennsylvania, where he continued until 1792, engaged in the study of medicine. In 1795 he was appointed professor of chemistry at his alma mater, and remained in that position until his death, June 4, 1809. He is the author of many medical and scientific works, but is best known as the chemist who first established the fact that the Pennsylvania anthracite coal was superior for fuel purposes to the bituminous coal of Virginia.

WOODS, SIR ALBERT WILLIAM, F.S.A., was born in 1816; entered the College of Arms as portcullis pursuivant in 1838, was appointed Lancaster herald in 1841, and became registrar of the college in April, 1866. He was advanced to the office of garter principal king-at-arms, October 25, 1869, in succession to Sir Charles George Young, deceased, and received the honor of knighthood on the 11th of the following month. He holds the office of registrar and secretary to the Order of the Bath, registrar to the Order of the Star of India, and king-at-arms to that of St. Michael and St. George.

WOODS, HENRY, A.R.A., born April 23, 1847, at Warrington, in Lancashire; was educated at the local grammar school, entered the Warrington School of Art as a pupil at nine years of age, and remained there until he went to London, in the winter of 1864, having obtained a "National Scholarship" in the Art Training Schools at South Kensington. When the *Graphic* was started, Mr. Woods was one of the first members of its staff. His first picture exhibited at the Royal Academy was a little landscape, at the first exhibition held at Burlington house. Since then he has been a regular exhibitor. In 1876 Mr. Woods first went to Venice, and joined the group of artists who have made modern Venetian subjects so popular. He was elected

associate of the Royal Academy in 1882. Since then, Mr. Woods has painted a considerable collection of works of art.

WOODS, LEONARD, was born in Newbury, Mass., November 24, 1807; died in Boston, December 24, 1878. He was graduated at Union College in 1827, and at Andover Theological Seminary in 1830. At the age of twenty-four years he was assisting Professor Stuart in his commentary on the epistle to the Romans, was aiding Professor Robinson in editing the *Biblical Repository*, and was assistant instructor of Hebrew in the seminary. From 1834 until 1837 he was editor of the *Literary and Theological Review* in New York city; became professor of sacred literature in Bangor Theological Seminary in 1836, and was president of Bowdoin from 1839 until 1866. His writings and his conversation were remarkable for the depth of thought and profound scholarship they displayed. Harvard gave him the degree of D.D. in 1846, and Bowdoin that of LL.D. in 1866. Among his later works was an early history of Maine, which he was commissioned to write by the legislature of that State.

WOODS, WILLIAM B., was born at Newark, Ohio, August 3, 1824; graduated at Yale College in 1845, studied law and was admitted to practice. In 1857 he was a member of the Ohio legislature, becoming speaker of that body in 1858, and when the Civil war broke out he entered the army as an officer of the 76th regiment of Ohio infantry. He fought at Shiloh, and in the leading battles of that region, served at Vicksburg and Jackson, was with General Sherman on his march through Georgia and the Carolinas, and retired from the service in 1866 a brigadier-general. After the war he was identified with the reconstruction and the reorganization of Alabama, and during 1868 became State chancellor. In 1869 he was appointed circuit judge of the United States for the fifth circuit, and December 22, 1880, was confirmed as associate justice of the Supreme Court. He died at Washington, D. C., May 14, 1887.

WOODWARD, AUBERTINE A. W., a native of Pennsylvania, born in Montgomery county, September 27, 1841, and educated in Philadelphia. She devoted her attention to music and languages, and became an expert in the translation of French, German, Scandinavian, and Norwegian writers, also delivering lectures on foreign literature. Her publications embrace English versions of works of fiction, poetry, biography, etc., by the leading writers of Continental Europe.

WOODWARD, JOSEPH JANVIER, was born in Philadelphia, Penn., October 30, 1833; died near that city, August 17, 1884. He was graduated in the medical department of the University of Pennsylvania in 1853, and was subsequently demonstrator in operative surgery at that place, and clinical surgical assistant. Afterward he was in charge of the surgical clinic of the university. He became assistant surgeon in the United States army at the beginning of the Civil war, and was soon made chief medical officer of the fifth division in the department of Northeast Virginia. In May, 1882, he was assigned to the surgeon-general's office in Washington, where he devised new methods of photomicrography, and laid the foundation for extensive improvements in the construction of microscopic adjuncts. At the close of the war he received the brevets of captain, major, and lieutenant-colonel, was commissioned captain and assistant surgeon, July 28, 1866, and surgeon, with the rank of major, June 26, 1876. He was president of the American Medical Association and of the Philosophical Society of Washington, and he wrote the *Medical and Surgical History of the War*.

WOODWORTH, SAMUEL, poet, born in Scituate, Mass., January 13, 1785; died in New York city, Decem-

ber 9, 1842. He received an ordinary education, and at the age of seventeen was apprenticed to a printer. Soon afterward he went to New Haven, Conn., and in 1809 he removed to New York city. In 1816 he contracted to write a historic romance, entitled *The Champions of Freedom*, and in 1823, in connection with George P. Morris, he established the weekly New York *Mirror*. After a year's trial he withdrew from this paper, and in 1827 edited a short-lived publication, *The Parthenon*. He was the author of several plays, which became popular. Later in life he became impoverished and paralyzed.

WOOL, JOHN ELLIS, soldier, born in Newburg, N. Y., February 20, 1784; died in Troy, N. Y., November 10, 1869. In the war of 1812 he entered the army as captain of volunteers, and took part in the battle of Queenstown Heights, where he was wounded. In 1813 he was promoted for gallantry at Plattsburg to be brevet lieutenant-colonel, and, on June 25, 1841, he was made brigadier-general of the United States army. At Buena Vista he was second in command under Gen. Zachary Taylor, and for meritorious conduct on that occasion was brevetted major-general, February 23, 1847. From 1848 to 1853 he commanded the eastern military division, and from 1854 to 1857 that of the department of the Pacific. In 1860 he commanded the department of the East, and on May 16, 1862, became major-general of the United States army. He was retired from active service August 1, 1863.

WOOLMAN, JOHN, Quaker preacher, was born in Northampton, Burlington county, N. J., in August, 1720; died in York, England, October 7, 1772. He learned the trade of a tailor, which he used as a means of support while traveling, and preaching among the various societies of Friends throughout the colonies. He spent the greater part of his life as an itinerant preacher, once making a tour of the back settlements of Virginia, and later visiting the Indians on the Susquehanna river. He spoke and wrote much against slavery. In 1772 he went to England to attend a quarterly meeting of Friends at York, and while there fell a victim to smallpox. Woolman's writings have been much admired. Among his posthumous works is *The Journal of John Woolman's Life and Travels in the Service of the Gospel*, edited, with an introduction, by John G. Whittier.

WOOLNER, THOMAS, K. A., was born at Hadleigh, in Suffolk, England, December 17, 1826, and received his education at Ipswich. When thirteen years of age he evinced a talent for sculpture, and was placed in the studio of William Behnes, under whose guidance he studied with great diligence for six years, acquiring remarkable skill as a sculptor, and becoming an accomplished draughtsman. His first models were of a poetical and historical character, attracting particular attention, and regarded as works of great promise in the inventive or ideal style of sculpture. Mr. Woolner went to Australia in 1862, and during a residence of nearly two years there he modeled a number of characteristic likenesses in medallion. On his return to England his first important production was a life size statue of Lord Bacon, for the new museum at Oxford, followed by many pieces, including statues of distinguished men of Europe. He was afterward engaged on a colossal statue in bronze of Captain Cook, for the government of New South Wales, to be erected in Hyde Park, Sydney, overlooking Sydney Harbor. In 1871 Mr. Woolner was elected an associate of the Royal Academy, and in December, 1874, nominated a royal academician. On the death of Mr. Henry Weekes, in 1877, he was appointed to succeed him as professor of sculpture in the Royal Academy. He resigned that professorship in January, 1879. Mr. Woolner after-

ward executed the recumbent statue of Lord Frederick Cavendish, now in Cartmel Priory Church, and the monument of Sir Edwin Landseer, in the crypt of St. Paul's Cathedral. He published the poems *Pygmalion*, *Silenus* and *Tiresias*. He died October 7, 1892.

WOOLSEY, THEODORE DWIGHT, LL.D., was born at New York, October 31, 1801; studied theology at Princeton; was a tutor in Yale, 1825-26; licensed to preach in 1825, and studied in Germany, 1827-30. In 1831 he was elected professor of the Greek language and literature in Yale College, and fifteen years later president of that college. He resigned the presidency in 1871, but continued in the faculty. Besides many occasional orations, addresses, and essays, he published translations of Greek plays, besides works of a legal, religious, and miscellaneous character. President Woolsey was for several years one of the regents of the Smithsonian Institution, and was chairman of the American division of the committee on the revision of the New Testament. He died July 1, 1889.

WOOSTER, DAVID, soldier, born in Stratford, Conn., March 2, 1710; died in Danbury, Conn., May 2, 1777. He was graduated at Yale in 1738, and in the following year entered the colonial army as lieutenant; soon afterward he was made captain of a vessel built and equipped for coast defense. In 1745 he was a captain in Col. Aaron Burr's regiment in the expedition against Louisburg. In 1755 he was appointed colonel of a Connecticut regiment, and during the French war, 1756 to 1763, was promoted to be brigadier-general. In April, 1775, he originated the expedition that captured Fort Ticonderoga, and on the organization of the Continental army was appointed one of the eight brigadier-generals, serving for a time in Canada. Subsequently he resigned from the national army, became major-general of the militia of Connecticut, and commanded the forces in Danbury when that place was invested by the troops under Governor William Tryon, April 26, 1777. In the ensuing action he fell, mortally wounded by a musket ball.

WOOLSON, CONSTANCE FENIMORE, a popular novelist, niece of James Fenimore Cooper, born at Claremont, N. H., 1848, died at Venice, Italy, January 23, 1894. She wrote *Castle Nowhere*, *Anne, For the Major*, *East Angels*, *Jupiter Lights* and other stories.

WORCESTER, JOSEPH EMERSON, philologist, born in Bedford, N. H., August 24, 1784; died in Cambridge, Mass., October 27, 1865. As a boy he worked on a farm, and in 1811 was graduated at Yale. In 1830 he visited Europe, and in 1847 received the degree of LL.D. from Brown, which was duplicated by Dartmouth in 1856. Doctor Worcester delivered lectures, edited a variety of gazetteers, geographies, histories, and almanacs, and finally made a life work of his *Dictionary of the English Language*.

WORDEN, JOHN LORIMER, naval officer, born in Westchester county, N. Y., March 12, 1818, entered the navy as midshipman January 12, 1835, and in 1840 attended the naval school at Philadelphia. At the beginning of the Civil war he was arrested by the Confederates and confined for seven months. Subsequently he was exchanged, ordered to superintend the completion of John Ericsson's *Monitor*, and appointed to take command. In this vessel he left New York hastily, and after a stormy and hazardous passage, arrived at Hampton Roads. On March 8th the Confederate iron-clad ram *Merrimack* had destroyed the wooden ships-of-war *Congress* and *Cumberland*, deeming herself invulnerable. The commander of the *Monitor* only reached there in time to hear the news, and finding the *Minnesota* aground on the shoal, anchored alongside, prepared to



defend the wooden fleet of the government from further disaster. On March 9th the Confederate ram prepared to destroy the *Minnesota*, but when she had approached within a mile the *Monitor* steamed forth to intercept her progress. In the ensuing action the *Merrimac's* broadsides glanced off from the turret of the *Monitor*, while every one of the latter's deliberate broadsides took effect on the Confederate vessel. This cannonade continued for more than two hours, and ended in a drawn battle. Later Worden destroyed the Confederate privateer *Nashville*, which had taken shelter under the guns of Fort McAllister, and took part in the attack on the forts of Charleston harbor under Admiral Dupont. On May 27, 1868, he was promoted commodore, and from 1870 to 1874 he served as superintendent of the United States Naval Academy. He was commissioned rear admiral, November 20, 1872, and December 23, 1886, was retired at his own request.

WORDSWORTH, REV. CHARLES, D.D. and D.C.L., bishop of St. Andrews, Dunkeld, and Dunblane, born in 1806; was educated at Harrow and at Christ Church, Oxford, where he took the degree of B.A. in 1830. In 1835 he was selected second master of Winchester College, but resigned in 1845, and accepted in 1846 the appointment of first warden of Trinity College, Glenalmond, Perthshire, which he held for seven years. In 1852 he was elected bishop of the united dioceses of St. Andrews, Dunkeld, and Dunblane, and at the installation of the late Earl of Derby as chancellor, in 1853, was admitted to the honorary degree of D.C.L. by the University of Oxford. In 1854 he resigned the wardenship of Glenalmond, and afterward devoted himself exclusively to the duties of the episcopate, taking an active part in the affairs of the Scottish Episcopal Church. He was one of the New Testament company for the revision of the authorized version of the Bible, and his published works are chiefly of a theological character. In 1885 he received the honorary degree of D.D. from the University of Edinburgh, on occasion of the grand tercentenary festival, and also from the University of St. Andrews in the same year. He died December 4, 1892.

WORDSWORTH, JOHN, D.D., bishop of Salisbury, was born at Harrow, September 21, 1843, and educated at Winchester School and at New College, Oxford, where he graduated in 1865. He was appointed prebendary of Lincoln in 1870, select preacher at Oxford 1876, Bampton lecturer 1881, Oriel professor of the interpretation of holy scripture 1883, and canon of Rochester in the same year. On the death of Doctor Moberley in 1885, he was appointed bishop of Salisbury. Doctor Wordsworth is the author of several elaborate articles in the *Dictionary of Christian Biography*, and books of a religious and semi-religious character.

WORK, HENRY C., an American composer and musician, is a native of Connecticut, and was born at Middletown, in that State, October 1, 1832. He was educated in Illinois, but served an apprenticeship to the printing trade in his native State, where he became prominent as the author of war songs, which attained to remarkable popularity, notably *Kingdom Coming*, *Marching Through Georgia*, etc. He made a fortune from his compositions, but lost it by bad investments, and, in 1875, sought to recoup his losses as composer for Root & Cady, music publishers. He died at Hartford, Conn., June 8, 1884.

WORMS, BARON HENRY DE, M.P. for East Toxteth division of Liverpool, was born in London, October 20, 1840; educated in Paris, and at King's College, London, of which he is a fellow. He was called to the bar at the Inner Temple in June, 1863, and practiced as a barrister for about three years. In 1880 he became

Conservative member for Greenwich; successfully contested East Toxteth, in 1885; was returned unopposed in 1886, and reelected in 1892. He was parliamentary secretary to the Board of Trade, 1885-86, and 1886-88, and under secretary of State for the colonies, 1888-92, and an active and effective debater. He is the author of *The Earth and its Mechanism*, *England's Policy in the East*, and *The Austro-Hungarian Empire*.

WORTH, CHARLES FREDERICK, born at Bourn, England, went to Paris in 1846, began making costumes, and achieved great success as a designer of fashions, his establishment in the Rue de la Paix becoming the first emporium for the latest Paris fashions. M. Worth employed a thousand persons, and was for years the dictator of fashion to royalty and wealth, being in his sphere an absolute despot. Queens and princesses who asked his services had to accept his ideas. He died March 11, 1894.

WORTH, THOMAS, born at New York city, February 12, 1834, educated himself in the arts of designing and drawing on wood; illustrated an edition of *Plutarch Restored*, in 1862, and works of prominent authors. He is a noted caricaturist.

WORTH, WILLIAM JENKINS, soldier, born in Hudson, N. Y., March 1, 1794; died in San Antonio, Tex., May 17, 1849. In the war of 1812 he was successively commissioned first lieutenant of infantry, captain and major; became superintendent of the United States Military Academy, fought in the Florida war, and in the war with Mexico; took part in all engagements from Vera Cruz to the City of Mexico, being brevetted major-general for his services at Monterrey. After the war he commanded the Department of Texas.

WORTHEN, AMOS HENRY, geologist, was born in Bradford, Vt., October 31, 1813; died in Warsaw, Ill., May 6, 1888. In 1836 he settled in Warsaw, where he engaged in business, and at the same time studied the geological features of that region. He withdrew from business in 1842 and spent two years in Boston, where he exchanged a collection of minerals for a cabinet of sea shells. By comparing these with his fossil specimens he afterward became an expert paleontologist. Returning to Warsaw he greatly increased his cabinet of specimens, and, in 1851, he became assistant on the newly-established geological survey of Illinois. From 1855 until 1858 he held a similar office in the survey of Iowa, and was then appointed State geologist of Illinois. In 1877 he was made curator of the State Historical Library and Natural History Museum, which office he held until his death. Mr. Worthen was a member of several scientific bodies, and in 1872 was elected to the National Academy of Science.

WORTHINGTON, GEORGE, LL.D., a Protestant Episcopal bishop of the United States; born at Lennox, Mass., October 14, 1848; graduated at Hobart College in 1860, and three years later at the general Theological Seminary, New York. He was ordained minister in 1864, and became assistant rector at St. Paul's Church, Troy, going thence, as rector, to Christ Church, Ballston, Spa, in the same State, and finally to St. John's Church, at Detroit, Mich. Being refused an election as bishop of Michigan, he declined the missionary bishopric of Shanghai, China, but was consecrated bishop of Nebraska, February 24, 1885. Hobart College conferred the degree of D.D. in 1876, and LL.D. in 1885.

WRANGEL, CHARLES MAGNUS VON, clergyman, born in Sweden, about 1730; died in Sala, Sweden, in 1786. He was educated at the University of Upsala; in 1857 received the degree of D.D. from Göttingen University, and became court preacher. In 1759 he



was appointed provost of Swedish churches in America, and in the same year arrived in Philadelphia, Penn. After nine years' service Doctor Wrangel returned to Sweden, serving to the end of his life as a pastor at Sala.

WRANGELL, FERDINAND PETROVITCH, BARON VON, navigator, born in Pleskau, Russia, December 29, 1796; died in Dorpat, Russia, June 10, 1870. He was educated at a military school in St. Petersburg, and entered the Russian naval service in 1812. In 1825 he circumnavigated the globe, and on his return was appointed governor of Russian America. In 1834 he returned home, and in 1837 was promoted rear-admiral, and in 1847 became vice-admiral. Resigning in 1849, he assumed the presidency of the newly organized Russian American company, and, as such, opposed the cession of Alaska to the United States, writing several articles on the subject. In 1854 he reentered active service, becoming successively chief assistant to the high-admiral, admiral, and general aide-de-camp to the emperor. He published works which have appeared in the English, German, French, and Russian languages.

WRIGHT, ARTHUR W., Ph.D., an American scientist and educator, was born in Lebanon, Conn., September 8, 1836, graduated at Yale College in 1859, and was admitted to the bar in 1866. He subsequently became a tutor at Yale, going thence to Williams College in 1868, as professor of physics and chemistry, but returning to Yale in 1872 to accept a similar position, where he has since remained. He has made a number of important astronomical discoveries, and written much on scientific topics. He is a member of the Royal Astronomical Society, and a National Academician.

WRIGHT, CARROLL D., statistician, born at Dunbarton, N. H., July 25, 1840, served in the Union army, becoming colonel; was admitted to the bar, 1865; was chief of the Massachusetts bureau of labor statistics, 1873-88, and became first United States commissioner of labor in the Interior Department in 1884. He has published reports of Massachusetts censuses, statistics of labor, *The Factory System of the United States* (1882), *Convict Labor* (1886), *Strikes and Lock-outs* (1887), and *The Relation of Economic Conditions to the Causes of Crime* (1893).

WRIGHT, ELIZUR, was born in South Canaan, Conn., February 12, 1804; died in Medford, Mass., November 21, 1885. He was graduated at Yale in 1826, and three years later became professor of mathematics and natural philosophy in Western Reserve College, Hudson, Ohio. He was made secretary of the American Anti-Slavery Society which was formed in Philadelphia in December, 1833, and, removing to New York, he assisted in editing *The Emancipator*. Between that time and 1838 he successively conducted a paper called *Human Rights*, and the *Quarterly Anti-Slavery Magazine*, and in 1839 became editor of the *Massachusetts Abolitionist* in Boston. In 1846 he established the *Chronotype*, a daily newspaper which was merged in the *Commonwealth* in 1850. Mr. Wright's house was once besieged by a mob on account of his anti-slavery sentiments. He was several times indicted for libel in consequence of his editorial strictures on the liquor interests, and once, in 1851, for aiding a runaway slave to escape. Later in life he gave his attention to invention and mechanics, and to insurance interests. He aided in forming the Liberty party in 1840.

WRIGHT, FANNY, reformer, born in Dundee, Scotland; died in Cincinnati, Ohio, December 14, 1852. From 1818 to 1820 she traveled in the United States, and on her return to Europe published *Views of Society and Manners in America*. She then spent

some time in Paris and in 1825 returned to America and purchased 2,400 acres of land near Memphis, Tenn., where she endeavored to establish a colony of emancipated slaves. However, her plans miscarried, and the negroes in the colony were afterward sent to Hayti. Later she became associated with Robert Dale Owen in New Harmony, Ind., edited the *Gazette*, and also lectured on behalf of the colony. In 1838 Fanny Wright went to France, where she was married to M. d'Arusmont, from whom she soon separated, and, with her daughter, permanently settled in Cincinnati, Ohio, living in retirement. Her publications include a number of miscellaneous works.

WRIGHT, GEORGE F., was born at Whitehall, N. Y., January 22, 1838, graduated at Oberlin College in 1859, and from the theological department of that institution in the summer of 1862. He was ordained in September, 1863, became pastor of the Congregational church at Bakersfield, Vt., and in 1872 took charge of a church at Andover, Mass. In 1881 he became professor of languages and literature in the seminary at that place. He served on the geological survey of Pennsylvania, and since 1884 has been in the employ of the United States, in the department of glacial geology in the government survey. He has published works on religious and geological subjects.

WRIGHT, HORATIO G., born at Clinton, Conn., March 6, 1820; graduated at West Point in 1841, and was assistant professor of engineering at the Military Academy until 1845. From that date, up to 1861, he served in the engineer corps. He planned a portion of the defenses of Washington, and was present at the battle of Bull Run, receiving promotion to the rank of brigadier-general of volunteers in September following. He participated in the campaign which resulted in the capture of Hilton Head, S. C., and in 1863 was in command of the department of Ohio, whence he was ordered to Virginia and promoted colonel of the regular army. He succeeded to the command of the sixth corps upon the death of General Sedgwick, in 1864, repulsed the advance upon Washington of General Early's army the same year, and was engaged in nearly all the battles in Virginia from that time until the close of the war. He was promoted through the grades of lieutenant-colonel and colonel to be chief of engineers with the rank of brigadier-general of the United States army, and was retired from service March 22, 1884. He died July 2, 1899.

WRIGHT, JOSEPH, portrait painter, born in Bordentown, N. J., in 1756; died in Philadelphia, Penn., in 1793. In 1772 he went to England with his parents, and there studied the art of design, devoting himself particularly to portrait painting. From London he went to Paris, where he was patronized by Benjamin Franklin. In 1783 he painted a three-quarters length portrait of Gen. George Washington, made a duplicate thereof, and also executed a miniature profile from life. Later, President Washington appointed him first draughtsman and die-sinker in the United States mint. The earliest coins and medals issued by the United States Government were from his designs.

WRIGHT, LUTHER, was born in Massachusetts in November, 1796, and graduated at Yale College in 1822. He became a tutor at that institution, principal of the Leicester, Mass., Academy, and taught in various portions of that State and in Connecticut. He died at Easthampton, Mass., September 5, 1870.

WRIGHT, SIR JAMES, colonial governor, born in Charleston, S. C., about 1714; died in London, England, November 20, 1785. On May 13, 1760, he became chief-justice and lieutenant-governor of South Carolina, and in 1764 was made governor of Georgia.



In his proclamations he recommended the people to submit to the royal authority, but they had little effect in tranquilizing the discontented, and in 1768 Governor Wright charged the assembly with revolutionary conduct, and dismissed it. In 1775 several British ships-of-war arrived in Tybee, when a mob endeavored to capture the governor, but he escaped to find refuge on the armed ship *Scarborough*. On the termination of the war his extensive possessions were confiscated. He returned to England, where he was indemnified for his losses, and created a baronet.

WRIGHT, WILLIAM, LL.D., born in India, presidency of Bengal, January 17, 1830, was educated at St. Andrew's, Scotland, and Halle, Prussia. He was appointed professor of Arabic in University College, London, in 1855; in Trinity College, Dublin, in 1856; assistant in the department of MSS. in the British Museum in 1861; assistant keeper of the MSS. in 1869; professor of Arabic in the University of Cambridge in 1870. He was a fellow of Queen's College, Cambridge; LL.D. of Cambridge, Dublin, Edinburgh, St. Andrews; D.D. of Jena; and Ph.D. of Leyden; correspondent del'Institut de France; corresponding member of the Imperial Academy of St. Petersburg, the Royal Academy of Berlin, the Königl Gessellschaft der Wissenschaften of Göttingen, and the Reale Istituto Lombardo; honorary member of the Deutsche Morgenländische Gesellschaft, of the American Oriental Society, and of the Asiatic Society of Bengal. He was a voluminous writer on travel, languages, etc., and published a large number of books. He died May 22, 1889.

WULLERSTORF (BARON), born at Trieste, January 29, 1816, entered the College of Pioneers, at Tulln, near Vienna, and became in 1833 a cadet in the Imperial navy. He studied astronomy under the celebrated Von Littrow; was appointed in 1839 director of the Nautical Observatory at Venice, and was decorated with the Iron Cross. In 1849 he was appointed commodore; organized the naval academy, and in April, 1857, he took command of the *Novara*, commissioned for a tour of scientific observation. He returned home in 1859; attained the rank of rear-admiral in 1861, and was sent to Vienna as representative of the navy in the Reichsrath. In the following winter he visited Switzerland, Germany, France, Belgium, and Holland, in order to study new inventions in shipbuilding and iron manufactures. Upon his return he was appointed admiral of the port of Venice, and in 1864 commander-in-chief of the allied fleets in the German Ocean. When the war was over he retired to Gratz, in Styria, and was appointed minister of commerce. He died August 10, 1883.

WURTELE, J. S. C., D.C.L., was born January 27, 1828, near Quebec, Canada, and was educated at the public schools of that city. In 1850 he was admitted to the bar, and for many years occupied the chair of commercial law in McGill University, becoming queen's counsel in 1873, and a member of the legislature during the sessions of 1875, 1878, 1881, and 1882, also treasurer of the province in the latter year. At the sessions of 1884 and 1885 he was chosen speaker. He was made a B.C.L. by McGill University in 1872; D.C.L. by the same institution in 1882, and an officer of the Legion of Honor the same year.

WURTZ, CHARLES ADOLPHUS, an eminent scientist, was born in Strasburg, Alsace, November 26, 1817, graduating at the university in that city in June, 1843, and thereafter devoted his time to the study of chemistry and cognate subjects. Soon after obtaining his university degree, Wurtz became a resident of Paris, and in 1850 accepted the chair of chemistry in the Institute of Versailles. In 1875 he was made professor in the Parisian Academy of Sciences. He was

the author of a large number of works on chemistry, and made frequent discoveries of an important character in his investigations into that science. He died May 11, 1884.

WURTZ, HENRY, an American chemist, was born June 5, 1828, at Easton, Penn., and graduated at Princeton in 1848. He afterward studied at Cambridge, Mass., and attended a course of lectures at the Lawrence Scientific School in that city. Subsequently he was employed by the State of New Jersey to accompany the geological survey of the State in the capacity of chemist. He also served as professor of that science in colleges at Kingston, Canada, and Washington, D. C., and his investigations and study have accomplished results of significant consequence. He has otherwise served professionally, and is the author of numerous articles on chemistry which have been published in the scientific periodicals and cyclopædies of the United States and Europe.

WYLDE, HENRY, Mus.D. Cantab., Gresham professor, was born at Bushy, England, May 22, 1822, and entered the Royal Academy of Music. In 1850 Doctor Wylde took his degree as doctor of music at the University of Cambridge. In 1851 he was appointed a juror at the Great International Exhibition of that year, and in 1852 founded the New Philharmonic Society. In 1863 Doctor Wylde was appointed by the lord mayor, aldermen, and members of the Gresham committee, one of the seven professors of Gresham College. While conductor of the New Philharmonic concerts, Doctor Wylde produced his music to *Paradise Lost*, the cantata entitled *Prayer and Praise*, his pianoforte concerts in F minor, and some vocal music. He also published works on the science of music, and on counterpoint. He died March 21, 1890.

WYMAN, JEFFRIES, anatomist, born in Chelmsford, Mass., August 11, 1814; died in Bethlehem, N. H., September 4, 1874. He was graduated at Harvard in 1833, studied medicine, and took the degree of M.D. in 1837, and afterward went to Europe to extend his studies. In 1843 he was a professor in Hampden College, Richmond, Va., and in 1847 at Harvard. Subsequently he made extensive journeys in North and South America, Europe, and Asia. From 1856 to 1870 he was president of the Boston National History Society, and on the founding of the Peabody Museum, at Cambridge, Mass., in 1866, was chosen its curator. He belonged to scientific societies in Europe and America, issued sundry pamphlets on natural history, contributed many papers to scientific publications, and exposed several frauds attempted in comparative anatomy.

WYMAN, ROBERT H., an American naval officer, born at Portsmouth, N. H., July 12, 1822; entered the navy, and graduated at the academy in 1843. During the Mexican war he participated in the siege and capture of Vera Cruz, and in nearly all the naval engagements subsequently occurring until peace was declared. Prior to the Civil war he was employed in routine services, but in 1861 was assigned to active duty. He was attached to the South Atlantic squadron, blockading the Southern ports, and figured prominently in the capture of Port Royal, S. C. He afterward served as commander of the fleet employed in keeping the Potomac free from obstructions, and, after the war, as a member of the light-house board. He was promoted through the various grades of lieutenant, commander, captain, commodore, and rear-admiral, and died at Washington city, December 2, 1882.

WYNDHAM, CHARLES, a noted English comedian, was born in Suffolk, in 1841. Receiving a good education, he studied medicine, and at a very early age began practice. At the beginning of the Civil war he came to

the United States and entered the army as a surgeon. Wyndham, from boyhood, had a liking for theatricals, and had been pronounced an excellent amateur. After his return to England he soon developed as a first-class actor, and played his first public engagement in London with Laura Keane. It is a little remarkable that Wyndham and Irving, in view of their after careers, should have had such decided ideas as to the line of work for which they were adapted. Irving in his early days imagined he would make the comedian of the age, while Charles Wyndham believed he was cut out for tragedy rôles. Irving has developed into a high mark tragedian, while Wyndham's comedy is pronounced unexcelled. Mr. Wyndham, once started in the thespian art, made rapid progress. He has played with all the great lights in the Old World and soon became the manager of the Criterion theater in London. He has made a number of professional tours of the United States, each time adding to the good reputation already won.

WYNKOOP, HENRY, a distinguished patriot and member of the continental congress from Pennsylvania, was born in that State during 1737, and, during the exciting days that preceded and accompanied the Revolutionary struggle, was a member of the general committee of safety, and of other committees on the conduct of the war. He was elected to the Continental congress in 1779, and twice reelected, also serving at the sessions of the United States congress convened in 1789 and 1791. He died in Bucks county, Penn., October 24, 1812.

WYNN, RICHARD, a soldier of the Revolution, born in Virginia in 1749, entered the patriot army as a

young man and served throughout the war. He was promoted from the ranks to various official positions, becoming brigadier-general at the close of hostilities. He subsequently settled in South Carolina, where he was elected to congress and served as a representative until his death in 1813.

WYNNS, THOMAS, was born in North Carolina in 1764, and entered the colonial army upon the declaration of war with the mother country. In 1780 he was taken prisoner and conveyed to London, but returned at the close of the war and renewed his residence in North Carolina. He was a member of the convention by which the constitution of 1788 was adopted, and afterward served as a member of congress from 1802 to 1807. He died in Hertford county, N. C., June 3, 1825.

WYTHE, GEORGE, born in Elizabeth City county, Va., in 1726; died in Richmond, Va., June 8, 1806. He received his early education at home, which was supplemented by study at William and Mary College. At the age of thirty he was chosen to the House of Burgesses, where he continued to serve until the beginning of the Revolution. In August, 1775, he was appointed a delegate to the Continental Congress, and signed the Declaration of Independence. He afterward became professor of law in William and Mary College, where he continued ten years. Later he removed to Richmond, and, toward the end of his life, emancipated his slaves, furnishing them with the means of support until they could care for themselves. In 1790 William and Mary gave him the degree of LL.D. He published *Decisions in Virginia by the High Court of Chancery*.

## X.

XAVIER, JEROME, was born in Navarre, France. He was a relative of Saint Francis, and went as a missionary to Goa in 1571, after which he preached at the court of the Mogul emperor. He died at Goa in 1617.

XERES, FRANCISCO, a Spanish historian, was born about the year 1500. He became secretary to Pizarro, with whom he went to Peru about 1530. In 1547 he published *A True Account of the Conquest of Peru*.

XIMENES, AUGUSTUS LOUIS MARQUIS DE, a French poet of Spanish extraction, was born in Paris in 1726 and died in 1815. He was an intimate friend of Voltaire. He wrote *Don Carlos*, a tragedy, several poems, and critical essays.

XIMENES, CARMONA FRANCISCO DE, a Spanish medical writer, born at Cordova, near the end of the sixteenth century.

XIMENES, FRANCISCO, or XIMENES DE CISNEROS, called CARDINAL XIMENES, was born at Torrelaguna in New Castile in 1436. He was educated at Salamanca and at Rome. In 1492 he was appointed confessor to Queen Isabella, and as archbishop of Toledo in 1495, but was too modest to accept. About 1498 he founded the University of Alcalá de Henares. He directed the preparation of a Polygot Bible in 1502, called the Complutensian. On the death of Philip, in 1506, he was appointed regent and guardian of Queen Joanna, who was an imbecile. He made the citizens of towns form militia regiments, which, while it reduced the power of the nobles, promoted that of the crown. In 1507 he became cardinal, and in 1516 became, by the will of Ferdinand, regent of all Castile during the absence of King Charles. Cardinal Ximenes died Nov. 8, 1517.

XIMENES, DE QUESADA (GONZALO), a Spanish ex-

plorer, born in Granada about the year 1495. He began in 1532 to explore the region since called New Granada, and in 1538 became the founder of Santa Fe de Bogota. He died in 1546.

XIMENES, LEONARDO, a Sicilian astronomer and geometer, was born at Trapavi, in 1716, and became a Jesuit. He was appointed a professor of geography at Florence, and by his knowledge of hydraulics prevented much damage by the overflowing of the rivers. Ximenes wrote several works on hydraulics, and founded an observatory at Florence, where he died in 1785.

XIMENES, PEDRO, a theologian, born in Holland of Portuguese parents, in 1514, and died in 1595. He wrote in Latin a work called *Demonstration of the Catholic Truth*.

XIMENES, RODRIGO, a Spanish prelate and historian, who later became Archbishop of Toledo. He wrote a history of Spain. He died in 1274.

XIMENEZ, FRANCISCO, a Spanish missionary, born in Estremadura toward the latter part of the fifteenth century, and died in Mexico, July 31, 1537. After graduating in theology he entered the Franciscan order, in the convent of San Gabriel, in Estremadura. He came to Mexico in 1523, with other missionaries, under charge of Fray Martin de Valencia. He made himself familiar with the Mexican language, and was successful as a missionary among the natives.

XIMENO, VINCENTE, a Spanish biographer, was born at Valencia about 1700. He published a history of the kingdom of Valencia.

XUARES, GASPAR, a botanist and a member of the Jesuit order. He was born in Paraguay in 1731, and died at Rome in 1804.

XUARES, PEDRO, Indian chief, was born in Mexico



about the beginning of the seventeenth century. He was liberally educated and wrote a manuscript work in the Aztec language under the Spanish title of *Memorial en Lengua Mexicana Sobre Cosas Memorables*.

XUÁRES, RODERICK, a Spanish jurist, born at Salamanca and lived in the time of Ferdinand and Isabella.

XYLANDER, GULIELMUS, or WILLIAM, was born at Augsburg, Germany, in 1532. He was a man of

profound learning, and made numerous translations from the Latin and Greek. In 1558 he became professor of Greek at Heidelberg. He died in 1576.

XYLANDER, VON, JOSEPH KARL AUGUST, was born at Munich in 1794, and died in 1854. He was a prominent officer in the German army, and a writer on military subjects. He was the author of *Strategy and its Application*, and also of a *Manual of Tactics*.

## Y.

YALE, ELIHU, philanthropist, born near Boston, Mass., April 5, 1649; died in England, July 8, 1721. His father came to New Haven from England in 1638, but returned there in 1651, followed by his family. In 1678 Elihu went to Hindustan and acquired great wealth. Between 1714 and 1721 he sent to the incipient Yale College books and money to the value of \$4,000, and on the removal of the collegiate school from Saybrook to New Haven it was named "Yale," in his honor, the name being formally adopted in its charter of 1745.

YALE, LINUS, an inventor, was born in Salisbury, N. Y., April 4, 1821, and died in New York city, December 24, 1868. As a youth Linus showed some talent as a portrait painter, but a fondness for mechanics drew him into the field of invention. In 1850 he devised the famous Yale lock upon which he later improved. His first patent created a great revolution in locks and safes, and it was followed by others, the flat key being one of the most important. He also devised the double lock and made many other inventions.

YAMAGATA, COUNT, field-marshal of the Japanese army and one of Japan's most brilliant soldiers. He commanded the attacking forces at Ping Yang, September 16, 1894, where the Chinese were routed with a loss of 17,000 men and won other great victories.

YANCEY, WILLIAM LOWNDES, statesman, born in Ogeechee Shoals, Ga., August 10, 1814; died near Montgomery, Ala., July 28, 1863. He was educated at Williams, studied law and practiced in Abbeville, S. C. In 1836 he removed to Alabama, and in 1844 he was sent to congress to fill a vacancy, reelected in 1845 for a full term, but resigned to practice his profession. In 1860, when the Democratic convention was held in Charleston, S. C., he was a member, but withdrew in company with other uncompromising extremists, and made a tour through the North, East, and West, speaking in New York and Boston, and urging the rejection of the Republican candidate. In the Alabama convention, which met at Montgomery, January 7, 1861, he reported the ordinance of secession. He left New York city in March, as a Confederate commissioner, to seek for recognition in Europe, but was unsuccessful, and, returning in February, 1862, he was sent to the Confederate Senate.

YATES, ABRAHAM, was born in Albany, August 23, 1724, and died there June 30, 1796. He was an active patriot during the war, and from 1777 to 1790 was State senator of New York. He was receiver of Albany in 1778-79, and its mayor from 1790 to 1796.

YATES, EDMUND HODGSON, born in July, 1831, was for many years chief of the missing letter department in the English post office. He wrote several novels of merit and in conjunction with the late Mr. F. E. Smedley and the late Mr. R. B. Brough, he edited *Our Miscellany*. Mr. Yates, who also wrote dramas, and was the theatrical critic of the *Daily News* for six years, edited the *Temple Bar Magazine*, was the first editor of *Tinsley's Magazine*, and a constant contributor to *All the Year Round*. Mr. Yates retired

from the post office in order to devote himself exclusively to literature, and in May, 1873, he was appointed London representative of the New York *Herald*, which post he resigned in July, 1874, when he established *The World* in London. In 1884, Mr. Yates published two volumes of *Personal Reminiscences and Experiences*, and was the same year indicted for a libel on the Earl of Lonsdale, and was sentenced to four months' imprisonment. He died May 20, 1894.

YATES, PETER W., a member of the Continental congress, was born in Albany, N. Y. He was a lawyer and became well known in the courts of Albany, both before and after the Revolution. He was a member of the committee on correspondence in 1775, but resigned on account of the feeling betrayed by some of his colleagues at a letter he wrote ridiculing a public reception given to Gen. Philip Schuyler.

YATES, RICHARD, war governor of Illinois, was born in Warsaw, Ky., January 18, 1818, and died in St. Louis, Mo., November 27, 1873. He was thirteen years of age when his family moved to Illinois. He graduated at Illinois College, Jacksonville, studied law, and practiced in Springfield. Elected to the State legislature in 1842, he was sent to Congress in 1850, being the youngest member of that body. He was elected governor in 1860 and again in 1862. He was an outspoken opponent of slavery and was very active in raising volunteers. It was in Governor Yates' office that Ulysses S. Grant received his first distinct recognition as a soldier. Governor Yates was elected United States senator and served one term, from 1865 to 1871. He died in St. Louis while returning from a visit to Arkansas.

YATES, ROBERT, a noted jurist of the early colonial days, was born in Schenectady, N. Y., on March 17, 1738, and died in Albany, September 9, 1801. He studied law under William Livingston, and was admitted to the bar in 1760. He was a thorough patriot during the Revolutionary war, and wrote some stirring articles under the name of "The Rough Hewer." Judge Yates was a member of the committee that drafted the first constitution of the State of New York, and in the same year, 1776, he became judge of the Supreme Court and chief-justice in 1790. He was commissioned to treat with other States in regard to territory, and settled the claims of New York against the State of Vermont.

YEAMES, WILLIAM FREDERICK, R. A., was born in December 1835, at Taganrog, on the Sea of Azoff, South Russia. He received his first instruction in art from Mr. George Scharf, who taught him drawing and anatomy, and in 1852 left England, in order to advance his art education in Italy, studying at Florence. Subsequently he spent eighteen months in Rome, and at length, in 1858, he returned to England. In 1859 he exhibited, at the Royal Academy, a portrait and *The Staunch Friends*, a subject-picture of a jester and monkey. In 1861 he was represented there by works,

also in 1862, and thenceforward, up to the present time. He was elected a royal academician, June 19, 1878.

YELL, ARCHIBALD, lawyer, was born in Kentucky, in 1797, and was killed at the battle of Buena Vista, Mexico, February 23, 1847. He studied, and later practiced law at Fayetteville, Ark. He was elected to the twenty-fourth congress and served there until March 3, 1839. He became governor of Arkansas and held the office from 1840 to 1844. Once again he was elected to congress, but resigned in 1846 to join the army in Mexico. He entered the service as colonel of the 1st Arkansas volunteer cavalry, and while leading his men at Buena Vista was killed by a Mexican lancer.

YEO, J. BURNEY, M.D., was born at Stonehouse, Devonshire, and in 1858, became a student in King's College, London. In 1866 he was appointed resident medical tutor in King's College, which post he resigned in 1871 and began practice. He was elected fellow of the Royal College of Physicians (1876), honorary fellow and professor of Clinical Therapeutics in King's College, London (1885), physician to King's College Hospital. Doctor Yeo has contributed abundantly to medical literature, and has furnished numerous lectures, commentaries, etc., to the *Lancet*, *British Medical Journal*, etc.

YEWELL, GEORGE HENRY, artist, born in Havre de Grace, Md., January 20, 1830. He studied at the National Academy under Thomas Hicks, and in 1856 became the pupil of Thomas Couture, in Paris. Yewell has painted a great variety of pictures, but of late years has been engaged mostly on portraits. He was elected an associate of the National Academy in 1862.

YONGE, CHARLES DUKE, M.A., born November, 1812, was educated at Eton and at Oxford, where he graduated B.A. in 1835, taking a first class degree. He compiled *English and Greek Lexicon*, short parallel lives of Epaminondas, Gustavus Adolphus, Philip, and Frederick the Great, in imitation of Plutarch's method, and a number of historical, classical, and miscellaneous publications. He died Dec. 1, 1891.

YONGE, CHARLOTTE MARY, was born in 1823. She is the authoress of several works of fiction, in which the plot is made to enforce, in a plain and sober manner, the doctrines of what is called the High-Church school of opinion, most of which have gone through several editions, and have been reprinted in a cheap form. Miss Yonge has also published a compendium of universal history for young people, with other historical works, and works of fiction. Died Mar., 1901.

YOUMANS, EDWARD LIVINGSTON, scientist, born in Coeymans, N. Y., June 3, 1821; died in New York city, January 18, 1887. He passed his boyhood in Saratoga, where he received an ordinary education. Later he studied medicine and chemistry, and received from the University of Vermont the degree of M.D. From 1852 to 1860 he edited instruction books in various departments of natural science. In 1872 he established the *Popular Science Review*, a monthly published in New York city, of which he continued to be the editor and manager to the time of his death. His published volumes include *Alcohol and the Constitution of Man*, with other works of a scientific character.

YOUNG, BRIGHAM, for nearly forty years President of the "Church of Jesus Christ of Latter-Day Saints," better known as "Mormons," was born in Whittingham, Vt., June 1, 1801. His father was a farmer, who removed to New York State when the boy was three years old. Brigham had not the benefit of even a common school education, but at the age of sixteen was compelled to earn his living as

a sort of "Jack of all trades"—painter, glazier, and carpenter. In 1831 he became a convert to the Mormon doctrine, and a year later joined Joseph Smith at Kirtland, Ohio. He was at once made an elder, and did missionary work in Canada, and in February, 1835, became one of the "twelve apostles," and president of that body a year later. He was one of the founders of the Mormon tabernacle at Nauvoo, Ill., and in 1840 went to England as a missionary. There he met with considerable success. He was in New Hampshire when Joseph and Hyrum Smith were murdered by a mob, but immediately returned to Nauvoo and was chosen president of the church. Early in February, 1846, he led the Mormons from Nauvoo across the Mississippi; first into Nebraska, where a temporary settlement was made, and thence in 1848 to the shores of the Great Salt Lake. On March 12, 1849, the Mormons made him governor of "Deseret," and on February 3, 1851, he became governor of the Territory of Utah, under commission from President Fillmore. In August, 1852, he promulgated the doctrine of polygamous marriage.

The Mormons received many converts from Europe, and began to arrogate to themselves a position independent of the United States government. Young was superseded as governor by President Buchanan, and a military force under Albert Sidney Johnston was sent out to protect the Federal judiciary and officers. Under Young's rule the wilderness of the Salt Lake Valley was made to blossom as a rose; railroads and telegraphs were introduced and many improvements made. In 1871 Young was indicted for polygamy, but escaped punishment. He died on August 29, 1877, possessed of enormous wealth extorted from his dupes, and the nominal husband of some scores of women and putative father of an indefinite number of children.

YOUNG, CHARLES AUGUSTUS, Ph.D. LL.D., an American astronomer, born at Hanover, N. H., December 12, 1834. He was graduated at Dartmouth College in 1853, and became professor of mathematics in Western Reserve College, Hudson, Ohio, where he remained from 1857 to 1866. In 1877 he was chosen professor of astronomy at Princeton College. His principal work is *The Sun*.

YOUNG, GEORGE, born in 1819, and educated at Edinburgh, was called to the Scotch bar in 1840, appointed solicitor-general for Scotland in 1852, and retired in 1866. In April, 1865, on the retirement of Sir W. Dunbar, Bart., he was elected member in the Liberal interest for the borough of Wigton, and was again returned in 1865 and 1868. He was defeated at the general election of February, 1874, but in the same month he was, on Mr. Gladstone's recommendation, created a lord of session and one of the lords of justiciary in Scotland.

YOUNG, JOHN RUSSELL, journalist, was born in Downingtown, Chester county, Penn., November 20, 1841. He was educated in the public schools of Philadelphia and the New Orleans high school. He began his newspaper career as a copy boy on the *Philadelphia Press*, and when the Civil war began he was sent as correspondent to Virginia. In 1864 he was with Banks on his Red River expedition, and after the war he returned to Philadelphia and was given editorial charge of the *Press*. He made two unsuccessful attempts to start a paper, and in 1871 went to Europe as correspondent of the *New York Herald*. For the latter paper he went with President Grant around the world, and when he returned to New York took a position on the editorial staff. On March 15th he was appointed United States minister to China, and filled the post



until Cleveland's election, when he came back to his old place. He has published *Around the World with General Grant*. Died Jan. 17, 1899.

YOUNG, SAMUEL, born in Lenox, Mass., about 1780, and removed to the State of New York when a boy. He became active in politics, and was for many years a State senator. He acted with the Democrats, and was a leader of the Free-soilers, or Barnburners. Young died in Ballston, N. Y., in 1850.

YOUNG, SIR ALLEN, born in 1830, Arctic navigator, who volunteered and filled a responsible position on board Lady Franklin's little ship, the *Fox*, in McClintock's memorable voyage (1857-60), when the problem of the fate of Franklin and his companions was solved. As an officer of the royal naval reserve, his commission bears date from the first creation of the force. In 1875 he made in his yacht, the *Pandora*, an unsuccessful attempt to accomplish the Northwest Passage, and to throw some further light on the proceedings of the lost expedition under Franklin. Again, in 1876, he refitted the *Pandora* for a second attempt, with the same objects in view; but the admiralty, having been unexpectedly called upon to communicate with the depôts of the gov-

ernment expedition in Smith's Sound, Captain Young readily responded to an invitation to fulfill this important duty, which he did at no small risk, and in a manner which was deemed thoroughly satisfactory. In recognition of this service he received the honor of knighthood, March 12, 1877.

YOUNG, SIR JOHN, an English civil officer, born in 1807, and died October 6, 1876. In 1870 he was created Lord Lisgar. He has held a number of offices under the government, and, from 1868 to 1872, was governor-general of Canada.

YULE, SIR HENRY, was born at Inveresk, near Edinburgh, May, 1820. He entered East India Military College, Addiscombe, February, 1837, and passed for the Bengal engineers, December, 1838. He went to India, 1840, and was attached from 1843 for several years to the canal department, Northwest Provinces, afterward serving in the army and railway departments until 1855, when he was made under-secretary to the government of India. He retired in 1862 as lieutenant-colonel, with honorary rank of colonel. He was made a member of the council of India, 1875, and died December 30, 1889.

## Z.

ZALINSKI, EDMUND LOUIS GRAY, soldier, was born in Kurnick, Prussian Poland, December 13, 1849. Coming to the United States in 1853, he attended school at Seneca Falls, N. Y., and later at the high-school in Syracuse, N. Y., where he graduated in 1863. When only fifteen years of age he entered the Union army, first as volunteer aide-de-camp on the staff of Gen. Nelson A. Miles, and was later commissioned second lieutenant in the second New York heavy artillery for bravery at the battle of Hatcher's Run, Va. He remained on General Miles' staff until the surrender of Lee, and was mustered out of the service September, 1865, and was recommended for an appointment in the regular army, commissioned a second lieutenant in the 5th United States artillery, February 23, 1866, and by regular promotion became captain, December 9, 1887. He was on duty from 1872 to 1876 at the Massachusetts Institute of Technology, as professor of military science. Captain Zalinski's name is widely known in connection with the development of the torpedo gun, and by the invention of an electrical fuse. He has also invented other things now in practical use in the army.

ZANARDELLI, GIUSEPPE, an Italian statesman, was born in 1826, in Brescia. After the ministerial crisis of 1876 he became minister of public works in the first Depretis cabinet, which portfolio he resigned in November, 1877, in consequence of differences with Depretis, which made it impossible for him to sign, as minister of public works, the railway convention arranged by the latter. He was appointed to the Home Office in the Carli ministry in March, 1878.

ZEILIN, JACOB, officer of marines, was born in Philadelphia, Penn., July 16, 1806, and died in Washington, D.C., November 18, 1880. Entering the marine corps with the rank of second lieutenant, October 1, 1831, he was promoted to first lieutenant, September 12, 1831. He cruised in the *Columbus* and *Congress* during the Mexican war, and participated in the operations on the Pacific coast in defense of Monterey, in July, 1846. He was commissioned captain, September 14, 1847, and served at New York and in Norfolk, Va., in 1849-52. When the Civil war began he took command of the right company in the marine battalion in

coöperation with the army in 1861, and was at the battle of Bull Run. He was appointed colonel commandant of the marine corps, June 10, 1864, and assumed control at headquarters, Washington, D.C. He retired on account of old age, November 1, 1876.

ZELLER, EDUARD, German theological and philosophical writer, was born at Kleinbottwar, in Württemberg, January 22, 1814, and studied in Tübingen and Berlin. In 1847 he became professor of theology at Berne, in 1849 at Marburg, and in 1862 professor of philosophy at Heidelberg, and subsequently at Berlin, where he has since remained. Several sections of his *History of Greek Philosophy*, which is still the standard work on the subject, and widely used in the English universities, have been translated into English.

ZENGER, JOHN PETER, printer, born in Germany, about 1680; died in New York city in 1746. He arrived in America about 1700, and worked in the printing office of William Bradford, the elder. On November 5, 1733, he began to publish the *New York Weekly Journal*, and on the 17th of that month was arrested for publishing seditious libels. His friends, among whom were Rip Van Dam and James Alexander, employed Andrew Hamilton, of Philadelphia, for his defense, which stood for the question of liberty of the press. He was acquitted, and this episode has been, not unfitly, termed "the morning-star of that liberty which subsequently revolutionized America." After Zenger's death his widow and son continued to publish the *Journal* until 1752.

ZIMMERMANN, AGNES, was born at Cologne, July 5, 1847; was entered at nine years of age as a student at the Royal Academy of Music, where Cipriani Potter was her master at the piano, and Doctor Stegall taught her harmony. In 1860 she obtained the king's scholarship, and the same honor fell to her in 1862, and in 1864 she went to Germany, where she played at the Leipzig Gewandhaus concerts and before the court of Hanover, meeting with the most enthusiastic recognition of her brilliant talents and great executive power. Returning to England, she grew rapidly in public favor, and has, perhaps, no equal as an interpreter of the works of Sterndale Bennett. Miss Zimmermann's own compositions are well known to musicians,

and her editions of Beethoven's and Mozart's sonatas are standard works among students.

ZIMMERN, HELEN, was born in the free Hanse Town of Hamburg, March 25, 1846, but has lived in England since 1850, and is a naturalized British subject. She is the author of works of fiction and poetry.

ZOLA, ÉMILE, a French writer, born at Paris, April 2, 1840; passed his infancy in Provence with his father, the originator of the canal which bears his name at Aix. He then studied in the Lycée Saint-Louis at Paris, and obtained employment in the well-known publishing firm of Hachette & Co. He gave up that situation about 1865, in order to devote his attention exclusively to literature. He has been an industrious contributor to the newspaper press, and has written works of fiction which have created a great sensation, and passed through many editions. Died Sept. 25, 1902.

ZOLLICOFFER, FELIX KIRK, soldier, born in Maury county, Tenn., May 19, 1812; died near Mill Springs, Ky., January 19, 1862. Felix learned the printer's trade, and later ran a paper at Paris, Tenn. He removed to Columbia and took editorial charge of the *Observer*. He was a soldier during the Seminole war, but, returning, in 1837, resumed his labors on the same paper. He entered the Confederate service with the rank of brigadier-general, July 9, 1861, but his career was short lived. When the Federal army was about to enter East Tennessee, General Zollicoffer went by way of Cumberland Gap with 2,000 men to the point of threatened attack. He established his camp at Mill Spring. In the battle that ensued, General Zollicoffer having ordered an advance, rode forward with some of his staff officers to inspect the enemy's position, and, by mistake, passed beyond their lines. He endeavored to retrace his steps and was soon in front of the 4th Kentucky regiment, with whom he exchanged salutes, and rode off undetected, as he wore a rubber coat. One of his staff, however, fired a pistol shot toward the national line which drew a volley that killed the general and two other officers.

ZORRILLA, José, one of the principal poets of Spain, was born February 21, 1818, at Valladolid. He studied law at the University of Toledo, and for a time resided in Mexico. He first came into notice on February 15, 1837, through a poem read at the funeral of Larra. His principal work is *Don Juan Tenorio*, a fantastic religious drama, 1866. A collection of his poems was published in 1864. He died Jan. 23, 1893.

ZORRILLA, MANUEL RUIZ, was born in Castile, in 1834. He was a Madrid barrister, and a deputy in the Cortes, when the share he took in the June revolt, 1866, earned him a condemnation, and he was compelled to seek refuge beyond the French frontier. In the provisional government of Admiral Topete, after the revolution of 1868, he was minister of public works, law minister to Marshal Serrano in 1869, and as president of the parliament, advocated the duke of Aosta's candidature to the throne. On the accession of the duke, under the title of Amadeo I., Zorrilla received, almost alone among non-royal personages, the famous order of the Annunziata, which ranks with the Golden Fleece and the Garter. When Amadeo abdicated, Zorrilla went to Portugal with him. He went back to Spain, but having allied himself openly with the republicans, his position grew intolerable under King Alfonso, and he left the country. He lives in England, France, or Switzerland, according to the needs of the moment, and his intrigues are a perpetual source of anxiety to every Spanish government in turn. Died June, 1895.

ZUKERTORT, DR. J. H., a distinguished chess-player, was born in Riga in 1842. In 1878 he gained the first prize at the chess tournament at Paris. Later, he made a tour of the continent of Europe, visiting Leipsic, Dresden, Cologne, Berlin, and other chess centers. In 1883 he won the great London tournament but failed in the championship match with Steinitz, in America, in 1886. Doctor Zukertort wrote several works in German; he edited the technical department in the *Westminster Monthly*, and for seven years was editor of the *Chess Monthly*. He died June 20, 1888.

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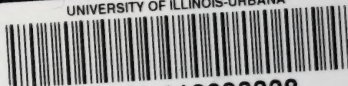
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